

**The lived experiences of women waste recyclers who use
bricolage as a mechanism to create value**

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ABSTRACT

There is insufficient knowledge around the lived experiences of women waste recyclers who use bricolage as a mechanism to create value. Nor do we have an appreciation for the significance that women waste recyclers construct around their roles. Despite the harsh environments they work in and hazardous health risks faced daily, they pursue waste recycling in the informal sector, which benefits society. Yet little is known about these “invisible environmentalists “.

Women waste recyclers contribute to filling an institutional void in the formal waste management system. Working with whatever resources they have to hand, they successfully collect, sort and recycle valuable waste materials, which are then redistributed into the consumer supply chain. How do they do with in a constrained environment with no formalised support? Yet the impact they make to the environment is invaluable.

This research looks to understand the causal factors as to why women waste recyclers, who are creatively entrepreneurial at the BoP, pursue waste recycling. It seeks to understand the push and pull factors that move them into recycling and what keeps them in it. The research also seeks to understand how entrepreneurs at the BoP are successful, despite constrained environments, which is particularly interesting for emerging economies.

Keywords: Base of pyramid, informal waste management, women waste recyclers, lived experiences, bricolage, tangible resources, intangible resources

DECLARATION

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree of examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

Name : Mrs Ferrol Oulton

Date : 31st March 2023

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Abbreviation Table

ARO	African Reclaimers Organisation
BoP	Base of Pyramid / Bottom of Pyramid
CBD	Central Business District
ECD	Early Childhood Development
MRF	Material Recycling Facility
OHASA	Occupational Health and Safety Act
RBV	Resource-based view
SAWPA	South African Waste Pickers Association

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CHAPTER ONE – DEFINING THE PROBLEM AND PURPOSE

1.1. Introduction

Recognising a gap in the formalised waste management service, women waste recyclers are among those in the informal sector who have applied critical agency by recovering and diverting recyclable waste from overburdened landfills (Godfrey et al., 2017). This research aims to explore the lived experiences of women waste recyclers as they apply the mechanism of bricolage, using resources they have available at hand despite their constrained environment, to create value for themselves (Namatovu, 2018). Studying the lived experiences narrated by women waste recyclers allows the researcher to extract the meaning and interpretation the individuals attach to their entrepreneurial stories at the bottom of the economic scale (Sarkar, 2018), thereby not merely being descriptive of their accounts but capturing the significance each experience holds (Frechette et al., 2020).

The research aims to advance the knowledge around the causal factors that push or pull women waste recyclers to participate in the bricolage of waste by understanding the significance they construct around their experiences (Schenck et al., 2016). These are women waste recyclers, who have refused to be constrained by poor infrastructure and limited access to financial and skills resources (Aparicio et al., 2022), but have extricated the dormant potential at the Bottom of the Pyramid (BoP). Applying the mechanism of bricolage to discarded waste resources from households and organisations creates social value through an informal recycling process in an otherwise impaired formal waste management system (Godfrey & Strydom, W; Phukubye, 2016).

The resource-based view (RBV) provides the blueprint for this study's insight into the value extracted from tangible and intangible resources available in constrained environments. Tangible assets refer to the financial and physical resources available whilst intangible resources refer to the knowledge, culture, and social networks accessible (Sunduramurthy et al., 2016a).

1.2. Purpose

Entrepreneurship is fundamental in mobilising previously disadvantaged and excluded

members of society (Rosca, E., Agarwal, N., Brem, A., 2020). In this instance, we review the lives of women waste recyclers from the informal waste management sector who would otherwise remain unemployed and on the fringes of economic society if it were not for their entrepreneurial efforts. Rosca et al., (2020) highlight the dormant economic potential at the bottom of the pyramid (BoP) of indigent populations in emerging markets, signalling there is much to be learned in scarce-resource environments. BoP refers to segments of the population who have low incomes, are potentially illiterate, and are challenged with more restrictive resource constraints (Zhu et al., 2019). Consequently, entrepreneurs at the BoP are forced to be more ingenious (Rosca et al., 2020a), with limited access to resources to generate new ideas, routines, products, and services.

This is indicative of women waste recyclers in South Africa operating in the informal waste management system who have successfully tapped into discarded waste from either households or organisations and repurposed the collected waste as recyclables through the application of bricolage. Bricolage is a fundamental outcome of creative entrepreneurial practices, whereby individuals or organisations are forced to be innovative in mobilising the limited resources they have access to, to achieve a predetermined result (Simba et al., 2021).

This research explores the lived experiences of entrepreneurial women waste recyclers as they apply the mechanism of bricolage to create value for themselves, with the aim of discovering the causal factors behind their agency in unlocking the otherwise latent potential synonymous with scarce resources at the bottom of the pyramid (BoP). This study will not engage with all waste recyclers and focus on women, for purposes of giving voice to women entrepreneurs at the BoP.

1.3. Context

1.3.1. Understanding the lived experiences of women waste recyclers

Ojong, Simon & Dana (2021) postulate that Africa, as an emerging economy, has a high rate of entrepreneurship with women entrepreneurs accounting for the majority of that sample. Aparicio et al., (2022) concluded that it is worth examining how women entrepreneurs at the base of the pyramid (BoP) have organised themselves, regardless of the constrained environment in emerging markets. Constrained environments refer to limited available resources (Mozumdar et al., 2020). Unlike resource-rich environments, resource scarcity is often associated with emerging economies (Witell et al., 2017).

Thus, there is a call for in-depth data on women waste recyclers' lives and working experiences to acknowledge the significance they attach to their work and working environments (Mlotshwa et al., 2022). C. J. Schenck et al., (n.d.) believe it is necessary to gain detailed insight into the waste recyclers' perceptions and experiences. Seeking clarity on why they would opt for waste recycling, the so-called pull factors towards recycling, despite the host of challenges there is to overcome. They concluded that it would be an opportunity to unearth the nuanced motivational factors and perceptions in waste recycling, declaring it would make for fascinating research (Schenck et al., 2016). The research is therefore set in the context of women waste recyclers in the emerging market to heed a calling from Schenck & Blaaw, (2011). Recent research has highlighted the need to authenticate the stories of women individuals in emerging economies, who, despite having limited access to resources, have been creatively entrepreneurial by applying the mechanism of bricolage to extract value and generate social value (Sarkar, 2018).

There has, however, been scarce empirical investigations into the lived experiences of women waste recyclers in South Africa who apply bricolage at the BoP to create value using whatever obtainable tangible and intangible resources available to them (Mlotshwa et al., 2022). Central to this research is evaluating the deployment of the specific resource combinations that allow women waste recyclers to succeed. Equally crucial to the significance of women waste recyclers' roles, is the entrepreneurial application of bricolage of available resources over and above the apparent waste materials. There is a lack of qualitative enquiry into the valuable networks and pioneering processes gained through the lived experience of these entrepreneurs at the BoP (Gutberlet & Carengo, 2020). Furthermore, research distinguishing the factors that result in the effectiveness of women's entrepreneurial efforts in constrained environments is rare (Mozumdar et al., 2020).

This research primarily aims to understand the lived experiences of women waste-recyclers at the BoP, who are entrepreneurial in utilising bricolage as a mechanism to recycle discarded waste resources from households and organisations to create value for themselves (Molecke & Pinkse, 2017). Bricolage combines resources at hand, in a way which leads to new opportunities. Entrepreneurship at the BoP, also known as the bottom of the economic scale (Sarkar, 2018), is of particular significance in emerging economies, given the resource-constrained environments where there is a need to understand better the causal factors that drive entrepreneurs to bricolage (Simba et al., 2021).

1.3.2. Resource-based view (RBV) – tangible and intangible resources

By collecting waste either on the streets or landfills and then representing it for recycling to buy-back centres, women waste recyclers produce value for themselves and subsequently add societal value by aiding the final discharge of waste management (du Toit et al., 2017). However, exactly how these entrepreneurs at the BoP overcome critical resource scarcity within challenging conditions to create value remains unclear. Waste recyclers have reconceptualised the value of waste that is discharged at landfills, and through their ingenuity, they have altered the perception of landfills from a commodity cemetery into a resource mine (Samson, 2015).

Through the lens of the resource-based view, the research will advance into unearthing what tangible and intangible resources exist for waste recyclers to succeed and how they are combined and assembled to be opportunistic and to solve the problem within the waste management sector (Vanevenhoven et al., 2011). Tangible resources refer to financial assets (e.g., capital) and physical resources (e.g., equipment, facilities). Intangible resources encompass reputation, knowledge, and information sharing (Dubey et al., 2019) and by extension also refers to the culture and networks (Sunduramurthy et al., 2016b). Donnellan & Rutledge (2019) broaden the criteria for intangible resources to include brand name, reputation, specialised knowledge, process, marketing expertise, and an industries internal and external contacts.

Within the scope of RBV, an individual or organisation's capabilities rely on the combination of tangible and intangible resources (Dubey et al., 2019). The research aims to identify the resources essential to entrepreneurship at the BoP, which relies purely on the bare minimum of what is available at hand, and to also be aware of the resources required to improve waste recyclers' efficiency which are not available to them due to the constrained environment associated with operating at the BoP in emerging economies. For this reason, the upcoming chapters will explore how waste recyclers apply this bundling of resources to create value for themselves, inadvertently meeting the vital societal need for recycling.

1.3.3. Recycling – a growing concern

Du Toit, Wagner, and Fletcher (2017) contend that formalised public waste management organisation's efforts in South Africa are nonprogressive in recycling trends due to

structural, convenience, and visibility constraints. Rapid urbanisation and increasing resource usage have generated an increase in plastic pollution. The negative impact of plastic pollution on the environment has received considerable critical attention and is spotlighted in The United Nations Sustainable Development Goals under environmental protection (Iqbal et al., 2021).

However, it is evident that current formal waste management system methods are not recycling effectively, with South Africa only recycling 10% of all its waste (du Toit et al., 2017). Despite the increase in waste generation due to urbanisation, which poses a challenge to sustainability (Godfrey et al., 2017b), only 7.2% of South Africans recycle their waste as of 2015 (Strydom, 2018), with the public citing inconvenient systems and poor service as the reason for slow adoption (Strydom, 2018).

This institutional void has created an opportunity for informal waste recyclers who have recognised the need for recycling and are creatively entrepreneurial in extracting value from household and organisational waste (Schenck & Blaauw, 2011). By applying bricolage, they have raised themselves above an otherwise poverty-stricken circumstance in their resource-scarce environments.

1.4. Problem statement

The research aims to add to the limited pool of knowledge around the lived experiences of women waste recyclers at the BoP in an emerging economy, who apply bricolage as a mechanism to create value for themselves. This is done, firstly, by understanding the significance women waste-recyclers attach to their lived experiences and thereafter, by pursuing an understanding of the application of bricolage to create value for themselves. This is achieved by interrogating which accessible tangible and intangible resources are capitalised on in a constrained environment - such as the informal waste management system.

The informal waste management sector accounts for many undocumented individuals, co-operatives, and informal organisations who undertake the burden of collecting, sorting, and recycling discarded waste (Tsakona et al., 2022). The recovery rate from the informal sector was estimated at 82.2% in 2014, which fundamentally reduces waste in landfills and dumpsites (Godfrey et al., 2017b). Godfrey et al., (2017b) consider the benefits of informal waste recycling by the number of jobs generated that prompt a range of economic benefits in both the informal and formal sectors. This is in congruence with the empowering potential

of female entrepreneurship, promoting independence, allowing personal care, and meeting their families' financial requirements, with an overarching achievement of reducing poverty and improving household welfare (Ojong et al., 2021).

Still, a gap exists in recognising how women entrepreneurs at the BoP overcome resource scarcity to meet the needs of their livelihoods (Sarkar, 2018). This gap affirms the critical need to understand the significance constructed around the lived experiences of women waste-recyclers and establish their application of bricolage and additionally, to also understand the causal factors or the push and pull factors towards recycling in the informal sector (Schenck et al., 2016) as they entrepreneurially work with whatever resources are available to create value for themselves (Aparicio et al., 2022).

This qualitative study will be exploratory in nature for the researcher to obtain new insights and assess the topics discussed above (Saunders & Lewis, 2018). Adopting an interpretive philosophy, the researcher will set out to understand the women waste recycler's lived experiences in their natural environment (Saunders & Lewis, 2018). Since the research aims to discuss the lived experiences of the women waste recyclers who may elicit their narrative as they discuss the significance attached to their stories, interpretivism is a suitable paradigm aspiring to gain an understanding of the individual women waste recyclers, viewpoints, and the importance they attached to their roles (Tomaszewski et al., 2020)

1.5. Relevance: Scope & Significance

1.5.1. Contribution to theoretical knowledge

In 1998, 200 women reclaimers joined the Self Employed Women's Union (SEWU) in Durban. These were women who felt their interests were not being heard (Samson, 2010). This number has grown substantially. C. J. Schenck et al., (2016) completed a study of 410 individuals working on landfills, half of which were women waste recyclers. It was found that women waste recyclers are growing in number, in spite of which, Coelho et al.,(2016) posits that within the literature on recycling, there is an insufficient amount of study into the living and working environments experienced by women waste recyclers. For this reason, the research will be limited to women waste recyclers.

With the above factors in mind, the call to authenticate the stories of women waste recyclers is recognisable. Studying the lived experiences narrated by women waste recyclers allows

the researcher to extract the significance they attach to their entrepreneurial stories at the BoP (Schenck et al., 2019). In so doing, the researcher hopes to collaborate with the growing demand for an enquiry into the lived experience of women waste recyclers (Mlotshwa et al., 2022). Sarkar (2018) views them as innovative entrepreneurs at the BoP, who function in the informal sector despite the restricted access to resources. Furthermore, the researcher plans to advance the understanding of what tangible and intangible resources exist for women waste recyclers to succeed, through their application of bricolage at the BoP. Current research contends that by enhancing our understanding of the socio-economic context and learning more about the users' skills who face harsh living conditions, we can further the literature on entrepreneurial practices at the BOP that promote growth and sustainability of ventures in emerging markets (Sarkar, 2018).

1.5.2. Contribution to business need

A considerable amount of literature has been published on organisations attributing their competitive advantage to the assimilation of resources to create and leverage capabilities to generate valuable outputs (Yu & Wang, 2021). The need to encourage entrepreneurship within the informal sector couldn't be greater in emerging economies with constrained resources and burgeoning unqualified population. Onwuegbuzie & Mafimisebi (2021) postulate that there is increasing interest in base of pyramid markets which with minimal resources articulate solutions for contemporary societal problems. The informal waste sector employs approximately 60 000 to 90 000 people who earn a livelihood through waste recycling – for the most part many of whom have not had formal training. This economic opportunity brings with it much needed social and environmental benefits for both the formal and informal sector (Godfrey, 2015).

Evidence presented through this research may point out how individuals in constrained economies can employ minimal resources to create value for themselves. The importance of which is being able to satisfy a demand with limited available resource to achieve a competitive advantage (Zhu et al., 2019). In terms of remaining sustainable, Samson, (2015) stipulates by building viable cooperatives or micro enterprises, within the informal sector, waste recyclers improve their trading power and position in the informal sector. Furthermore, cooperatives and micro enterprises, create a more formalised organisation for the informal sector and encourage a sustainable advantage, through its shared value and improved earning potential, thus, moving individuals from working for necessity, to working to earn a profit (Garcia-Lorenzo et al., 2018).

1.6. Delimitations

This study will not engage with all waste recyclers. The research is set out to narrate the lived experiences of women entrepreneurs at the BoP, as this was identified as an area in literature that needed to be addressed.

Molecke & Pinkse, (2017) provide a synopsis of the bricolage lens which refers to internal and external bricolage. However, the researcher has selected the resource-based view framework, which refers to tangible and intangible resources (Dubey et al., 2019).

The older literature makes use of the waste picker more frequently. The term waste picker is used interchangeably with waste recycler, waste reclaimer and reclaimer throughout the literature and refers to individuals that collect, sort, and sell waste materials to buyback centres (Gutberlet & Carezzo, 2020). The recyclable materials are then fed back into the consumer economy. More recent literature by Godfrey (2021) refers to waste reclaimers. (Samson, 2015b) refers to reclaimers, in an effort to support the reconceptualisation of their role as having a positive societal and environmental impact and inferring greater dignity and respect to the plight of the reclaimers, than is associated with the term waste pickers. For the purposes of this study, the researcher will utilise waste recyclers, which is in keeping with new literature.

1.7. Summary of Chapter 1

Previous studies have reported a need for in-depth data on the lives and working experiences of women waste recyclers, to authenticate the stories of these creatively entrepreneurial women at the BoP (Mlotshwa et al., 2022). The researcher sets out to ascertain the nuanced motivational factors and perceptions in the bricolage of waste recycling, to appreciate why women from the informal sector would choose waste recycling with its host of challenges and risks, as a means of earning an income. By investigating the lived experiences narrated by women waste recyclers, the researcher hopes to extract the significance they attach to their entrepreneurial stories at the BoP (Schenck et al., 2019).

CHAPTER TWO: LITERATURE REVIEW

2. Introduction

Chapter one presented the reader with the problem statement, to capture the lived experiences of women waste recyclers who use bricolage to create value for themselves. Chapter two establishes the basis for the theory. This section outlines the recent applicable theory and how it links to the research problem mentioned above. Chapter two will draw on an extensive list of existing publications to provide adequate coverage of constructs and links between the literature presented. It will critically analyse the selected articles to justify the research questions put forward by the researcher and its objective.

2.1 Understanding the lived experiences of women waste recyclers

2.1.1. The need to explore the experiences of women waste recyclers

Studies have shown female entrepreneurship as an enabler in unlocking empowering potential (Crittenden et al., 2019). The financial compensation alone allows for a sense of independence as women can take care of their own needs and their families (Ojong et al., 2021). Particularly concerning for emerging markets is a women's lack of self-confidence in this sector, which transforms into a lack of entrepreneurial drive. Self-efficacy is a critical building block in empowerment and according to Crittenden et al., (2019), is the meeting point of a women's recognition of her ability, self-interests, and self-belief in her decision-making ability. Women waste pickers perform recycling services at zero cost to municipalities but often struggle for recognition as their lives are imbued with social, spatial, economic, and political inequalities due to their low socioeconomic status and affiliation with waste (Wittmer, 2021).

There is an expanse of literature on the relevance of female entrepreneurship for economic growth, poverty alleviation and empowerment. However, the gap in appreciation of women entrepreneurs at the BoP, where the waste recyclers contract, is lacking in literature (Nambiar et al., 2020). A study by Rosca et al., (2020) urged future research to understand the decision-making involved and how processes are pursued at the BoP in uncertain times. Furthermore, gaining a rich understanding focussed on the perceptions and priorities of women waste recyclers will increase our appreciation of the significance waste recycling holds to them (Mlotshwa et al., 2022).

There are a host of challenges that exist in the informal sector of waste management, which recyclers need to overcome. These include a lack of pre-existing waste management skills, unsafe working environments, being targets for crime, and long travelling distances which entail getting to working sites or landfills (C. J. Schenck et al., n.d.). Over and above this, Rosca et al., (2020) singled out a list of constraints specific to women waste recyclers which they would have to counteract as they juggle multiple roles between work, the health of family and self. In addition, women waste recyclers still need to overcome biases present in general societal beliefs, which can affect the adoption of entrepreneurship by women, notwithstanding quashing low self-esteem that might stem from a low socio-economic standing (Rosca et al., 2020). There are further challenges for women waste recyclers involving increased risk working alone on city streets, and the additional physical strain of carting a heavy loaded trolley. These factors could force women waste recyclers to find a safer and quieter road, safer residential or business sites, or to work on the landfills which are presumed to be safer. These factors contributed to limiting the earning potential of women waste recyclers (Mokobane, 2016).

There is a call for in-depth data on women waste recyclers' lives and working experiences, to acknowledge the significance women waste recyclers attach to their work and working environments (Mlotshwa et al., 2022). C. J. Schenck et al., (n.d., believe it necessary to gain detailed insight into the waste recyclers own perceptions and experiences, seeking clarity on why they would opt for waste recycling, and the pull factors towards recycling despite the host of challenges needing to be contended with daily. They concluded that it would be an opportunity to unearth the nuanced motivational factors and perceptions in waste recycling, declaring it would make for fascinating research (C. J. Schenck et al., 2016), thereby being able to address a requirement to have sector-specific gender-disaggregated data for policies and programmes that are aligned with the conditions women waste recyclers work under and their needs (Tsakona et al., 2022).

The value created through informal waste recycling meets the fundamental need of creating an income stream, however it offers a host of further economic benefits. This value or need that Sarkar (2018) refers to, posed the question of the particular need for women to pursue waste recycling. Are the waste recyclers pursuing bricolage of waste purely to meet a societal need of bridging the gap in recycling or for a fundamental personal need, or both? The significance recycling holds to women waste recyclers, needs to be ascertained. Crittenden et al., (2019b) articulated the concept of self-efficacy and its importance in motivating entrepreneurs at the BoP in SA. They referred to self-efficacy as a self-belief which allows an individual to employ the necessary tools that promote their self-interests

and feel entitled to own their decisions, allowing for a positive inner transformation. C. J. Schenck et al., (2016) supported this view by recognising that the independence gained, and self-sufficiency amongst waste recyclers is seldom appreciated when one sees waste pickers salvage through bins.

A previous study by R. Schenck & Blaauw, (2011) surveyed both landfill recyclers and street recyclers, and both offered comments that insinuated there may have been more pull factors to joining the informal waste recyclers. The study concluded that delving into the motivations and perceptions of the informal waste recyclers will make a very enthralling understanding.

2.1.2. Setting the scene: Socio-economic environment

Like other emerging economies, South Africa presents with challenging socio-economic hardships. This has been aggravated by the rise in urbanisation, which adversely reduces employment opportunities for semi-skilled and unskilled workers (Ajsw ; Ramolelle & Xweso, 2022). With few to no employment options and no professional qualifications, unemployed communities might turn to waste recycling as the only income option. This is considered a push factor, into recycling (C. J. Schenck et al., 2016). Marelllo & Helwege, (n.d.) postulated that the appeal to participate in waste management in the informal sector could stem from low barriers to entry in the recycling of waste, since there is no shortage of waste, there are profit margins, and waste materials that are easily accessible, either on the street or in landfills (Tsakona et al., 2022).

Furthermore, waste recycling is unregulated in the informal sector and requires no formal qualification (Schenck & Blaauw, 2011a). However, this should not serve to undermine the labour intensity of working on a landfill or pushing a trolley, nor the aptitude and abilities required to transact and negotiate at the buyback centres in order to be an effective waste recycler. C. J. Schenck et al., (2016) estimated approximately 15 million waste recyclers are operating in developing countries. Unfortunately, it is difficult to record the actual numbers of either landfill or street recyclers in an unregistered informal sector. In 2019, South Africa had an estimated 60 000 – 90 000 waste recyclers, a number which has undoubtedly grown since (Wilson et al., n.d.).

Due to rapid urbanisation, there is a spike in the generation of waste which existing formal waste management systems are not recycling effectively, with South Africa only recycling 10% of all its waste (du Toit et al., 2017). Recognising a vacancy in a heavily strained formalised

waste management service, women waste recyclers are among the informal sector who have applied critical agency and through their own volition extract the dormant potential at the base of the pyramid (BoP) through their recycling efforts (Godfrey et al., 2017). Alvarez et al., (2016) recognised the act of identifying an institutional void in the market and exploiting it as an opportunity to create a business venture, as entrepreneurial behaviour.

Whilst this may be, a recent study by Rubin et al., (2020), which investigated infrastructures of urban inequality, postulated that the need to have waste recyclers is established on the back of inequality in South Africa, with its roots stemming from colonial and apartheid divisions between workers and wealth. There is a gaping dissonance between the wealthy, who have an expectation that their waste is for others to separate and sort through, and the workers who see the value of these materials and immerse themselves through the waste of wealthy suburb bins to collect the high-ticket items.

Through their efforts in recycling, the waste recyclers are contributors in reducing greenhouse gas emissions and pollution, whilst creating an overall clean environment, however, they do not receive recognition for this (Ajsw; Ramolelle & Xweso, 2022). The waste recycling community are viewed as invisible environmentalists, despite their positive contribution in recycling waste. However, studies have noted that women waste recyclers have been persecuted regarding their waste materials being stored in public sight, which is difficult to bypass when there are not sufficient storage facilities that are accessible. This highlights the nuance of being visible as well as invisible (Wittmer, 2021).

Samson, (2015a) postulated that the reframing of landfills from centres of waste to venues holding value could change the attitudes the public associate with informal waste recycling roles. Instead of a landfill being a commodity cemetery with no value, it could rather be reconceptualised as a resource mine, where waste materials are viewed for their tradeable value.

Waste recycling in the informal sector has attracted an assortment of skilled, semi-skilled and qualified persons as well as those that are not qualified, contrary to the general view that the waste recyclers are exclusively a group of unqualified, unskilled workers (Samson, 2020). Another misconception to clarify in the literature, is the non-uniformity in the title waste recyclers. Previous older readings frame the waste recyclers as waste-pickers. Samson (2015b), noted that recyclers were referred to as reclaimers dating as far back to 2009, when The Head of the Landfill Operations insisted on referring to the waste recyclers with respect. He reiterated that the recyclers' value cannot be diminished simply

because they are working with waste - they are trained people participating in an honest hard day's work (Samson, 2015a).

2.1.3. Life at the base of the pyramid (BoP)

BoP, sometimes called the bottom of the economic scale (Sarkar, 2018), refers to segments of the population with low incomes who are illiterate and face more challenges due to resource scarcity than in resource-rich economies (Zhu et al., 2019). However, Sarkar (2018) proposed that the BoP also comprises resilient, talented entrepreneurs who venture to generate new ideas, routines, products, and services due to resource scarcity. This results in working solutions that might address pressing societal problems whilst simultaneously improving the conditions of those at the BoP.

Although the public appear to have little regard for the waste recyclers, preferring them to not work in their residential suburbs (Rubin et al., 2020), the public cannot dismiss the growing number of waste recyclers on the streets. Observing their makeshift trolleys and apparent lack of essential safety equipment, it is evident that their health is compromised in sorting through decomposing organic waste and other chemical or medical hazardous materials. Gutberlet & Carenzo, (2020a) conferred that unsanitary working conditions are a worldwide phenomenon for all waste recyclers. Moreover, commuting on the streets or between landfill and buy-back centres comes with grave daily risks (Coelho et al., 2016). In addition to having to contend with the above environmental factors, there is a weighted juggle which befalls women waste recyclers who have the added responsibilities of caring for their children, unwell family members, and household demands, all which disproportionately impact the entrepreneurial potential of women waste recyclers (Ogando et al., 2017a). It is not an uncommon phenomenon in Uganda for women to have to pursue alternatives in earning an income for their household to support a younger sibling or ill parent (Ojong et al., 2021). A fairly unresearched phenomenon is "black tax" which is a conscious sacrifice of one's own goals made by the individual and usually the eldest, for the sake of shared communal value (Lindiwe, 2017).

The informal recycling community functions at a level that offers no formal sector protection, despite the gaping institutional void they fill by reducing the strain on limited landfill space and by recovering recyclable materials, thereby addressing a global concern in the circular economy (Strydom, 2018). Regardless of waste recyclers' contribution, the community of waste recyclers are expected to cover all of their expenses, such as the cost of hiring a truck to get their materials to buy-back centres, providing for their own PPE – which personal

budgets seldom allow for - and they have to cater for their own healthcare (Mlotshwa et al., 2022), with no government-funded safety net irrespective of the assistance the informal sector provides (C. J. Schenck et al., n.d.). Nor are they entitled to any key labour legislation such as Occupational Health and Safety (OHASA) (Koen & Fourie, 2022). According to Samson (2015a), in 2009 the Head of Landfill Operations, whilst in support of the reclaimers, felt that allowing them to work on the landfills for free, was sufficiently generous. However, he was unwilling to provide the reclaimers with gloves, overalls, and safety shoes, primarily because they are not city council employees. As a result, the waste recyclers were left to fend for themselves on sites which are deplorable and inadequately serviced, with no ablution facilities separate for males and females, or places to change safely. Bearing in mind, in some cases, the landfills have up to 450 workers, both men and women, at a time (Samson, 2015a). Consequently, entrepreneurs at the BoP are forced to be more experimental (Rosca et al., 2020) with the limited resources they have at hand, to generate new ideas, routines, products, and services. But how exactly do waste recyclers coordinate resources at BoP despite the austere environments they contract in? The research continues the literature review to find an answer to this.

2.2. Recycling

Du Toit, Wagner and Fletcher (2017) contend that formalised public waste management organisations' efforts in South Africa are nonprogressive in recycling trends due to structural barriers, a lack of convenience, and visibility constraints. The practice of reuse, recycle and recovery is being promoted. In the drive towards a circular economy, this allows for resources to be kept in circulation for longer, thereby reducing the production of more plastics, with the redirection of recyclables away from landfills is a worldwide focus (Strydom, 2018).

In a survey by (Strydom, 2018) to investigate the low adoption of waste recycling by households, those interviewed felt that recycling facilities were inconvenient and insufficient. A lack lustre attitude to recycling is prolific where more than a fourth of the sample stated they had no time to recycle and had no knowledge of how to separate at source, while a percentage of the sample also declared it's not their responsibility to recycle their goods. This increases the burden on the informal sector to reduce waste in landfills, dumpsites, open burning sites in a drive to free radical plastics in the environment (Tsakona et al., 2022).

2.3. Bricolage

Bricolage is a mechanism by which informal waste pickers opportunistically use existing limited resources to create value (Witell et al., 2017). Waste-pickers intercept waste disposed by households and organisations and before it is discharged at landfills and repurpose that waste as recyclable matter at buy back centres to receive financial compensation, despite waste picking being an unregulated collection of post-consumer waste streams (Tsakona et al., 2022). Having this informal system of waste recyclers, assists an ineffective public waste management system in its final discharge of waste (Godfrey & Strydom, W; Phukubye, 2016). Freeing up the constrain on existing landfills is estimated to have saved near ZAR 748.8 million in 2014 (Mlotshwa et al., 2022).

The application of bricolage at the base of the pyramid (BoP) has grown in significance in light of the societal value created by entrepreneurs who, despite functioning in constrained resource environments, can be entrepreneurial by extracting value despite limited resources at hand (Onwuegbuzie & Mafimisebi, 2021). Bricolage further refers to the application of resources at hand and how these resources are coordinated to achieve an outcome or address problems (Witell et al., 2017). At the BoP, waste materials represent the resources at hand, as they are readily sourced at landfills or in street bins. The value is its tradable value and effectively waste resource provides a better livelihood for the waste recyclers (C. J. Schenck et al., 2016). This application of bricolage creates an opportunity that would otherwise lie dormant in impoverished populations at the BoP (Namatovu, 2018). Bricolage is a fundamental outcome of creative entrepreneurial practises, where individuals or organisations are forced to be creative in mobilising limited resources, they have access to (Simba et al., 2021).

The value of bricolage can be either social or economic and does not need to be limited to financial compensation but could provide opportunities for socio-economic advancement (C. J. Schenck et al., 2016). Maximising the recovery of resources inevitably means reducing reliance on declining resources (C. J. Schenck et al., 2016). As much as the benefits of bricolage are made clear in mobilising resources to achieve outcomes (Schaeffer, 2017), Yu & Wang (2021) stated that it is important to recognise how micro enterprises effectively overcome resource constraints and adapt to challenging dynamics – as the literature around resource orchestration they feel is limited in understanding how they are sustainable in resource constrained environments.

In this study, we have contacted embedded local participants in social entrepreneurs,

namely waste recyclers, who utilise bricolage to extract value from tangible resources (in this instance, waste) and intangible resources (namely a network of entrepreneurs). This is similar to Yu & Wang 's (2021) comprehension that bricolage is a variety of capabilities concerned with improvisation and making do with what resources are accessible. Critically, the social value created is an externality to the primary motivation of waste pickers, which appears to be financial compensation at face value. Greater understanding and research in this will contribute to future policy interventions and reward systems for more effective waste management systems.

The challenge for waste recyclers as social entrepreneurs is that they must advocate and self-promote the value they add through their efforts of bricolage of waste and confront societal stereotypes and misunderstandings about their valued purpose at the BoP (Sunduramurthy et al., 2016). However, Yu & Wang (2021) postulated that existing studies may have cultural biases and may lack cultural sensitivity in emerging markets.

2.4. RBV Lens

The resource-based view (RBV) argues that resources are valuable "when they enable a firm to conceive of or implement strategies that improve its efficiency or effectiveness" (Barney, 1991, p. 106). From the resource-based view, an individual's or organisation's resources include tangible and intangible resources. Tangible resources include financial, physical, and human capital, whereas intangible resources refer to reputation, knowledge, culture and social networks. (Sunduramurthy et al., 2016).

2.4.1. Intangible resources

Further investigation into the networks of waste recyclers is necessary as these external parties may encourage entrepreneurial, adaptive bricolage for a purposeful outcome in emerging markets (Molecke & Pinkse, 2017). Particularly in constrained environments, entrepreneurs are encouraged to collaborate with their networks to co-establish opportunities that are beneficial to both (Kerr & Coviello, 2020).

It is essential for waste recyclers to seek out others, establishing an informal network of strong bonds and a sense of community within the BoP which form part of the entrepreneurial bricolage system (Sarkar, 2018). This is crucial in BoP informal organisations, as is the case of the waste recyclers pursuing growth opportunities, which may lack prior expertise, decision-making biases, financial backing, and imperfect data

collection rendering a lack of organisational legitimacy. For instance, equipment could improve the efficiency of the waste recyclers, however being at the BoP with no credit record, means there is a lack of access to financial assistance (C. J. Schenck et al., 2016).

Enterprises in the informal sector rely on other parties' knowledge skills and willing participants that may assist in ensuring they are sustained (Yu & Wang, 2021). Furthermore, studies have shown that establishing democratic cooperatives is a means for reclaimers to increase prices when approaching buyback centres and improve their position in the informal recycling sector (Samson, 2015a). Backed by further research that presenting as a collective creates a stronger worker identity, activating a unified voice and improved bargaining power (Ogando et al., 2017). Furthermore, a factor found to influence the success of informal enterprises at the BoP, is an entrepreneur's membership with networked organisations (Nambiar et al., 2020).

Exploring how entrepreneurs manage everyday process in a time of crisis, may prepare entrepreneurs in understanding how to be more effective in constrained environments. (Garcia-Lorenzo et al., 2018) postulated that there may be less interest in understanding how entrepreneurs at the BoP - who are driven by necessity, experience and manage process in bricolage of waste. Primarily because they are not wealth creating hubs. Whilst interest in waste recycling at the BoP is gaining traction, literature around this field may not feature extensively in high rated journals.

2.4.2. Tangible resources

Tangible resources include financial, physical, and human capital (Sunduramurthy et al., 2016). Donnellan & Rutledge (2019), compliment the previous understanding of tangible resources by stretching the resources to include plant and machinery. The intangibles include brand name, reputation, specialised knowledge, processes.

The waste recyclers work with an expanse of materials which are collected for recycling, sorted, and then exchanged for cash. The recyclers are faced with deciding which materials to collect and sell to the buyback centres. These decisions are informed and by no means just a matter of filling a collection bag. There are a number of factors that influence what materials are collected, like price and other participants in the supply chain of recycling (Samson, 2015).

2.5. Summary of Chapter 2

(Ojong et al., 2021), postulated that there are more women entrepreneurs in Africa than other continents, and posited that women entrepreneurs are affected by their socio-economic context. here is an expanse of literature on the relevance of female entrepreneurship in unlocking economic growth, poverty alleviation and empowerment (Kamberidou, 2020).

However, the gap in appreciation of women entrepreneurs at the BoP, where the waste recyclers contract, is lacking in literature (Nambiar et al., 2020). Existing literature have recorded a need to acquire a comprehensive appreciation for the lived experiences of women waste recyclers, to authenticate their stories as creative entrepreneurs at the BoP (Mlotshwa et al., 2022). The objective is to gain perspective to either the push or pull causal factors that lead women to waste recycling (C. J. Schenck et al., 2019). Despite its many harsh challenges and poor stigmas attached to their roles as waste recyclers, it is a sector that is growing in support from both semi-skilled, skilled, and unskilled participants (Samson, 2015a).

The above literature review considers the meaning of bricolage as it is applied as a mechanism to create value for the informal sector, despite the lack of resources available in emerging economies (Onwuegbuzie & Mafimisebi, 2021). Godoy & Nelson, (n.d.) highlighted the relevance bricolage has in resource-constrained environments, in which entrepreneurs recombine tangible and intangible elements at hand for new purposes – challenging institutional voids.

The next chapter will propose the questions produced from the above literature review, ratifying the need to understand the significance women waste recyclers attach to waste recycling. The aim of the study is to clarify the causal factors that push or pull women to being a waste recycler in emerging markets and to interrogate what are the resource combinations that make it possible for these creatively entrepreneurial women in the informal sector to succeed in the application of bricolage in waste recycling.

Figure 1: Conceptual framework for literature review
Source : Authors own

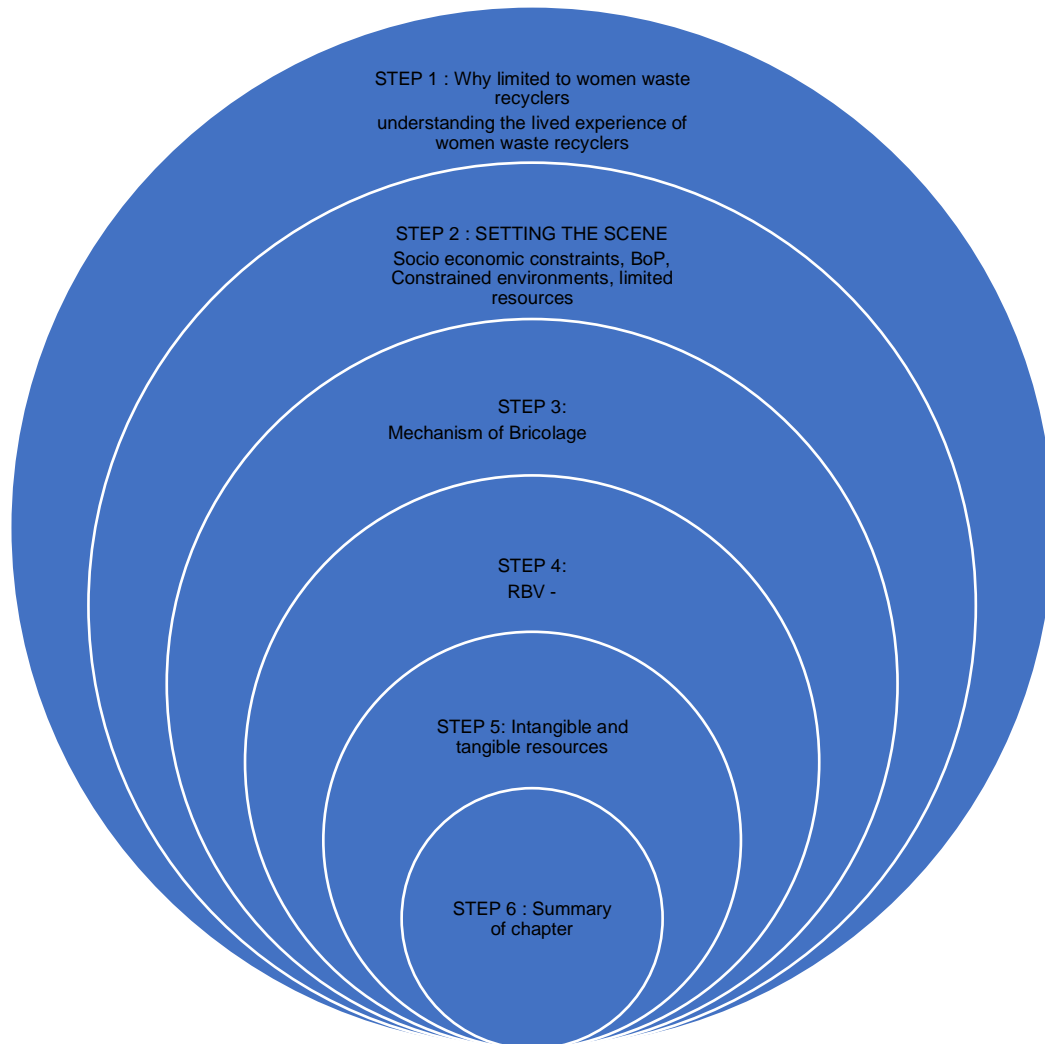


Figure 1: Conceptual framework for Literature Review

The above figure creates a framework for the literature review understanding in Step 1: Why the focus is on women waste recyclers. Step 2: Gaining an understanding to the socio-economic constraints. Step 3: Looks at bricolage. Step 4: Reviews the resource-based view. Step 5: The breakdown of intangible and tangible resources. Step 6: Summary of the chapter.

CHAPTER 3: RESEARCH QUESTIONS

3.1. Introduction

The primary objectives of the research are to explore the lived experiences of women waste recyclers who use bricolage as a mechanism to create value for themselves, to further corroborate existing theoretical knowledge around the lived experience of women waste recyclers who are innovative at the BoP. Entrepreneurs function in the informal sector despite restricted access to resources (Rosca et al., 2020). In addition, the research seeks to fulfil a business perspective on how organisations can similarly employ a bricolage approach of using minimal resources in constrained environments to still be innovative and gain a competitive advantage (Witell et al., 2017).

The following sub-questions have been positioned:

3.2. Question 1: What significance have women recyclers constructed around their lived experience as waste recyclers?

Question 1 was born out of a gap identified in the literature covered in Chapter 2. The literature revealed that there was ample motivation for more rigorous data into the lives and working experiences of women waste recyclers. Nevertheless, there is increasingly more literature on entrepreneurs in emerging markets. This is substantiated by Onwuegbuzie & Mafimisebi, (2021) who posit that base of pyramid markets are delivering solutions that solve “grand societal problems”. More recent research carried out by Ojong et al., (2021b), reviews how women entrepreneurs in Africa interact with resources available in their socio-economic environments. However, there is little in the way of investigating the lived experiences of women entrepreneurs and how they create value for themselves in constrained socio-economic environments.

C. J. Schenck et al., (n.d.), believe it necessary to gain detailed insight into the waste recyclers' perceptions and experiences of waste recycling. Not only to acknowledge the significance women waste recyclers attach to their work and working environments (Mlotshwa et al., 2022), but also to clarify why women at the BoP would opt to do waste recycling in the informal sector whilst overlooking a host of risks and challenges faced daily. Given the urgency of sustainability and relevance of recycling, in addition to a growing community of women waste recyclers noticeable on our streets, this research concludes that this would be a compelling opportunity to delve into the nuanced motivational factors and perceptions that drive women's

commitment to waste recycling in the informal sector. This question was formulated to create space for the women waste recyclers to give voice to their stories, as they aspire to break stigmas in their communities and the public which they service.

3.3. Question 2: What intangible resources pre-exist for waste recyclers to create value?

Simba et al., (2021) clearly state that there is insufficient literature for budding enterprises in emerging markets and how they apply bricolage in resource-constrained environments. Scarce resources are seen by Witell et al., (2017) as an opportunity for innovation, making do with what is available, improvising and networking with external partners. However, an opportunity without the correct application of resources is an opportunity lost. Waste management in the informal sector, must require a level of self-advocacy and group cohesion for it to be successful (Samson, 2015).

The research intends to determine what intangible resources – group cohesion, external networks - and other intangible resources are accessible and utilised in the bricolage of waste in order for the waste recyclers to be successful.

3.4. Question 3: What tangible resources are required for waste recyclers to create value?

Despite the resource constraints associated with the base of the pyramid (BoP), creatively entrepreneurial waste recyclers are efficient in applying dynamic capabilities to sensing, seizing, and reconfiguring waste materials to create value (Kohtamäki et al., 2019; Muheirwe et al., 2022).

Samson, (2015), has observed that the collection of waste for recycling is more intentional as it plays a grand role once it is sold and transformed back into the formal production value chain. As such, the collection of tangible waste resources requires an understanding of the values it holds.

This question is designed to find out exactly what the tangible resources required in waste recycling are.

4. CHAPTER FOUR – RESEARCH DESIGN AND METHODOLOGY

4.1 Introduction

This chapter outlines the methodology and research design the researcher ascribed to, based on the output of the literature review in Chapter 2. The research questions in Chapter 3 indicated that the study's fundamental aim is to gain a meaningful understanding of the significance constructed around the lived experiences of women waste recyclers at the BoP. A qualitative methodology was selected for this research and produced generous in-depth narratives on waste recyclers' lives and working experience, casting light on the significance the women waste recyclers constructed around their work and work environments (Mlotshwa et al., 2022).

Furthermore, this chapter will present the researcher's approach to coding the data and, through an induction process, present the reader with the themes extracted, which will be discussed in Chapter 6. The following is a thorough explanation of the selected sample and profile of the participants, including a recount of the individual transcripts. The chapter catalogues the developing themes that recur (Bleiker et al., 2019a), consistent with the data aggregated by the various group codes, using Atlas.Ti.22 software for qualitative data analysis.

4.2. Research methodology and design

A qualitative approach was adopted rather than a quantitative (enumerative), as the study was exploratory and required to build knowledge holistically, in a complex and natural setting (Castleberry & Nolen, 2018). As highlighted by Saunders & Lewis (2018), a qualitative approach allowed for close interaction with the interviewees, creating the space for the women waste recyclers to narrate their stories with ease.

The literature reviewed in Chapter 2, discusses (Pansera & Owen, 2018) view that entrepreneurs are pivotal in uplifting those at the BoP and underscores the importance of advancing knowledge on how to foster BoP entrepreneurship. In particular among women entrepreneurs who Ojong et al., (2021) argue are the bulk of entrepreneurs in Africa. In light of this call to understand women entrepreneurs' experience at the BoP, the researcher has opted for a qualitative approach which is aligned with the research objectives, to get close to the understanding of the significance constructed around the lived experience of women waste recyclers.

The methodology selected was crucial in that it had to allow for the discovery of individual perspectives and interpretations which constructed meaning from their experiences (Frechette et al., 2020a). A qualitative approach allowed the researcher and the interviewees to feel comfortable to narrate their lived experiences openly without feeling like there were any right or wrong answers, or numbers that were statistical (Bearman, 2019). Having reviewed existing literature and learning that the women waste recyclers joined SEWU because they felt their interests were not being heard, the researcher saw this as an opportunity to give voice to the interviewees and allow them the scope to narrate their stories (Samson, 2010). An explorative design cultivated an environment of an in-depth, one-on-one interview process – a channel of looking to understand rather than to measure the individuals' lived experiences, beliefs, values and their motives (Castleberry & Nolen, 2018).

Selecting a plausible design meant the outcomes of this study would be more convincing in relaying the significance constructed around the waste recyclers' lives. It was important for the researcher to ensure that the conclusions were compelling to the reader, thereby doing justice to the stories of the women waste recyclers (Saunders & Lewis, 2018). Additionally, the research design had to be compatible with the researcher's natural style, which is personable and open, thus suited for a more explorative approach which is more sincere and available to listen. A narrative style would allow the participants to do more of the talking, with the researcher paying special attention to each participant's unique experience (Bleiker et al., 2019b). With a narrative design, there is a major event or distinctive change in the interviewees life that is memorable, which the researcher had hoped would be a poignant contribution to the research (Tomaszewski et al., 2020).

A qualitative research design allowed for a constructive interpretivist paradigm to synthesise knowledge by recognising the individual persons viewpoint and meaning constructed around their views (Tomaszewski et al., 2020). An interpretive philosophy produced the perspectives of the women waste recyclers, in order to clarify the complex backgrounds and context of women waste recyclers in South Africa. The objective was to understand rather than predict or anticipate the outcomes of the research questions (Tomaszewski et al., 2020). It was critical that the researchers approach allowed the interviewees to take stock of their particular circumstances and reflect on their own unique accounts that then developed the theory from a 'bottom-up' approach (Bleiker et al., 2019b). Context is essential in framing the individual waste recyclers narration and the researcher paid particular attention to the interviewee's context which was very empathetic, at times

creating a closeness to some of the participants. Correspondingly, interpretivism philosophy allowed for the building of knowledge around the women waste recyclers in their natural environment and socio-economic circumstances, which featured extensively in literature on BoP (Saunders & Lewis, 2018). There was no need for any statistical analysis as literature with a specific focus on women waste recyclers in a South African context is relatively underdeveloped. From the data accounts, theories and themes were developed inductively (Sebele-Mpofu, 2020).

A mono-method methodological choice was selected as the only data collection technique in this qualitative research, which the researcher has established is being integral to the structure of this paper. The researcher's aim was to garner an understanding of how women waste recyclers from diverse backgrounds add to the richness of bricolage which women entrepreneurs apply in constrained environments (Onwuegbuzie & Mafimisebi, 2021).

In-depth semi structured interviews were set up as a source of primary data and exercising a narrative approach ensured the researcher was focused on the opportunistic window into the world of the participants (McAlpine, 2016). Pansera & Owen (2018) caution the researcher on narrative diversity – where varied motivations, values and ideological positions and world views will have a part to play in the participants lens on the world and their experiences.

4.2. Population

The research focused on women waste recyclers, specifically in emerging markets. The overall aim was to add to the pool of knowledge of women entrepreneurs at the BoP who have been creatively entrepreneurial (Ojong et al., 2021). Entrepreneurial in that they have exploited a recognised opportunity or gap in the formal waste management services. (Alvarez et al., 2016)

The population was based on participants from South Africa and Lesotho. The network of women waste recyclers exists across provinces and the researcher was able to make contact with participants in the Free state and the Western Cape. Initially the researcher had intended to meet with the waste recyclers in person. However, the participants preferred having the interviews telephonically, outside of working hours, when they could speak with no interruptions or noise from work. This opened the population to include participants in the Free State and Western Cape. The population was based on willing participants who volunteered

to talk with the researcher. The researcher did not have access to a data base of women waste recyclers, so the participants were not selected through a probability sample method (Saunders & Lewis, 2018). It is important to note that the informal sector of waste recyclers globally, is not a regulated sect and whilst there are informal organisations or micro enterprises that have membership, the bulk of the waste recyclers are not registered, thus proving difficult for the researcher to gain access to a database (Tsakona et al., 2022). Due to the researcher not having access to a complete list of all women waste recyclers in South Africa, the respondents were not selected based on a probability sample method (Saunders & Lewis, 2018). Instead, a non-probability technique was adopted as respondents were referred to the researcher through an existing network of women recyclers who knew each other and volunteered to participate in this research (Saunders & Lewis, 2018). Participants were referred by those who were willing and able to pass on referrals to the researcher. Please refer to Figure 3, for a graphical representation of the network of women waste recyclers interviewed. The reader will be able to see the participants that were the “centre of influences” and volunteered other participants.

4.2.2 Unit of analysis

The unit of analysis was the individual women waste recyclers (Rosca et al., 2020b), of which their definitive experiences throughout the entrepreneurial process of waste recycling was analysed. The unit of analysis assigned for this research report was women waste recyclers from two informal Waste Management Organisations across South Africa, namely African Reclaimers Organisation (ARO) and South Africa Waste Pickers Association (SAWOA). There were also independent waste recyclers that worked independently of any organisation.

4.2.3 Sampling method and size

Data was collected from a sub-group of 16 volunteering women waste recyclers who are active waste recyclers and have been for over a period of 6 months. Either at the landfills or collecting from the streets. The sample will not be limited to South African citizens. There is not a complete list of samples, but reliance on the researcher’s better judgement on whom to contact. This is referred to as purposive sampling as per Saunders & Lewis (2018). The sample was a heterogenous group of women waste recyclers. To increase the sample pool, contact was made by means of referral from existing contacts with which the researcher has an established relationship. A heterogenous subgroup allowed for gravitas and depth of understanding of various individual circumstances and characteristics. This was ratified

on reflection of the literature that posits that waste recyclers are not a homogenous group (Samson, 2020). However, all participants had to be comfortable to have the interview in English. The researcher did not want to lose the essence of an interview using translators. The sample did not have to adhere to any specific age. Through referrals, the researcher had managed to get the contact details of ten additional women waste recyclers, of which one participant had not started in the informal sector yet so did not meet the criteria. The researcher was unable to secure appointments with the other six participants. Two of the participants were unable to speak comfortably in English and preferred to talk in their mother tongue. Given the time constraints, the researcher did not want to hire a translator. While the researcher would have preferred to communicate in the interviewees' local language, as in Chatterjee et al. (2020), English was the main medium of conversation. The researcher also felt that the use of a third-party translator could retard the essence of each interview, as we exchanged the lived experience of each participants narrative. Please refer to Table 2 below, which illustrates the reasons for an unscheduled appointment. The final number of participants was 16 secured interviews that were setup for evening calls. This was within the sample size of 12-16 participants which was initially intended to be a credible sample that ensured relevancy and adequacy in size. Saunders & Lewis, (2018) recommend 5-25 semi structured interviews to adequately meet recommendation.

WhatsApp video calls might have been an option to create a degree of personal contact and to check with facial cues, however waste recyclers have resource constraints, such as limited access to data or WIFI for video calls. That said, the WhatsApp calls and telephonic calls were effective for the semi-structured interviews and there were no barriers in communication that may have sacrificed the of essence of the interview (Bearman, 2019). Not being in person with each participant did not take away from the effectiveness of the calls, which were open, relaxed and very intriguing. The calls were recorded for transcription purposes and record keeping.

The interviews ranged from a period of 36 minutes to 1h39 minutes. Depth of discussion was assured throughout 13 of the 15 interviews, with a teetering of substance from participant 14. Participant 14 and 15's interviews were brief with no new themes presenting. This could have been due to the fact that participant 15 was relatively new in the position having just started her recycling career in January 2022 and therefore lacking depth of experience. Participant 16's first language was isiZulu, and she was unable to answer in English. The researcher was unable to communicate in isiZulu and had to end the call after five minutes as it was not a productive interview.

The participants were willing to have their names known and despite being assured of anonymity, were proud of their positions and seemed to want recognition for their efforts. The researcher, however, has opted to keep the participants' identities confidential, so they are henceforth referred to as participants 1,2,3 through to participant 15. The organisations names were not kept confidential as this proved relevant in understanding how they organised and approached challenges differently. The study was limited to women waste-recyclers who had been in the field for a duration of at least six months, to ensure that their experience was established and relevant.

Table 2: Summary of abandoned interviews

Potential Respondent	Referral	Appointment confirmed	Outcome
R16	From R1	Yes	Language barrier, had to abandon call
R17	From R1	No	Could not confirm appointment to host interview, WhatsApp messaged and numerous calls
R18	From R1	Yes	Had not started Recycling position yet, only starting 2023
R19	From R1	No	Made contact via WhatsApp, could not secure appointment due to time constraint on R19
R20	From R4	No	Numerous Voicemail messages, no contact
R21	External	Tentative	Could not secure time to chat, due to long working hours
R22	From R3	No	Number does not exist
R23	From R1	Yes	Numerous attempts to chat on WhatsApp, could not finalise meeting time
R24	From R4	No	Language barrier, Sotho speaking only. Did not attempt contact
R25	From R4	No	Language barrier, Sotho speaking only. Did not attempt contact

Source: Authors own

4.2.4. Profile of Participants

Respondent	Organisation	Position	Age	Landfill/Streets	Province/Area	Started in Recycling
Respondent 1 (R1)	ARO	Chairperson & Recycler	38 years	Palm Springs Landfill & Streets in neighbourhood	Gauteng, Vereeniging	Started 2017 Duration 5years
Respondent 2 (R2)	ARO	Recycler & Administrator	39 years	Soweto Neighbourhood Streets	Gauteng, Soweto	Started 2019 Duration 3 years
Respondent 3 (R3)	Independent	Previously ran Recycling Co-op (2019-2022) Recycler (2022)	44 years	Paarl Neighbourhood Streets (2-20km radius)	Western Cape, Paarl	Started 2013 Duration 9 years
Respondent 4 (R4)	ARO	Recycler	42 years	Braamfontein Neighbourhood Streets	Gauteng, Doornfontein	Started in 2016 Duration 7 years
Respondent 5 (R5)	SAWPA	Recycler	54 years	Sasolburg Neighbourhood Streets	Orange Free State, Sasolburg	Started in 2010 Duration 12 years
Respondent 6 (R6)	SAWPA	Recycler	35 years	Sol Plaatjie Landfill	Northern Cape Kimberley,	Started in 2009 Duration 13 years

Respondent	Organisation	Position	Age	Landfill/Streets	Province/Area	Started in Recycling
Respondent 7 (R7)	ARO	Recycler	38 years	Marie-Louise Landfill	Gauteng, Meadowlands	Started in 2000-2015 Break from 2016-2022 Recycling March 2022 -
Respondent 8 (R8)	ARO	Recycler & Founder of ARO (2016)	56 years	Marie-Louise Landfill	Gauteng, Meadowlands	Started in 1995 Duration 27 years
Respondent 9 (R9)	Independent	Recycler	57 years	Barbeton Landfill & neighbouring Streets	Gauteng, Soweto	Started in 2009 Duration 13 years
Respondent 10 (R10)	SAWPA & Majakatha Co-operative	Recycler & Coordinator	54 years	Vanderbijlpark neighbourhood Streets	Gauteng, Vanderbijlpark	Started in 1998 Duration 24 years
Respondent 11 (R11)	SAWPA	Recycler	48 years	New England Road Landfill	KwaZulu Natal Pietermaritzburg	Started in 2005 Duration 17 years
Respondent 12 (R12)	Independent	Recycler	31 years	Krugersdrop Landfill	Gauteng, Krugersdorp	Started in 2003 Duration 12 years
Respondent 13 (R13)	ARO	Recycler	39 years	Palm Springs Landfill	Gauteng, Vereeniging	Started in 2010 Duration 12 years
Respondent 14 (R14)	Independent	Recycler	50 years	East London Landfill	Eastern Cape, East London	Started in 2013 Duration 9 years
Respondent 15 (R15)	Independent	Recycler	32 years	Midrand Neighbourhood Streets	Gauteng, Midrand	Started Jan 2022 Duration 10 months

Source: Authors Own

*Note: colour code for those that are street recyclers, and those that are on landfill

Street Recycler	Landfill Recycler	Mixed – Street & Landfill Recycler
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4.2.5. Measurement Instrument

The interview guide is represented in Appendix 2. At the onset the objective was to put the interviewee at ease by first introducing the researcher and letting the interviewee know that there is a level of confidentiality and that they can opt-out at any point. Whilst the questions were exploratory the researcher started off with general demographical information. The semi-structured questions were predetermined and relevant to what information the researcher needs to leave with, with the primary objective of answering the main question and the sub-questions (Saunders & Lewis, 2018). The questions were designed to achieve an “experiential thick” interview, rich in data (Bearman, 2019). Questions were always open-ended and not in a yes, or no format. If required, certain parts of the questionnaire could be updated accordingly after the first few interviewees. In the concluding section of the interview, the researcher was able to link the narrative potentially to the theoretical lens of bricolage. The interview questions attached in Appendix 2, whilst guiding the interviewee, allowed the interviews to be led at will by the interviewees' stories, with occasional prompts from the researcher for deeper analysis where necessary (McAlpine, 2016).

4.2.6. Data gathering process

Initially, the researcher conducting the interviews aimed to instil a sense of comfort and trust in the interviewee and garner a level of credibility. Interviews are generally an effective means to get data but should set out to not feel like a cross-examination, but rather be generative. In particular because the interview is to gather life experiences and not opinions of the interviewees (Bearman, 2019). The researcher did commence by confirming the interviewees willingness to participate, their right to abandon the call was relayed to them and the interviewees were well aware that the interviews were being recorded. The researcher was typing notes while the interviewee was talking, as a back-up in case the recording software failed.

The timing of interviews was at the discretion of the interviewees so that it was conducted at a time most convenient to the participants, when they were not subject to time pressures or other factors that may adversely affect their responses. Interviews were either set up telephonically or via WhatsApp. The interviewees were punctual and committed to the interview times arranged. The interview process and research gathering was undertaken in line with best practice of GIBS and followed the ethical clearance guidelines. The interviewer was mindful of any biases they may take into the interview and refrained from asking leading questions, but rather allowed the interviewee to narrate their authentic

experience. Similarly, the researcher had to bear in mind any biases the participants might have (Tomaszewski et al., 2020).

To avoid data contamination and ensure there was nothing was lost in understanding the data collection, the researcher did make clarifying or observational comments to ensure the authenticity of the narration. This would also then bolster points of interest and interrogate relevant areas in more detail of the participant's enactment (Tomaszewski et al., 2020).

The interviews were then transcribed verbatim for coding and thematic analysis at a later point (Garcia-Lorenzo et al., 2018). Pankov et al., (2021) used a thematic analysis of their evidence, breaking down what was said in the interview and interrogating the detail. Transcripts were saved individually, and names anonymised for personal data protection. Details of the interview including time, date and location was recorded. Both transcripts and recordings were saved online for record keeping purposes.

4.2.6. Data Analysis

Mmbaga et al., (2020) applied a thematic approach in their article to systematically review the literature, which improved comprehension of the literature and guided the reader in knowing what was still to be researched. A thematic analysis approach was implemented in a comprehensive attempt to systematically analyse the research, rigorously reviewing the interview transcripts which were read a few times and searched for possible themes or golden threads (Maramura, 2019). Analysis of the transcripts in this way, enhanced the researchers understanding of the socio-economic, institutional constraints, and the cultural nuances that needed to be accounted (Yu & Wang, 2021).

The data was transcribed and uploaded to Atlas. Ti. – the computer software programme prescribed by GIBS. The researcher set up a practise round to get familiar with the programme and get comfortable with the coding. Once the researcher felt competent with capturing, coding, and saving the project they then commenced with capturing the project of 15 interviews for coding. Coding is the process of assembling, categorising and thematically sorting, data that has been collected (Williams & Moser, 2019). The researcher was advised by the Supervisor to be more granular in their approach and output more codes.

Data analysis was achieved by stripping out the activities, experiences or transition stages, processes, challenges, or theory that appeared relevant in the smallest of ways. These presented in a line, two lines and occasionally paragraphs. An inductive approach was applied in interpreting the initial codes (Saunders & Lewis, 2018).

A total of 176 open codes were extracted from the fifteen interviews conducted. Similar codes were synthesised, other codes that were repetitive were deleted, and linkages were created to form categories (Williams & Moser, 2019). The researcher earmarked any quotes that stood out or were particularly poignant. Memos were made on the side for any notes, ideas, or concerns that the researcher had to be aware of or take into account through the thematic analysis process. Through the inductive process codes were verifiable in establishing any relationships to result in themes to establish meaning to the research (Williams & Moser, 2019). The axial coding process, which reduced 176 codes to a group of categories, resulted in deeper theoretical understanding as we interrogated the data.

The researcher did need to return to the literature review to enhance an understanding and gain further perspective on an emergent theme which was the title preferred by the various organisations, as well as the phenomenon of “Black Tax” that unexpectedly presented under the category of values (Lindiwe, 2017).

4.2.7. Data Validity and Reliability

First and foremost, the researcher established a level of trust, by referring to the mutual contact who referred the researcher to the interviewer (Bleiker et al., 2019b). The researcher was clear that the interview was an opportunity for the women waste recyclers to voice their stories and had no conflicting interest to declare (Tomaszewski et al., 2020). In honouring the lived experiences and the significance shared by the women waste recyclers, the researcher was truthful and accurate to the text in capturing the findings and conclusions.

To confirm the quality of the research, certain criteria can be checked. For instance, the credibility of the interviews is established if the research has adequately answered the questions presented, evidence of which is presented in Figure 4, an extract from Atlas.Ti codes (Bleiker et al., 2019b). The product of the research can be gauged by the transferability, whereby the reader or others who might review the data and appreciate the potential application of the findings (Bleiker et al., 2019b).

During the interviews, each participant was given adequate time to discuss an aspect that mattered to them. The themes of the interview guide were covered across all interviews. Please refer to Appendix 2 for the interview guide. The researcher checked in with the participants for points of clarity and similarly repeated questions if the interviewee was unsure.

Ensuring quality controls around data gathering was vital to the integrity of the research and supporting the ability to draw valid and robust conclusions from the data collected (Saunders & Lewis, 2018). Ethical clearance standards were adhered to as per GIBS Guidelines. Combined with a proactive approach to avoid (or at least materially reduce) risk factors such as leading questions and various types of bias, such as confirmation bias, focus on the data presented (Castleberry & Nolen, 2018). Bias could distort the narrative in a manner to confirm assumptions or ideas, as opposed to identifying data that may challenge assertions. Recorded interviews were transcribed, which allowed an opportunity to analyse the interviewee's responses further and support a deeper understanding of the responses for effective record-keeping purposes.

4.2.8 Limitations

Ribeiro et al., (2021) noted the limitation of their cross-sectional study, stating it would not detect changes in the entrepreneurs' behaviour over a longer period of time. There could be limitations with the sample size of 15 interviewees, not capturing an objective response which can be a risk in the case of non-probability sampling. A limitation of the research would be that given the focus is on waste recyclers at the BoP, the study will not be relatable in established sectors that are not subject to resource scarcity (McAlpine, 2016). Collecting data can take longer (Saunders & Lewis, 2018) than initially planned, and a conservative project management timeline is recommended, allowing time for a second interview if needs be to gain clarity.

CHAPTER 5 – FINDINGS

5.1 Introduction

This chapter articulates the findings and outcomes of the data gathered from the fifteen in-depth semi-structured interviews held with women recyclers from South Africa. The interview questions outlined in Chapter 4, whilst guiding the interviewee, allowed for a natural unfolding recount of the lived experiences of the women-waste recyclers. This created a depth of understanding that will now be synthesised across all interviews and presented below.

Following Chapter 4's thorough explanation of the selected sample and participant profile, this chapter catalogues the profile and demographics of participants, then evidence is given of the recurring developing themes, consistent with the data aggregated by the various codes and axial coding, using Atlas.Ti.22 software for qualitative data analysis.

5.2 Demographics

The interview questions were designed such that general demographical questions were asked primarily to ease the interviewee into the discussion and allow them to feel comfortable with the rudimentary start. However, on reflection of the findings, it proved critical to document the socio-economic backgrounds of each of the women waste recyclers, as this fed into their motives and commitment to recycling at the BoP.

Table 2: Table of demographics

Participant	Age	Citizenship	Highest level of education	Teenage Pregnancy	Household Size (#)	Previous employment	Sole Breadwinner or other household financial assistance	Earnings pm
R1	38	South African	Grade 12 and Incomplete qualification in ECD (Early Childhood Development)	No	(4) Two children, husband, and self	Teaching Grade R's	Partner employed	R2000
R2	39	South African	Grade 12	First child at age 18	(5) One child and self, Mother and two sisters	Cashier & Clerk at Pick 'n Pay	One sister employed	R3200
R3	44	South African	Grade 12	No	(2) Two children and self	Community Developer Facilitator for NGO	Single parent	R8000

Participant	Age	SA Citizen	Highest level of education	Teenage Pregnancy	Household Size	Previous employment	Sole Breadwinner or other household financial assistance	Earnings pm
R4	42	Mosotho	Grade 12	No	(2) One child and self	Factory worker & domestic worker	Single parent	Did not disclose amount, but covers all her expenses
R5	54	South African	Grade 11	No	(4) Three children and self	Factory cleaner	Widowed	R4000
R6	35	South African	Grade 11	First child at age 17	(2) One child and self	Catering service	Single parent	R18000
R7	38	South African	Grade 12 and Diploma in Management Assistance	No	(3) Two children and self	Compliance officer & document control administrator	Widowed	R3600
R8	56	South African	Incomplete schooling	No	(6) Five children and self	Always been recycler	Husband unemployed/ house husband for 7 years	R6000 + R2000 (from pig feed sales)
R9	57	South African	Grade 10	First child at age 18	(3) Two children and self	Selling vegetables	Single parent	R3800
R10	54	South African	Incomplete schooling	No	(3) Two children and self	Ran own creche	Single parent	R1000

Participant	Age	SA Citizen	Highest level of education	Teenage Pregnancy	Household Size	Previous employment	Sole Breadwinner or other household financial assistance	Earnings pm
R11	48	South African	Grade 10	First child at age 15	(4) Three children and self	Domestic worker	Single parent	R6000
R12	31	South African	Incomplete schooling	First child at age 13	(5) Four kids and self	Always been a Recycler	Single parent	R4000
R13	39	South African	Grade 12	No	(4) Two children, self and brother	Domestic worker	Single parent	R2400
R14	50	South African	Grade 11	No	(4) Two children, husband and self	Street Cleaner	Husband unemployed	R860
R15	32	Mosotho	Grade 8	No	(4) Two children, husband and self	Domestic worker	Husband also recycler	R1300

Source: Authors own

5.3. Title preferred by the waste recyclers

The diversity of the sample was evident in how the various organisations and individuals approached demystifying stigmas associated with the waste-recyclers role. Namely, by how they referred to themselves, how they organised amongst themselves, and how they might receive financial aid from external organisations.

Table 3 below is evidence of the variation in titles which the waste recyclers prefer to be known as. Organisations like the African Reclaimers Organisation (ARO) are trying to establish credibility for the productive strides in recycling that the recyclers are making by providing a much-needed service, as indicated in previous chapters. Participant 1 points out that despite the valuable contribution the recyclers make towards recycling, they are still reduced to being known as “Bagerezi” which infers someone who is merely a simple hustler. It is prudent to observe the title by which the women waste recyclers, predominantly from the ARO organisation, prefer to be known to inculcate a level of integrity within their roles as recyclers and construct respect for their entrepreneurial creativity, amongst the public. The researcher specifically asked the question: Which title each participant preferred? Table 3 lays out each participant's preference.

Table 3: Title preferred amongst the waste recyclers

Title Preferred	Participant & Organisation	Illustrative Quotation
Reclaimer	R1 (ARO) R2 (ARO) R4 (ARO) R7 (ARO) R6 (SAWPA) R8 (ARO) R13 (ARO)	<p>“I prefer to be called a Reclaimer. Because what I am recycling is not mine. I am recycling someone’s property. And I’m not a waste picker – I don’t work with waste. I work with a valuable thing”</p> <p>“I am proud of being a reclaimer”</p> <p>“We changed it now to Reclaimers, they wanted a better name for us, because you know, some people are used to looking down on us”</p>
Waste Picker	R5 (SAWPA) R9 (Independent)	<p>“No, I am a waste picker and I work under South African Waste Recyclers Association, SAWPA”</p>

	R10 (SAWPA & Majakatha Co-operative) R11 (SAWPA) R12 (Independent) R14(Independent)	
Indifferent	R3 (Independent) R15 (Independent)	“Normally I’m used to waste picker, but it doesn’t matter if someone calls me a street picker or a reclaimer. Because all those names mean one person, which is me!”

From the above table, it is evident that the participants affiliated with ARO prefer to be known as Reclaimers, whilst participants connected to the South African Waste Recyclers Association (SAWPA) identify as Waste Recyclers. The participants who work independently and are not affiliated with either SAWPA or ARO, felt indifferent and flipped between each title.

The depth of discussion was assured from participant R1 through to R13. R14 and R15 was not producing any new insights and R16’s interview was ended as the participant was not comfortable speaking in English and the research regrettably could not speak in the desired language to continue the interview.

This could have been due to the fact that the Participant 15 interview was not as insightful because she was relatively new in the position, having just started her recycling career in January 2022, and was potentially lacking meaningful insight and confidence to engage openly. This was a stark contrast from previous participants who spoke passionately about the reasons for collecting and recycling waste and were willing to share their experiences. It must be noted that all other participants were willing to be named and were not concerned with anonymity, indicating a longing for their recycling contribution to be recognised.

This reduction in depth from Participant 15 is not viewed as a limitation because the researcher felt that theoretical saturation was attained at Participant 10, with no additional insightful data. With reference to Figure 1 below, 136 codes were extracted from Participant 1’s interview, 108 codes from Participant 2, and 128 codes were extracted from participant 3. The decline in new code distribution is markedly evident from Participant 11, with no fresh perceptions obtained, intimating coding saturation had been attained. Participant 11 produced a range of 40-50 codes. By the fifteenth interview, the details revealed were no different from previous interviews, confirming that the empirical data had reached a theoretical saturation point after

ten interviews with no new themes presenting.

Figure 2 below represents the number of codes per participant and reflects saturation point in the theoretical data from Participant 10, with 90 codes, declining to 48 from Participant 11.

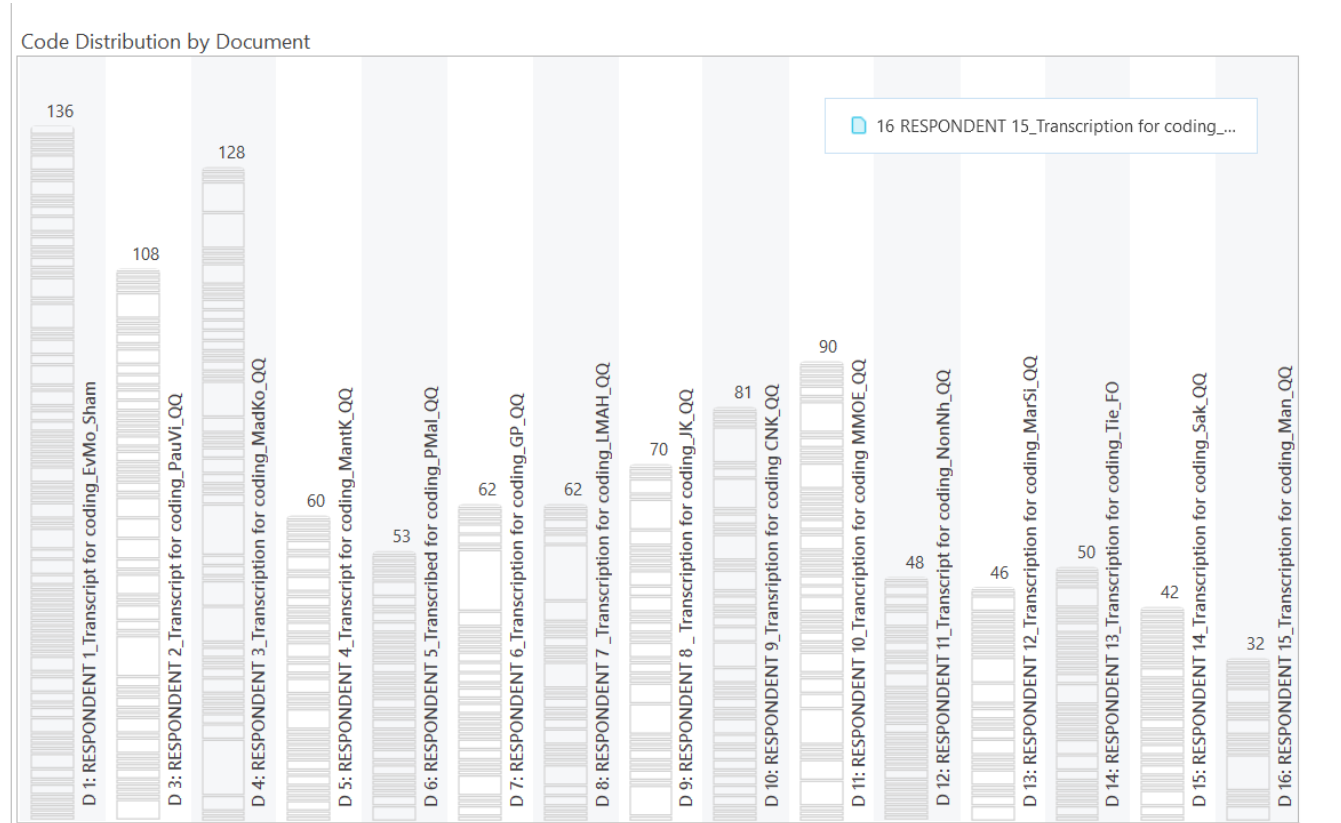


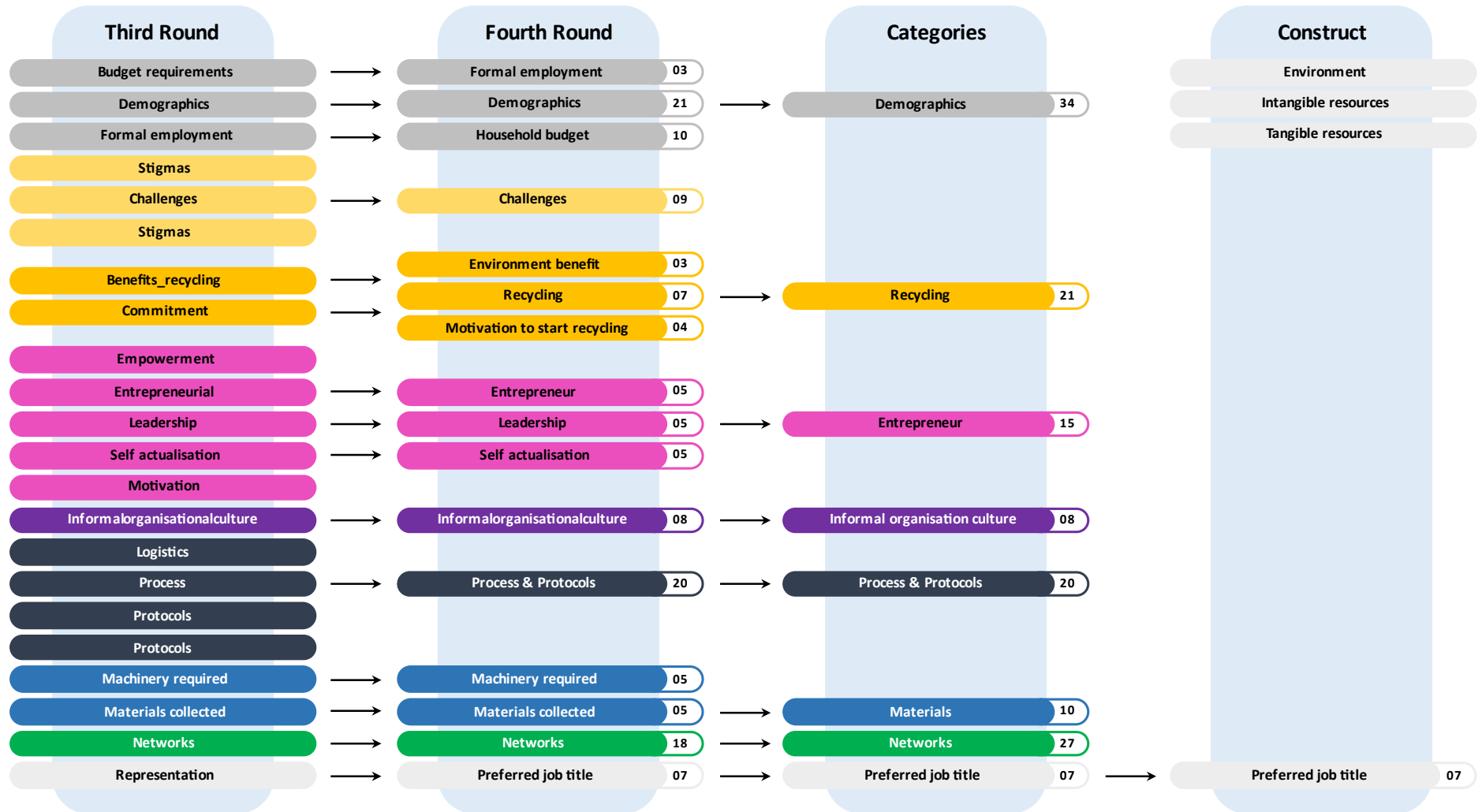
Figure 2: Saturation Point

Source: Authors own, new codes per participant screenshot from Altas.ti.

Through thematic analysis, code groups were reduced from 194 codes in round 1 of coding, down to 114 codes and quotes in round 2, by subgrouping similar codes and deleting a few codes which may have seem redundant or irrelevant. By further subgrouping at round 4, 15 groups were formed (please refer to Appendix 1). These were then grouped into codes that were related and presented the themes of demographics, entrepreneur, materials, recycling, networks, and process. For example, in the third round the following codes: Entrepreneur, leadership, self-actualisation, empowerment, and motivation present with similar meanings, so empower and motivation were grouped into self-actualisation in round four. Then in round 4, leadership (5 codes), self-actualisation (5 codes) and entrepreneur (5 codes) presented a similar theme of entrepreneurial characteristics, therefore these were organised together to create the theme Entrepreneur with a total of 15 codes. Entrepreneur and demographics

seemed to refer to the environment of the women waste recyclers, so these were grouped together to finalise the construct "Environment".

Extract from Appendix 1 : Colour coded to depict axial coding grouping, similar codes into subgroups of same colour, creating categories and constructs



At the end of the researchers coding, triangulation was created by reviewing the analysis of codes constructed by Atlas.ti, which had automatically grouped and presented codes in descending order based on the most codes presented in stage 1 of coding. Refer to Table 4 below.

Table 4: Extract from Atlas.ti.

Code groups from round 1, with the highest grounded codes

Code	Grounded
○ Challenges_Environment	43
○ Support from networks_External	34
○ Support from networks_Internal	27
○ Financial Earnings_Positive	23
○ Characteristics to have as a women recycler	22
○ Challenges_Informal Organisations	21
○ Community Stigma_overcoming	18
○ Learning the process	18
○ Entrepreneurial solutions	17
○ Personal aspects enjoyed being Recycler	17
○ Ways to improve existing process	17

5.5. Presentation of Findings

The findings procured from the categorised codes and synthesised data from the 15 interviews seek to realise the significance bricolage has to the lives of women waste-recyclers. Once categorised, the various outputs produced a meaningful set of accounts, which will be arranged below and linked to the research questions. At the onset, a layout of each research question is outlined, with a sample of codes from stage 2, 3 and 4 of coding analysis. This data was then refined into categories and the themes extrapolated are presented.

5.6. RESEARCH QUESTION 1:

What significance have women recyclers constructed around their lived experience as waste recyclers?

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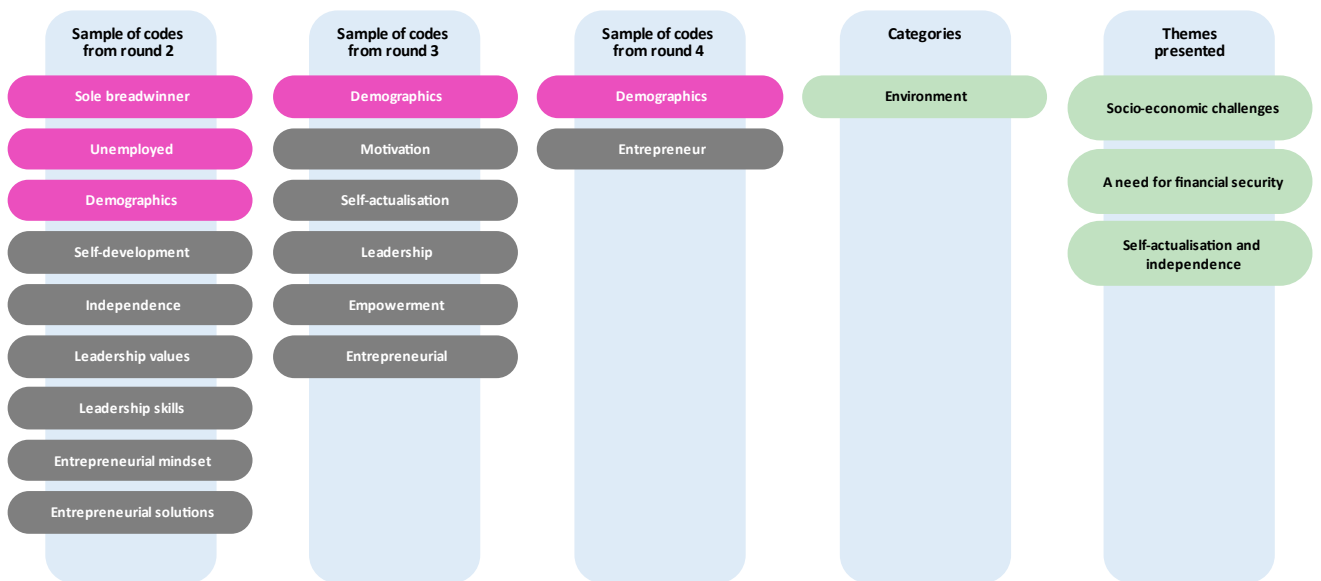


Figure 5: Extract of codes for research question 1

Source: Authors own

The above depicts an extract of the coding process for research question 1 to visually depict the synthesis of axial codes that present the categories and themes produced.

5.6.1. Environment at BoP

The category associated with the first question is the environmental factors or the socio-economic circumstances, which were depicted in the demographical details (Please refer to table 2). In most instances, women waste recyclers were unemployed for an extended period while being sole breadwinner responsible for at least one to two children, or in the case of participant 8, was providing for a family of five and a stay-at home husband. Most of the waste recyclers did not complete a secondary schooling qualification, an occurrence that is synonymous with impoverished backgrounds in emerging economies. In fact, in two instances, participants were on landfills with their mothers from a young age.

Participant 1:

“Yes, I was born to do it because like I was the fastest learner. I think because I grew up with my mum doing it then I used to help. I was age 11 when I started going with her to the landfill.”

Of interest was that almost half of the participants were in top tier informal and formal employment and left willingly due to a toxic work environment, having to care for an ill parent at home, or non-payment from clients, and they surprisingly improved earning potential as a waste recycler rather than as a domestic worker.

Table 5: Reason for leaving formal employment

Participant	Industry	Reason for leaving
R1	Reception teacher at a school	Unfair employment practices, non-payment, and lack of scope
R2	Clerk at Pick 'n Pay (7 years)	To care for unwell parent at home
R3	Domestic worker	Was unable to visit her children in Lesotho or attend family obligations (funerals)
R6	Catering industry	Her mother passed away, so she had to move in with grandparent – the relocation meant the distance to work was too far, so she had to resign
R7	Compliance Document Officer	Unfair employment practices, non-payment, toxic work environment
R10	Owned a creche	Ran at a loss, parents didn't pay and couldn't send kids away because of non-payment
R11	Domestic worker	In 2005 was paid R1000 per month as a domestic worker, but made R1000 per week as a recycler in

Participant 7:

"I worked for him for four years, but he was actually insulting me. I mean, I am the one with the diploma - he doesn't have a diploma. I am the one who is running the company and then he calls me stupid! He was making me feel because I am poor - I don't deserve the job; like I have to beg because I am the one that is staying in a shack. So I endured the torture for the sake of the kids, but then it got to a point where I couldn't take it anymore. He was shouting and I couldn't enjoy the job anymore. And I tried to enjoy it for the sake of the kids, but I realised, I am not going to stay here anymore and then I left."

Participant 3 was unable to visit her children in Lesotho or attend a family burial:

“It wasn’t easy for me to go home; it was a fight every time with my boss to allow me to go home. She always would tell me just call my son who was less than ten at the time. Being away from your child for that long isn’t easy. She didn’t allow me to go home. It was painful, it was very stressful”

“When I was a domestic worker I had a funeral, somebody passed on in the family. I recall that the day I got the message. When I was supposed to go home for the burial of my dearest family, my madam said, ‘Why can’t you just send money to them and stay and work?’”

R5, R9, and R12 left school before completing Grade 12, to assist their mothers in raising their other siblings. Ironically both R5 and R9, having grown up without fathers, had to take on parental roles in their youth to their siblings. As adults now, both R5 and R9 are single parents, with one widowed. R12 left school because her mother wasn’t well, so she had to assist in raising her siblings. So did R2, who left her 11 year career at Pick n Pay as a cashier where she progressed to be being a clerk, to care for an unwell parent. Poor access to health systems at the BoP, has a cascading effect on the next of kin, like with R2 who had to leave her promising career at Pick ‘n Pay to care for her unwell mother. R12, who is a single parent to 4 children, says her daughter left school at grade 9 because she was unwell and found it difficult to get back into the schooling programme, despite R12 insisintg she return. Participant 12 confirms that she would rather take on the struggles of working on a dump to care for her children than be a “Magosha” (a prosititute) to make money for her kids.

Participant 12:

“ I am their mother, I am their father”

Resource scarcity has a cascading effect where access to good health resources is limited and ill parents’ and spouses’ life expectancy is shortened, leaving their young (often unqualified and with children of their own) to fend for themselves (Ojong et al., 2021). This was affirmed in the cycle of ill health in participants R2, R5, R9 and R12, whose single parents took ill and the participants had to step in to assist their parents thus leaving their schooling or jobs. They in turn were single parents raising their children.

Another hardship apparent at the BoP was shared in the narratives of Participant 3 and

Participant 6. When R6's mom had passed away, she was forced to relocate to live with her grandmother. As a result, she could not keep her job at a catering business due to the long public commuting hours and costs. She lived within a constrained socio-economic environment, where getting a license or purchasing a car was not possible – “there wasn't money for those things”. This is a topic Participant 3 also mentioned. Not having money to get a license affects the ability to be financially secure and reduces options for employment at the BoP. A sudden change in circumstance that is uncatered for has such far-reaching impacts, while not having access to one's own transport is typical of constrained environments at the BoP — highlighting again how persons are affected by institutional voids specific to socio-economic circumstances in emerging markets.

5.6.2. Financial Security

All participants vehemently corroborated that recycling had afforded them the opportunity to put food on the table for their families, clothe their children, assist with primary and secondary education, and in a couple of instances cater for tertiary education. Half of the participants, mention how they were unemployed due to retrenchment or non-renewal of their contract or in some cases, it's all they've known. There were some participants that were working in other industries at the time but opted for recycling due to other personal reasons, or that it meant they would earn more in recycling than in their domestic employment or by selling vegetables. A few participants were already entrepreneurial and set up their own businesses either selling vegetables, drafting compliance documents, or running a creche. However, having set up their own businesses, they were not running profitably due to non-payment from clients, and became waste recyclers. Recycling created a more feasible financial option for maintaining their households and providing for their children each month.

Participant 11, who made an average of R6000 per month from waste recycling, declares:

“I realised that money for two days as a waste picker and the money for a domestic worker is not the same. A domestic worker is small money and it comes at the end of the month. The money for a waste picker it comes every day if you want, and every day it is big!”

Participant 8 stayed committed to her role as a waste-recycler for 27 years, simply because it enabled her to put her children through school and college, even though she had not completed her own schooling. Despite the challenges of working in an informal waste management system, this construct had a high frequency of 27 as per Appenix 3. Participant 8 ratifies her commitment to recycling where she says:

“This job is good for putting bread on the table, but if you see the environment where we are working, its not good for a human being”.

Participant 1 and 4, who are both street recyclers, say the bins smell the worst in summer because of “Pampers and pap!”

Participant 4:

“Having an income simply kept their daughters away from unsavoury relations of running to a “blessor” to care for them”.

A blessor is an older man that provides for a younger women (girl) in return for sexual favours.

There are social stigmas in being a waste-recycler, where the women initially feel uncomfortable and ashamed as they transition into their roles. Social stigmas featured 18 times as a construct and was subcoded into challenges (please refer appendix 2) in a third round of coding. All respondents confirmed that they soon got over the community jeers and ill remarks because they recognised a financial reward from waste-recycling.

Participant 9 says it so poignantly:

“You have your own money, you know? You have your own money to go to town and buy something and eat with your kids. To be a waste picker is just like a domestic worker or a person who is working at the shop, because the money is the same as the other money. When we come with the money, we don’t see this money it’s from the dumping site or the landfill site.”

5.6.3. Self-Actualisation

Waste recycling was an option for the financial security it offered, however a handful of the respondents left roles in a more formal capacity due to toxic environments that were not healthy for them, or unfair business practices, which they could not endure even for the sake of their children (Please refer Table 7, which depicts the reasons for leaving formal employment).

Participant 1 currently works at Palm Springs Landfill, as well as in street recycling in the neighbourhood. She ironically justifies leaving her work as a reception teacher and as a factory worker and clearly states:

“If the place isn’t healthy for me, if it’s not a peaceful environment, then that isn’t the place for me”.

Waste recycling has created a channel for self-actualisation by the participants. Working in the informal sector has allowed several participants exposure to opportunities of investing in their own education, be it further training at a college, being sent to environmental school, learning computer skills, or improving their English to refine their presentation skills when communicating at conferences. Participant 7, recalls thinking to herself :

“I need to go back to school, so I was working at the dump from Monday to Friday and then I enrolled at the college, at South West Gauteng College that is in Roodepoort, Westgate, I enrolled there to take some classes while paying with the money I got from the dump.”

Encouragingly, a number of the waste recyclers were thinking about their next steps, to advance within waste recycling. Be it becoming a middleman and driving goods to buy-back centres, with their own truck, opening up a recycling centre and buying bailing machines to improve efficiency. Another participant spoke of selling the plastic pellets to China, if she had the correct equipment. The women recyclers were invested in their futures.

Participant 5 was sent on an environmental course by an external organisation. R5 returned feeling motivated – realising an opportunity, and declared to her family:

“I want to make sure that our environment is clean. So I am going to open a recycling centre and I will call it Plastic Recycling Centre”

Half of the participants mentioned their impact on the environment by reducing the strain on landfills. Whilst it was not their primary intention, contributing to a cleaner environment made them feel good about their roles. Participant 1 advises communities:

“We must not be a throwaway society”

Participant 1 intimates that some waste recyclers are aware of the impact they make to the environment:

“Apart from the money, I think it’s a good thing that we are reclaimers. There is

reclaimers around to collect stuff, because we clean the environment. I am probably part of the 1% who takes the material to avoid it getting to the landfill, since the landfills are getting too full now and there are even some that are closing. But because we take the materials before it reaches the landfill, some materials are not going to the landfill and some are not closing. So, I think as a reclaimer, I am doing a great job. I am the percentage of the reclaimers that are cleaning the environment.”

Many of the participants were able to move beyond their socio-economic constraints through the informal waste management system, with some working as National co-ordinators, some as representatives at international conferences in Spain, or hosting other organisations from India.

Participant 1 explains how waste recycling in the informal sector has provided her with so much more than just financial compensation :

“ You know what I like about reclaiming? It gives you your own time. It helps you to deal with your problems. And it nurtures you emotionally and physically and also your mind is busy. And to tell you the truth I never thought that by this time my kids will be this grown, but with the money that I make with recycling, I can afford anything that my kids need. Without even going to a loan shark to borrow money. No! I don't do that.” That's why I ended up being independent doing the work that I'm doing. Because there was no boss there. No-one who was going to tell me what to do”

The significance of self actualisation reinforces the commitment to waste recycling. A number of the waste recyclers had further ambitions within the informal waste management sector, by working towards buying machinery to do the palletising and sending it off to China. Another participant talks about owning her own truck to become a buyer in the supply chain of waste.

Interestingly, those that finished high school showed a stronger impetus to leadership by organising co-operatives or being fore-runners in the informal waste management sector.

Participant 4 signs off by saying :

“What I can say is, let us be strong ladies, lets unite and continue to save the environment!”

5.6.4. Independence

Many of the participants thrived on the independence of managing their earnings and their time, being free from reporting to unfair management or unreasonable employers who might not have recognised their efforts or have not been considerate of their employees familial commitments.

Participant 11:

“We don’t need anyone to manage us”

Several participants preferred to be accountable to themselves, taking ownership of their time management and being rewarded based on the work they had done. This is a reward system which they also have a sense of control over in terms of knowing the materials collected and what amounts it will fetch at the buy-back centre.

Participants felt they appreciated the independence that recycling offered in that it afforded them the flexibility to go home to see their children weekly, tend to family obligations, or simply have a day off when they themselves were not feeling well.

Participant 10 refers to applying her hands to whats available for the sake of ones independence :

“No, as a woman, as a woman you must be independent, you must not depend on anybody! God has given us hands and minds to think! You have to use it, that is all that is needed”

5.6.5. Entrepreneurial mindset

Throughout the narratives, there were constant examples of women waste recyclers having to be innovatively entrepreneurial to cater for their circumstances. Many the interviewees spoke of other entrepreneurial pursuits which they might run on the side, to create another stream of income. These included rental income from a home they might let out a room, selling vegetables, setting up a compliance documents business, or managing a creche. Participant 1 was selling powdered milk, as well as running a stokvel (community saving pools), in addition to waste recycling. She informs the researcher that:

“Yes, I was doing those two things because I needed to up my income. I had to come up with a plan!”.

Participant 11 would collect organic waste on the landfill and re-purpose it as pig food, selling it at R8 a bag to small holder farms. This would bring in an additional income of R2000 a month, to the R6000 she made waste recycling mentioned above.

Participant 10 :

“You must push yourself, because if you want something, you must work hard. If you don’t work there is no money”

When Participant 1 justifies the use of bricolage as a mechanism to create social value, she refers to using resources to hand. She puts it so succinctly when reaffirming her commitment to recycling:

“I do reclaiming because I care for the environment and recycling. And again to make sure that I don’t just sit, I make something out of my own hands that can benefit me and my kids”.

5.6.6. Summary addressing research question 1:

Despite the socio-economic constraints of the women waste recyclers backgrounds, the responsibility of being the sole breadwinner to their families is a sincere push for them to financially provide for their children. They are mostly able to support their household needs and show remarkable traits of entrepreneurship in their urgent need for independence and self-actualisation. The participants would otherwise have remained on the outskirts of economic society were it not for their entrepreneurial efforts to become active, ambitious members of society.

RESEARCH QUESTION 1:

What significance have women recyclers constructed around their lived experience as waste recyclers?

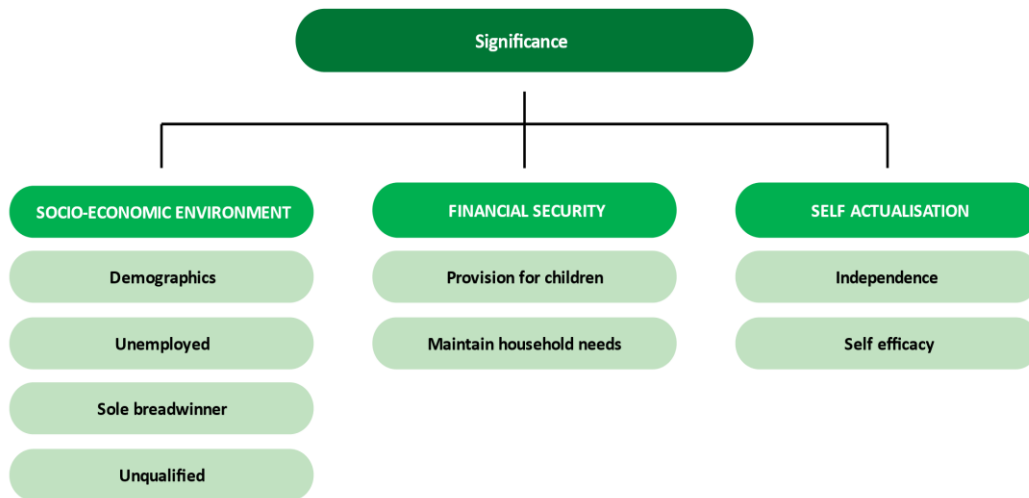


Figure 6: Research question 1 themes presented

Source: Authors own

Figure 6 above represents a model of Research question 1 and the three themes that presented from the axial coding and final categorisation. Beneath the three themes of Socio-economic environment are the categories that came through – demographics; unemployed; sole breadwinner; and unqualified. For the theme of financial security, the categories of provision for children and maintaining household needs presented through the axial coding. Self-actualisation was the final theme, which presented from the categories of independence and self-efficacy.

5.7. RESEARCH QUESTION 2: What intangible resources are necessary for women waste recyclers to succeed?

The themes identified relative to this question were the social contacts known to the unemployed participants who introduced them to waste-recycling, as well as informed the Participants on the process of recycling, and includes methods of improving their craft. Another theme that featured was the culture that exists within the informal sector, namely, the values and characteristics adopted by the recyclers that keep the informal sector growing. Lastly, the theme of organisational support from external sources came through and these refer to organisations separate to the waste recyclers that have aided in growing co-operatives within the informal sector and offered training initiatives to advance recyclers skills or

conferences where members meet on an international level. Participants across the two organisations mention financial aid offered from international investors as well.

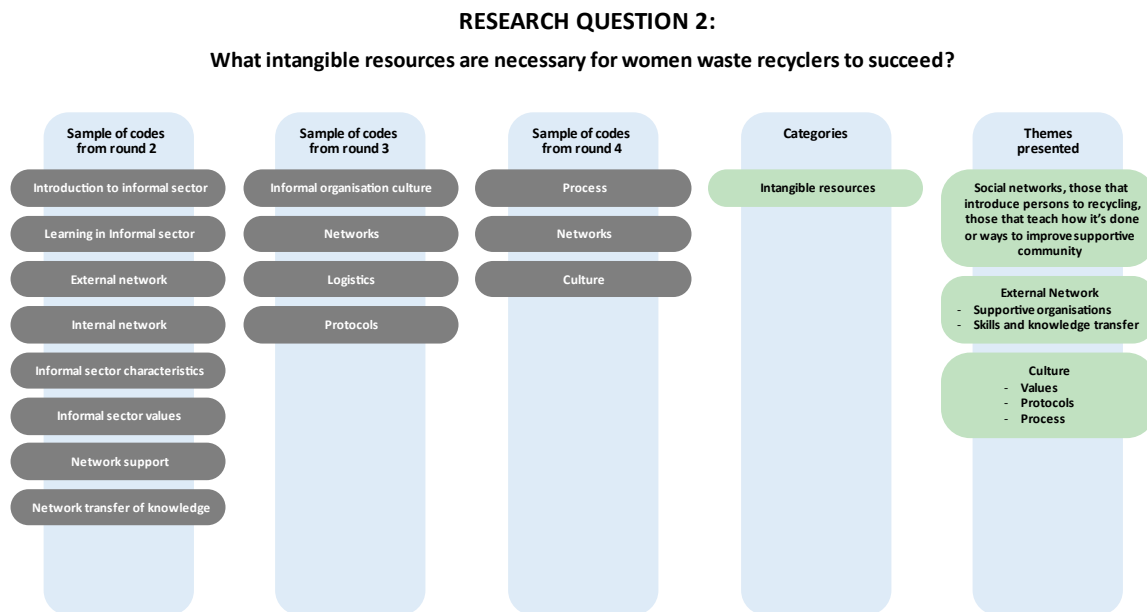


Figure 7: Extract of codes for research question 2

Source: Authors own

The above depicts an extract of the coding process for research question 2 to visually depict the synthesis of axial codes that present the categories and themes produced.

5.7.1. Networks

From the sample of codes in round 2 above, the code “introduction to the informal sector” pinpoints the moment when the participant was recruited as a potential waste recycler. All participants identified a neighbour or a friend who approached them, encouraging them to join them on the street recycling, as a means of introducing them to recycling. Once the participant was convinced of the benefit of waste recycling, this then created an option in an otherwise desperate situation of financial constraint. On the landfills, two Participants acknowledged their mothers as the centre of influence, who had transferred their skills to them from a young age, by watching their moms on the landfills. Participant 1, credits her mother for her taking to recycling instinctively:

“It was not hard work for me because I learnt it since I was small. So I was mastering it like... I was born there, let me just say like that. Yes, I was born to do it because like I was the fastest learner. I think because I grew up with my mum doing it, when I used

to help her.”

All the participants had a contact who introduced them to recycling and contacts who informed them of processes and transfer of skills through contact. This then fed into a common theme which is transferal of knowledge through networks and include best practices involved with recycling. An example of the coding involved would be unemployed, contact by friend.

The networks of the women recyclers extend borders as the recyclers connect to share information and knowledge and experiences throughout South Africa. Please refer to Appendix 5, which depicts the connections of women waste recyclers beyond their geographical work and living location. The social connection provided within the informal sector meant more to the women waste recyclers than mere work colleagues

Respondent 11 heartily says:

“I love it (waste recycling). I love it, I have friends, friends like sisters and chommies”

“Chommies” is slang for friends in South Africa

5.7.2. Process and protocols

Given the recyclers function in an informal sector, its members need be made aware of the existing unspoken and spoken protocols. This information is made privy to each recruit and differs between the landfill waste recyclers and street recyclers.

Participant 2 remembers when she decided to start recycling, with her two packets in hand a fellow recycler cautioned:

“That lady said to me the streets are owned by certain people. So before you start there you must just look around, find a street that is empty. There are people who are very aggressive. They are aggressive with their streets. Before you start collecting, ask is there anyone on these streets, just check before you start – is it safe for you to collect on those streets. Then they will tell you.”

Participant G discusses at the Krugersdorp landfill, where two conflicting informal groups work, the need to establish processes and protocols to govern each group so that they could work

alongside each other. Implementing processes to self-govern in the informal sector is a recurring theme amongst both landfill and street recycler participants.

Simple tricks of the trade which a new recycler would be none the wiser too, like squashing plastic bottles flat, ridding them of any unnecessarily air, thus enabling a fuller recycle bag and flat packing boxes - so that they are able to get more money for each load. Also, throwing bricks at bigger plastic pieces to break them into smaller transportable pieces and to fill a bag, are processes the recyclers learn from each other. Participant 2 testifies to the difference in rand value she exchanged her materials for when she learnt how to pack efficiently:

“ I didn’t know all about that. When I just started, I would just pick up the bottle, just squeeze it, take a little bit of the air out, and put it inside the bag. I thought because my bag was full and big, I had some money. Only to find out, that my bag is full of air. I had to squash and squash all the bottles and go inside the bag and squash, so that the bag won’t move! That’s collecting.”

5.7.2.1. Process for a landfill recycler:

At the landfill, the recyclers wait for the arrival of the refuse trucks. These refuse trucks are typically from the formal sector. Knowing which trucks are from which area is key, because based on where they come, certain trucks will bring in more valuable materials which carry a higher rand value on exchange. Recyclers on the landfill rate the materials from the Johannesburg refuse trucks as bringing in more valuable materials than trucks collected from Soweto. Once the truck has offloaded, participants start with the arduous task of rumaging and collecting what they can for recycling. When the recyclers’ bags are full, they find a space to sort and pack their bags, ready then to be taken to the buy back centre. In some instances, a few participants would sell their materials to a middleman that was based at the landfill, and other participants would pay for a pick up truck, known as a “bakkie”, to transport their materials to a buy back centre that might offer better prices. At the buy back centre, the participants materials would be weighed and paid for accordingly. Please refer to Figure 8 below, which is a model depicting the above description of the landfill process

Process Landfill

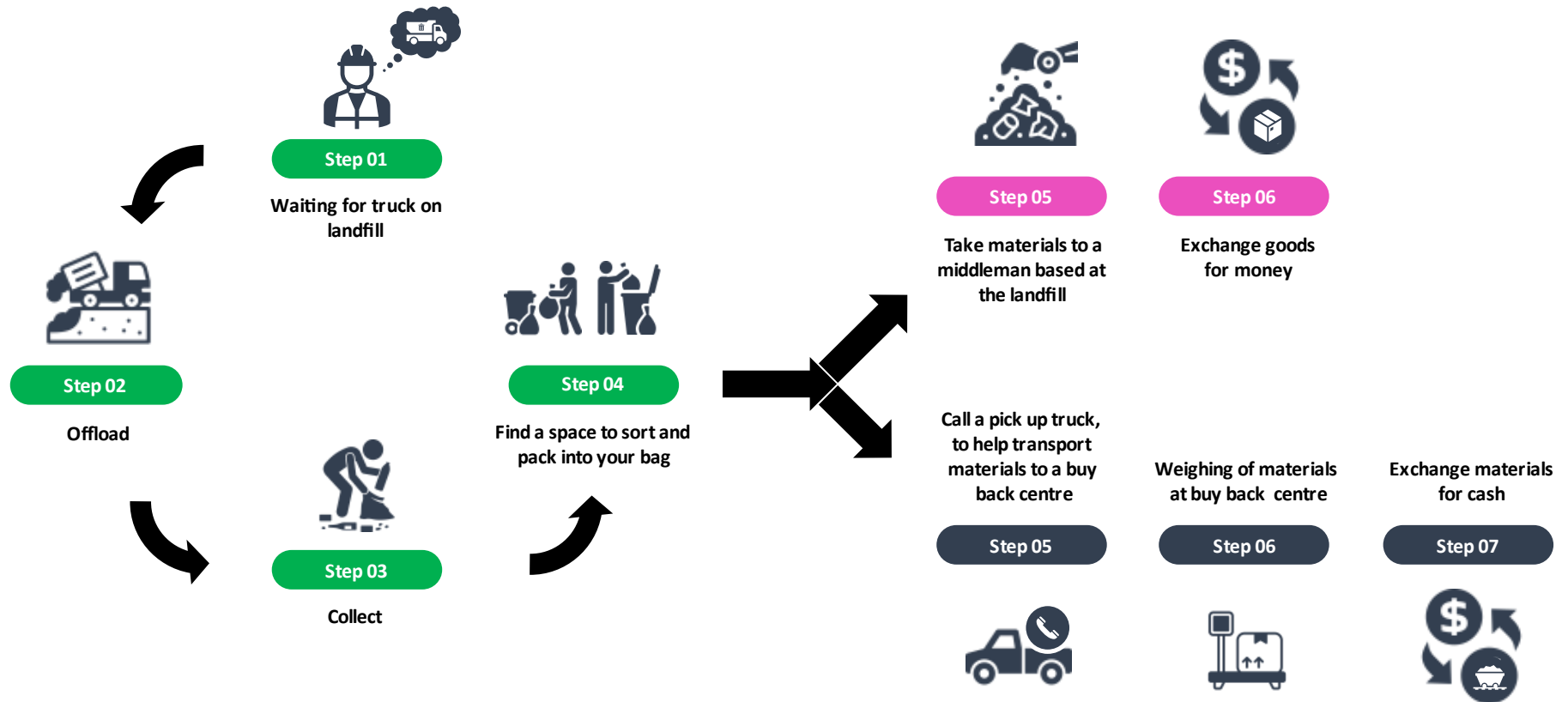


Figure 8: Landfill process

Source : Authors own, designed with the help of S.Wijekoon

5.7.2.2. Process for a street recycler:

Street recyclers' first aim is to find a road that is not taken. In areas where communities have separated recyclables from organic and other waste, this saves the waste recycler a lot of time. For the bins that have not been sorted, there is some application in terms of what the recycler prefers to take. Since street recyclers struggle to find a location to sort, some participants resort to sorting at home in their own backyards. This limits them to what they might take home. Glass was mentioned to be dangerous if there are children at home, since this will need to be smashed into pieces. However, there was some variations between participants in what they preferred to collect. Once materials are sorted it's a matter of calling a pick up truck, either one that is sourced by the Participant or one from the municipalities buy back centre which is often the cheaper option. The location of the Participant is a huge contributor to weighing up the costs of transporting their materials to the buy back centre, where materials are exchanged for cash. Sending materials to the buy back centre, would either be a monthly occurrence for some participants while some preferred to do this fortnightly. This decision is based on the Participant's needs and affordability. A further complexity for the Participants is the price offered for materials at the closest buy-back centre and where they can get the best price at a reasonable distance, based on their transport fee. A common concern amongst all the participants was getting a fair deal from the buy back centre, since exchanging recyclable materials for cash is an unregulated sector. Please refer to Figure 9 depicting the process at the landfills as discussed above.

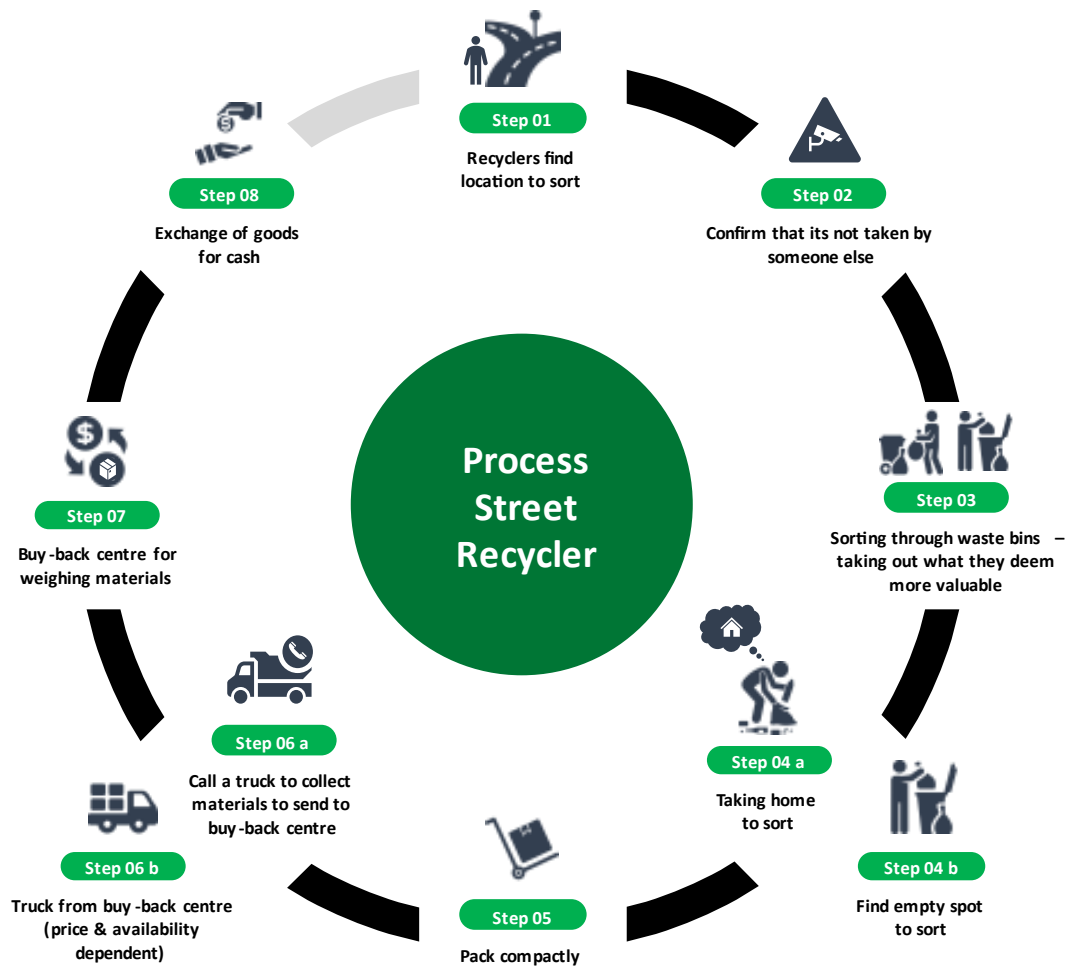


Figure 9: Process of Street Recycler

Source: Authors own, designed with help of S Wijekoon

5.7.3. External Networks

External investors, who are looking to partner or assist in some way, recognise efforts within the informal waste management system. A Japanese company donated a truck to Qlabotjha Enterprises, a co-operative set up by a self-motivated waste recycler for the benefit of 20 women waste recyclers. ARO were donated a truck from WIEDO, an American Organisation. These external contacts add value by improving the processes of the waste recyclers in an unfunded informal sector. External events and conferences, which recyclers are invited, are cross pollinating knowledge platforms that promote the efforts and advancement of recyclers. Ground Work organised an environmental course for the waste recyclers to inform them of their instrumental role in waste management.

Having attended a conference with SAWPA on waste management, Respondent 3 had learnt about co-operatives and through their guidance was able to set up Qlabotjha Enterprises with 20 other women. As a co-operative they were able to approach the municipality for working and storage space with ablutions.

Respondent 3:

"I met someone from SAWPA, I was at a meeting with SAWPA and heard them talking about co-operatives, working together you know? I liked this idea, and when I came back I said, 'You know what, you know these women who are working in the street with me, and it is not like we don't want to grow, but we didn't know how to grow ourselves' and now this concept of co-op I loved it, and I felt it could work for us".

Respondent 3:

"There's an organisation from Japan that is called UNIDO, United... oh, I forgot the name now. UNIDO supported us with a truck"

Respondent 10:

"Anglo American fund us with a trolley and JETCO gave us a scale"

5.7.4. Values

Finally, the values and characteristics were sub-grouped into informal organisation culture in round 3. Codes extracted from round 1 were - ease of adaptability into recycling, moral support

as women recyclers, pride in recycling, empowering communities, learning from personal networks, quote on moral support (Please refer to Appendix 1), and these codes spoke to the theme of values and culture instilled within the informal organisation culture.

All participants acknowledged the intrinsic value they leveraged from having the support of other recyclers who made them feel safe when walking the streets in the early morning hours to get to work or having a presence as a group of women on the landfill – especially given the vulnerability of not having access to private ablutions. A particularly touching story pertains to Participant 7. She endorses the group of women recyclers she works with on the landfill who used to shield her from seeing babies in plastic bags discarded on the landfills, soon after she had a premature birth. This network of creating friendship, security and investing in one another as a community, speaks to the culture in the informal waste sector.

Participant 3, who was particularly instrumental building a thriving co-operative, declares:

"But this is my heart, I love what I am doing, and the reason why I love it, is I wasn't benefitting alone, there were so many households that were benefitting with me. And you know it is team work, not seeing you lonely succeeding, but making sure that you hold the hands of other women, grow with them, go with them along the way – not seeing you as better than them, but seeing you as part of them – not seeing you as their boss, but seeing you as a leader, as the person who they can go to, a person that they can trust, a person that they can come to."

5.7.5. Summary addressing research question 2

Participants acknowledged the benefit of having a connection to other waste recyclers, as conducive to leveraging the knowledge of experienced members in the informal waste processes and protocols. It is essential for waste recyclers to seek each other out, establishing an informal yet organic network of strong bonds and a sense of community. This aligns with the values and culture they promote to build a strong informal community, growing with the aid of internal and external contacts.

RESEARCH QUESTION 2:

What intangible resources are necessary for women waste recyclers to succeed?

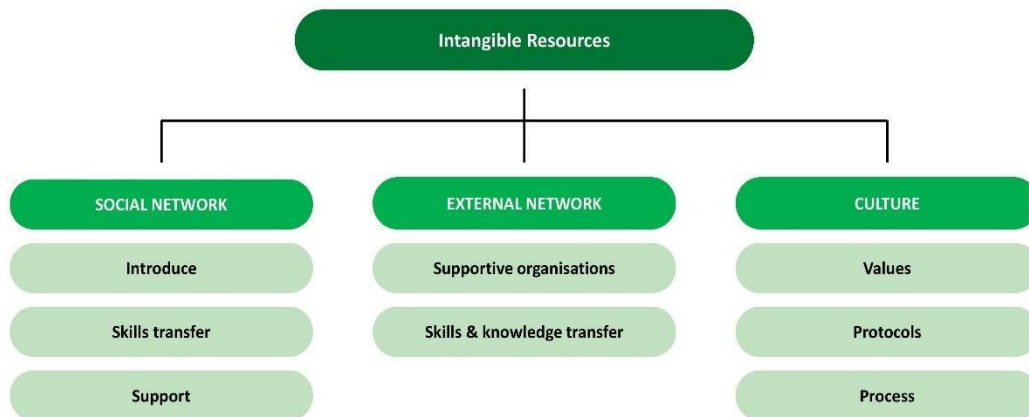


Figure 9: Research question 2 and themes presented

Source: Authors own

The above figure represents the category Intangible Resources and the themes that fed into it. Social Network theme, depicts categorised based who introduced a candidate to recycling, skills transfer and support. External Network was a theme stemming from supportive organisations and skills and knowledge transfer. Process, protocol, and values were categorised and produced the theme of Culture.

5.8. RESEARCH QUESTION 3: What tangible resources are required for waste recyclers to succeed?

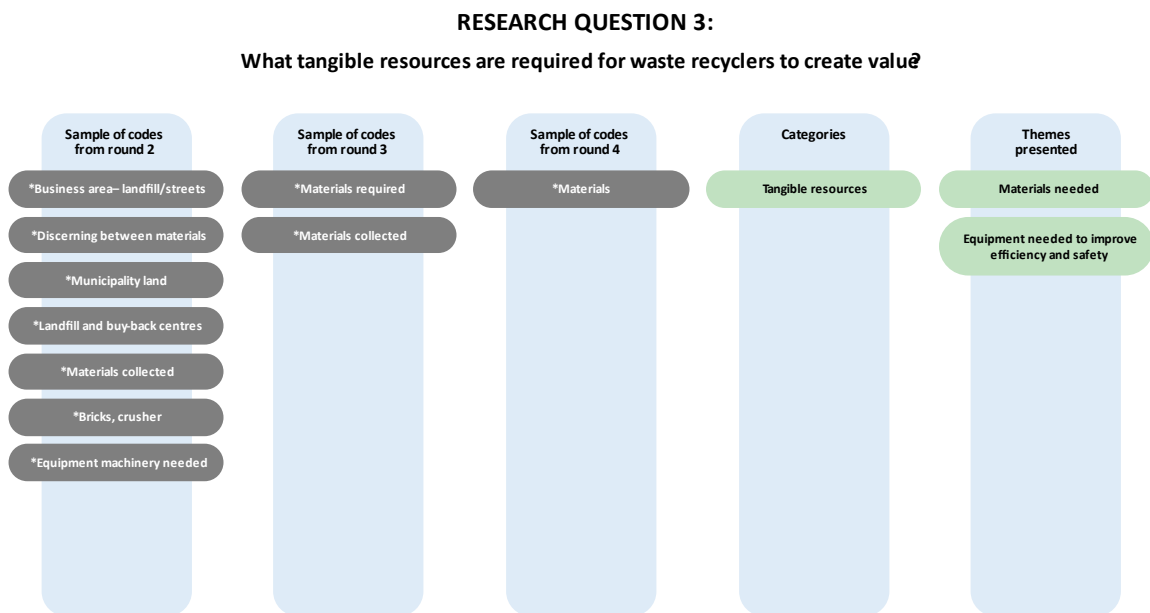


Figure 10: Extract of codes for research question 3

Source: Authors own

The above depicts an extract of the coding process for research question 3 to visually depict the synthesis of axial codes that present the categories and themes produced

The themes relating to this question, are the materials found in the field, that are recycled. The various materials hold varying rand values. The participants learn the differently values attached to different materials and some pick according to what they are wanting to achieve financially, discerning between materials. Participant also marked the equipment or machinery that would improve their systems and processes and will align more the health and safety protocols. These items feed directly into research question 3 : The tangible resources required to succeed as a waste recycler.

5.8.1. Materials Collected

Participants were discerning with what they collected based on the rand value their materials were exchanged for at the various sites and whilst accessibility is a main driver, the price variable was determined by the buy back centre and varied between buy back centres. The most common approach amongst the participants was finding the highest rand value price for

their goods. Particularly for Participants who were prepared to pay for a truck that they could send to the buy back centres that offered a better price. In instances where PeT (coke, fanta and sprite bottles) would fetch R10 per kilogram, it would justify the cost to hire a truck and transport the PeT, rather than trade with a centre that was buying at R3.50 per kilogram.

Table 6: Overview of materials and rand values as depicted by the waste recyclers

Material	Code	Rand Value
Sprite & Fanta Bottles	PeT with number 1 underneath	R2.50 - R3.00 in Roodepoort R3.50 in town
Coca cola, Sprite & Fanta Bottles	PeT green/clear/brown Clear bottles go for more	Clear in town R6.- R7 But in Roodepoort R4-R5
Yogurt, sauce bottles, plastic chairs, crates ice cream	PP with number 5 underneath	R3 – R4 per kilo
Milk, Umkamazi, Juice bottles	HDPE with number 2 underneath	R5.50-R5.70 per kg
Soft drink aluminium	ALU	R12 – R16
BOX	K4	R3
Cardboard box	PAP	70c in Soweto R1.50-R1.70 in CBD

To assist in explaining this concept, Participant 2 explains how initially she would collect whatever she could source, with no judgement. However, she has learnt to establish what fetches a higher price and to retrieve those materials accordingly, taking into account the location of where she packs and sorts.

Participant 2:

“So now what I collect is PeP, PP, HD and the cans. I don’t collect K4. Because where I live, around my neighborhood, the value for K4 is too low. And it makes a lot of dirt in the yard.”

Other participants confirm that a cardboard box will sell for 70c in Soweto but sell for R1.50 to R1.70 in the CBD. Beer and cider bottles are not worth collecting for some street recyclers as they find the rand value is too low, and the recycler needs to break and crush the bottles which require PPE and not safe if you sort in your own yard.

Another participant would only source cans around Christmas time, to bring in extra money to buy clothes. This concept of being able to work with your end financial goal in mind is confirmed by Participant 3:

“ You see, now you can plan your day. I know these are the most highest prices, but I need to make sure that I am getting more of them out of the waste stream. Then when we post them, they look at the weight, maybe I have got a 12 tons of alu cans - my 12 tons of alu cans at R12 or R16, it will give me a better life!”

Participant 13 :

“Steel, cans and copper I sell weekly for groceries, milk and transport. Plastic, cardboard and coke bottles, I sell monthly for rent and clothes and anything else I need to buy.”

The harsh reality is in as much as you have control over planning what you may want to collect, there are times when the pickings are meagre.

Participant 3 :

“It is not easy to come back to my kids and say – today mommy sold for R50 only. Now it means we are going to buy electricity and that is all.”

Participants set their collecting based on their needs, but also capabilities. Where some may collect all cardboards and papers and carry it on their heads, another participant (age 57) felt the load of carrying cardboard and papers too heavy for her and restricted her collection to plastic bottles – the lighter materials. There was also mention of being forced to leave the heavier scrap materials like copper for the men to collect, which fetch a higher value. Implicating that women are forced to collect the materials that fetch a lower price.

Participant 3 :

“If I don't have the power to pick up this copper, a man will come and say, “No! I will pick it up because you cant”. That means I will lose that mone.”

Understanding the numbers for the various recyclable materials is important in working out

the value of each item. In addition how you pack and sort according to recyclable type is based on this number allocation. Butter tubs and ice-cream tubs can be confusing, so referencing the numbers underneath each item will ensure sorting and grouping of materials is accurate. Much the same with brown and green glass bottles will be sorted together whilst the clear glass bottles will be grouped together as they are exchanged for a higher price.

5.8.2. Materials needed to improve recycling efficiency

There was much discussion from participants around how their processes could be improved with access to recycling equipment. There was a resounding cry amongst all street recycle respondents of how valuable a truck would be in their day to day runnings, reducing the strain of carting heavy trolleys to buy back centers, or walking long distances to get to the street location that the recycler works at. Some participants had noted that a baling compact device would improve their process, as it packs materials into a more compact workable form, increasing potential earnings but also making it easier to transport recyclables. This would be a tangible asset to improve their working efficiency as well as a glass crusher, which will involve less risk compared to throwing a brick in the backyard.

Participant 10 :

“It is that machine that makes pallets. A plastic crusher, so I can send it to China and make more money”

For street recyclers, in addition to needing a truck to transport the recyclers between roads, sorting centres and buy back centres, the need for a storage facility with security was put forward as a way to improve their process. The obvious Personal Protection Equipment (PPE), including gloves, protective glasses and boots, was also mentioned as necessary to enhance safety protocols. Participants working on the landfills, prioritised boots, gloves and masks – to cope with the dust and foul smells of rotting organic matter that make up the landfills. The street recyclers focussed on gloves as a priority and gloves with a long sleeve for sorting through the bins. Even though the risk of not having gloves was unanimous, some participants spent on buying their own gloves each month, and some didn't.

Participant 2:

“I don’t collect bottles. It is a lot of work, and it doesn’t pay you. And you need to have something to smash the glass bottles and PPE is very important. You need glasses so the glass doesn’t go into your eyes and gloves for when you break the bottles”.

Participant 6:

“The problem is, people are working with their hands, some don’t have shoes or boots. It’s not safe. Especially the Khoi and San they get cut and hurt – especially when we work with glass.”

Passionately reflecting on her journey of setting up a co-operative with 20 women waste recyclers through contacts she made within SAWPA, Participant 3 had access to more information regarding the benefits of working together and setting up a co-operative. In addition, her network within SAWPA convinced other sceptical women waste recyclers of the benefits of organising waste together within the informal sector. Once the co-operative was formed in 2019, Participant 3 was able to approach the municipality for a building where the collective could store, sort, and sell their recyclables. This fully resourced building meant the women had the infrastructure to safeguard their materials once collected, sort their recyclables out accordingly, and collectively pay for a truck to collect their recyclables and transport them to the buy-back centre. The benefits of having this fixed station also meant a safer working environment for the women waste recyclers, with access to ablution facilities. Facilities that are not usually accessible to either landfill recyclers or street recyclers. Some of the first-round codes produced from this interview were challenges within the informal sector, leadership skills, informal sector organisation, and external assistance, which fed into the theme of transferral of skills through internal and external networks.

**RESEARCH QUESTION 3:
What tangible resources are required for waste recyclers to create value?**

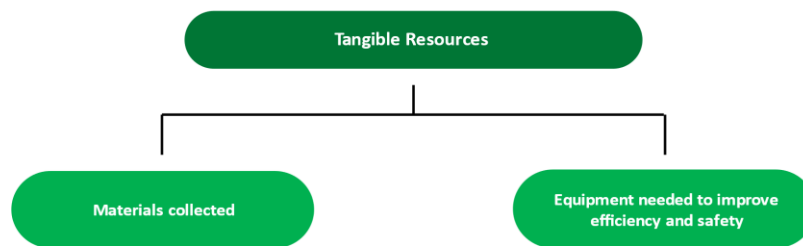


Figure 10: Research question 3 and themes presented

Source: Authors own

The above figure represents the Tangible Resources and the themes that fed into it – materials collect and equipment needed to improve efficiency and safety

5.8.3. Summary addressing research question

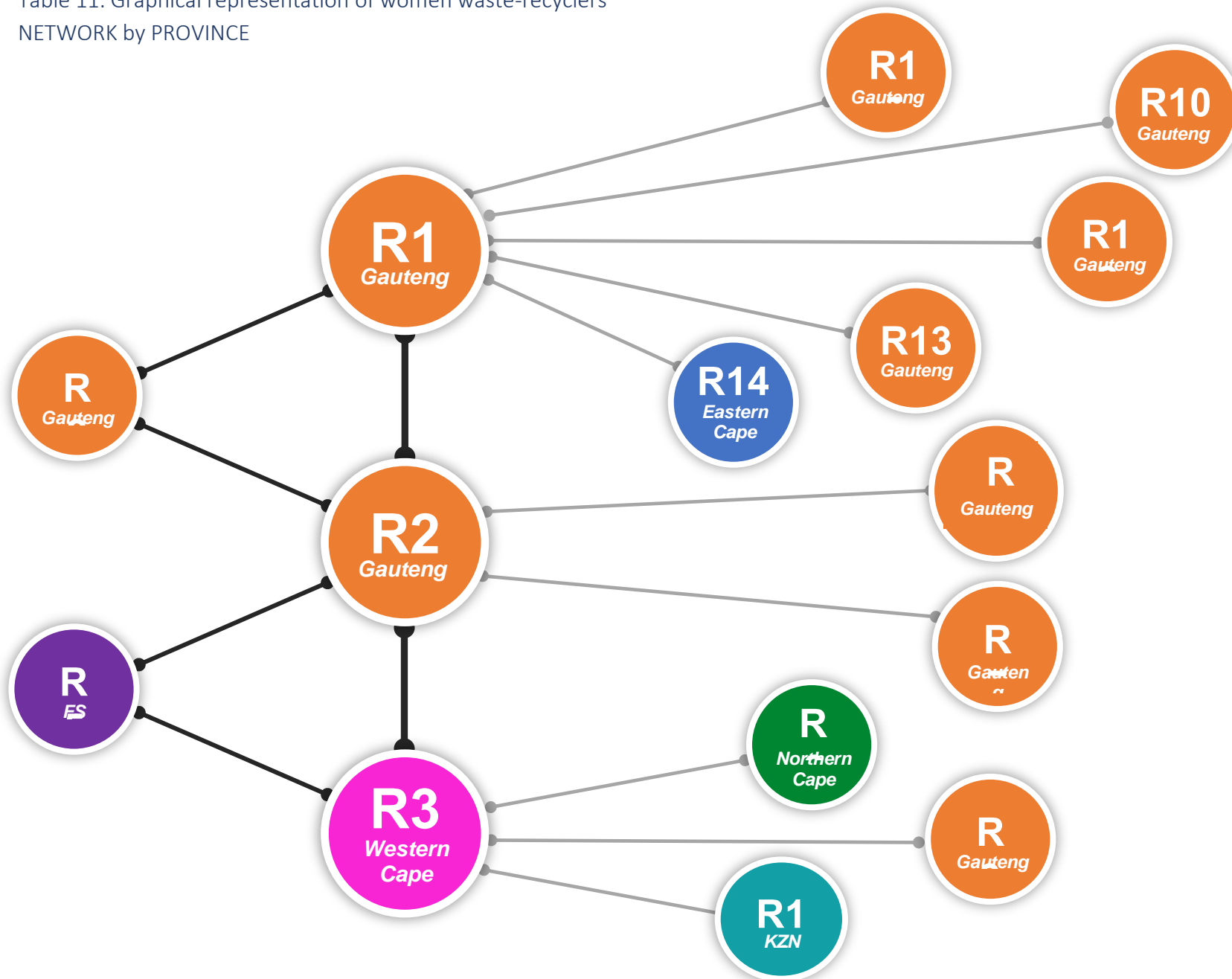
Materials are the start of the entrepreneurial activity of waste recycling. Understanding the rand value of each material and where to gain the better price, allows each recycler to discern and plan their time more productively. Empowering each recycler with a sense of control in an otherwise resource constrained environment. The participants are acutely aware of the equipment needed as well as safety PPE, to enhance their business endeavours but make do with what they have access to and are forced to work with those resources available.

5.9. SUMMARY OF CHAPTER 5

This findings chapter presents a synthesis of outputs derived from the 15 interviews that the researcher had with women waste recyclers, querying the significance waste recycling had to each participant. It must be noted that all participants were willing to be named and were not concerned with anonymity, indicating a longing for their recycling contribution to be recognised. The data was granulated through a process of axial coding to depict how themes emerged. The themes that surfaced were then organised to address the three research

questions mapped out in Chapter 3. Chapter 6 that follows, will now discuss those themes, and interpret the findings of this chapter in detail, following the structure of the research questions.

Table 11: Graphical representation of women waste-recyclers NETWORK by PROVINCE



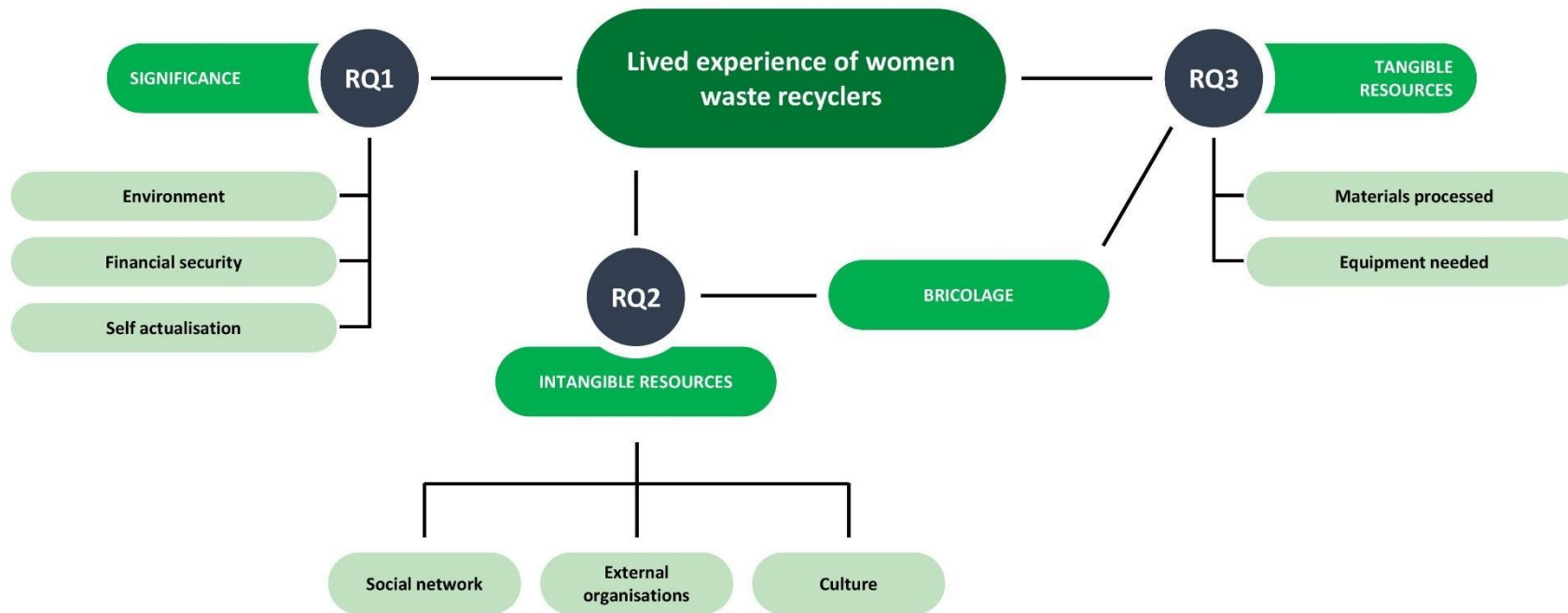
6. DISCUSSION OF RESULTS

6.1 Introduction

In an exploratory manner, the narratives of women waste recyclers were captured through in-depth interviews over two months to give voice to the women waste recyclers, the results of which were presented in Chapter 5. What follows is the outcome of combining existing literature with those findings to answer the questions mapped out in Chapter 3. The overarching objective was to uncover the lived experiences of the women waste recyclers and how they apply bricolage to create value for themselves.

In this chapter, the findings are discussed within the context of the three research questions put forward in Chapter 3 whilst considering the literature review presented in Chapter 2. C. J. Schenck et al. (n.d.), postulated that it would be a rewarding exercise to gain detailed insight into the waste recyclers' perceptions and experiences of waste recycling. This is corroborated by Mlotshwa et al. (2022), who said that it warrants the importance of gaining an in-depth appreciation for the significance that women waste recyclers attach to their work and working environments.

What follows will provide affirmations, negations, and expectantly fresh insights into the current literature review.



Framework 12 depicts research questions 1,2 and 3, with themes presented in the findings.

Source: Authors' own, assistance with design from S. Wijekoon

The framework above is crafted based on the themes that came out of the findings in Chapter 5. The purpose of this framework is to guide the reader and maps out the title of the research reflecting the content of the study, and the three research questions established to answer the overarching goal of understanding “The lived experiences of women waste recyclers who use bricolage as a mechanism to create value for themselves”.

Research question 1: What significance have the women recyclers constructed around their lived experience as waste recyclers? The themes presented in the data were environment, financial security, and self-actualisation.

Research question 2: What intangible resources are necessary for women waste recyclers to succeed? The themes presented in the data were social networks, external organisations, and culture, underpinned in the theory of bricolage.

Research question 3: What tangible resources are required for waste recyclers to succeed? The themes presented in the data were materials and equipment needed to improve efficiency and safety, supported in the theory of bricolage.

6.2. RESEARCH QUESTION 1:

6.2.1. What significance have women recyclers constructed around their lived experience as waste recyclers?

This question was crafted to create a platform for each woman to openly narrate their experience as a recycler. To meet an expressed need to authenticate the stories of women waste recyclers who are creatively entrepreneurial by applying the mechanism of bricolage to extract value (Sarkar, 2018). By asking what significance they constructed around their experience as a recycler, the researcher gained a perspective of the meaning and causal factors they attach to their self-appointed entrepreneurial roles (Mlotshwa et al., 2022). Opting to take on the tedious manual labour associated with waste recycling whilst tolerating a host of occupational health risks, these “invisible environmentalists” deserve an understanding of the personal significance which might have led them to this point (C. J. Schenck et al., 2019). To an outsider, it may seem inexplicable why a woman might pursue such a role at the BoP, however, the question created a window into the lives of the women waste recyclers,

6.2.1.1. THEME 1: SOCIO-ECONOMIC ENVIRONMENT

Several socio-economic factors were depicted in the demographical details which are relevant in understanding the background of the women waste recyclers, namely, their education levels, the constrained environment they were raised in

Education levels

With reference to Table 2 in Chapter 5, most participants interviewed had an incomplete secondary school qualification and were the sole provider for a family nucleus of at least two children. However, there were a few participants who had finished matric and furthered their education after school at college. Most were single parents, with a couple of participants left widowed or husbands that were unemployed with no employment prospects. Intriguingly, participant (R8), who had sufficiently established herself in waste recycling with monthly earnings of R8000, has an agreement with her husband that he would be a stay-at-home dad and care for their five children and household, while she is the primary breadwinner.

Encouragingly, some were pursuing further schooling or development whilst in their roles as waste recyclers. Respondent 7 says “I need to go back to school” and Respondent 5 says after attending an environmental course “I want to open a recycling centre and call it Plastic Recycling Centre”.

There is an appreciation for education (of their own and their children), by the commitment the waste recyclers show towards their work to afford their children schooling.

Resource scarcity

Another hardship apparent at the BoP, was the shared narratives of participants, that growing up in a constrained socio-economic environment, meant there was not enough money to afford the necessary tools to equip a young adult to thrive 'there wasn't money for those things'. By not being able to afford driving lessons or a car, meant limited job opportunities, what's more, not having access to good health and medicine reduced longevity in a household.

An unexpected finding was that of an expected responsibility that falls onto the eldest to help care for younger siblings or take on part of the parental role in the event of an unwell, unemployed parent or a single-headed household. There is an expectation that the most senior siblings would make sacrifices to help raise the younger siblings, as is the case in some participants who left their employment or schooling to look after an ill parent or care for their younger siblings. Ojong et al., (2021) noted a similar culture in a study of Ugandan women who left their schooling to care for younger siblings. It is worth noting this could tie in with a relatively new under-researched topic of "black tax", which accounts for these cultural phenomena of individuals in South Africa forfeiting their personal goals for the sake of a shared communal benefit (Lindiwe, 2017).

Being cast in a socio-economic environment, where households lived from month to month, inferred there was never excess funds to create a financial safety in the event of sudden change in circumstance for instance a retrenchment, or the loss of a loved one, leaving their young unqualified children to fend for themselves whilst they too are a single parent. The findings reflect a cycle of perpetuating poverty through the generations, despite how driven or able a person might be, that person is limited by circumstances of the socio-economic group they are born into. This narrative feeds into the literature that persons are affected by institutional voids specific to socio-economic circumstances in emerging markets (Rosca et al., 2020a). Participants 3 and 6 state that they had "no money for such things" referring to getting a license and buying a car. Which limited their job prospects.

Access to poor health systems is another institutional void at the BoP. Whereby parents who were unwell with limited chance of recovery or even passed away, inferred that their children needed to leave school or work to fill in and assist the household as in the case of R2 and R7 in Chapter 5, Table 7.

As the findings depict this perpetuation, the findings also disclose the women waste recyclers persistence in trying to break that cycle of poverty through waste recycling, which affords them the opportunity to finance schooling and quality of life for their children.

6.2.1.2. THEME 2: FINANCIAL SECURITY

The participants, of which are all mothers, felt waste recycling offered financial certainty, which was significant to them as it created a sense of control over their uncertain socio-economic circumstances. By managing the materials collected, they had an expectation of earnings, meaning they could plan their week or their monthly budgetary requirements accordingly. The model for waste recycling is as simple as: What you put in, is what you get out. This is in stark contrast to those that were dependant on an employer to pay in full or on time. The literature speaks of a women waste recycle who was able to save sufficient funds aside for the late stages of her pregnancy and for her “maternity leave” (Mlotshwa et al., 2022).

More significantly for the women waste recyclers, who had not been able to complete secondary schooling themselves yet were able to afford their children the opportunity to complete schooling even as far as tertiary education, must be deeply gratifying. This act of love stands a better chance at breaking the poverty cycle and creating a better life for the household. As one participant put it “my daughter doesn’t have to find a blessing!”.

The findings partially concur with what Garcia-Lorenzo et al., (2018) postulate, that certain environmental push factors motivate individuals to be creatively entrepreneurial out of a sense of ‘necessity’ in socio-economic stress. This is certainly the case when participants say, ‘it’s a matter of food on the table or we go hungry’. However, the findings depict a more comprehensive story. There are certain other pull factors that draw women to the informal sector of waste management, signifying that waste recycling to the sample of waste recyclers can be either social or economic but not limited to financial compensation (C. J. Schenck et al., 2016). Table 7 in Chapter 5 clearly illustrates that there were women who were unhappy with the toxic working environment in formal and semi-formal employment, and left for greener pastures to recycling. More on this will be discussed in the theme of self-actualisation below.

6.2.1.3. THEME 3: SELF ACTUALISATION

There may be a general public view that women waste recyclers are a homogenous group of

unemployable unskilled workers, looking for financial security out of sheer necessity (Samson, 2020). Some encumberments previously worked in domestic services were business owners, officer workers, and clerks. Garcia-Lorenzo et al., (2018) theorise about the birth of entrepreneurs who envision a different circumstance for themselves and, through necessity, reconstruct their context. With reference to Table 7 in Chapter 5, there were participants that left their formal employment to pursue recycling and did so as an act of self-preservation. Naturally, all employees are entitled to a respectful work environment, yet why would certain employers assume otherwise of workers at the BoP.

R7, working as a compliance officer, reached a point of immense frustration in her toxic work environment

“So I endured the torture for the sake of the kids, but then it got to a point where I couldn’t take it anymore. He was shouting and I couldn’t enjoy the job.”

Being exposed to the various social networks and external organisations has created a channel of self-actualisation for the participants. Several participants have had the opportunity to invest in their own education, be it further training at a college, or being sent to environmental school, learning computer skills, or improving their English to refine their presentation skills when communicating at conferences.

The levels of self-efficacy move exponentially as they waste recyclers grow in their self believe and belief in their abilities. Also, despite it not being their primary reason, there are some recyclers who take pride in knowing they are advocates for a worthy environmental cause as reducing the strain on landfill. The data also revealed high levels of independence were enjoyed for the bulk of the participants, being their own boss and managing their own time to allow for family commitments was of significant value to the women waste recyclers. Waste recycling grants women waste recyclers who are mothers, the flexibility to prioritise their family commitments, and integrate household and family care with their working routines (Wittmer, 2021).

Many of the participants were able to move beyond their socio-economic constraints through the informal waste management system with some working as national co-ordinators and as representatives at international conferences in Spain or hosting other organisations from India. These factors represent the significance to women waste recyclers as waste recycling has been an enabler to improving their economic standing despite the challenges of their socio-economic constraints at the BoP and advance the outlook on their capabilities, quashing low-

self-esteem that might stem from a low socio-economic standing (Rosca et al., 2020b). Waste recycling has afforded the women a sense of ownership over one's circumstance and a sense of independence that empowered the waste recyclers in their self-appointed entrepreneurial roles.

6.2.2. RESEARCH QUESTION 1 CONCLUSION

Being unemployed and unqualified, with the pressing urgency to cater for your children as sole breadwinners, is explicit motivation to contemplate waste recycling as a solution to end financial poverty (C. J. Schenck et al., 2019). While providing for their children is a primary push factor into recycling, the evidence suggests that self-actualisation and a sense of independence also contribute to the significance constructed around the lived experience of women waste recyclers. The findings are aligned with the theory which Samson, (2020) posits that waste recyclers prefer recycling to other low-skilled jobs. This is due to the significance of retaining their independence, managing one's own time, and not having to answer to any unreasonable or derogatory employer (Samson, 2020). In addition, in so far as women recyclers are concerned, waste recycling affords them the time and flexibility.

6.3. RESEARCH QUESTION 3:

6.3.1. What intangible resources pre-exist for waste recyclers to create value?

Bricolage of Intangible Resources

The informal system runs parallel to the existing formal waste management system, however makes a significant impact by applying bricolage mechanism to waste materials. Bearing in mind the informal sector is not subsidised for any of its efforts and because the waste recyclers are not considered council workers, they do not get uniforms, PPE, or any medical assistance (C. J. Schenck et al., 2019). The waste recyclers in the informal sector rely heavily on whatever resources they have available to be successful. By comparison, those in the formal sector have the necessary resources to be successful in their roles yet it is the informal sector that is responsible for the hazardous diverting of a substantial amount of tonnage from landfill without the necessary resources provided for them.

What follows is analysis of the data and significance of both the tangible and intangible resources that allow the waste recyclers to succeed—showcasing their adaptive resourcefulness of resources at hand.

The RBV framework reviews the resources and competencies that are exploited to create a competitive advantage (Donnellan & Rutledge, 2019a). Intangible resources refer to the reputation, knowledge, culture, and social networks. (Sunduramurthy et al., 2016). These presented as the social network, external networks and the culture fostered within the informal waste sector.

6.3.2. INTANGIBLE RESOURCES

The networks established through waste recycling are significant in that they allow for leverage of skills and transferal of knowledge in terms of the unspoken rules of how things are sorted and how things are done around here. There are no induction programmes and starter packs when a recruit joins waste recycling. How they pack more efficiently and where they are allowed to rummage through bins, are important things to know, and waste recyclers rely on their networks to let them know about these skills of the trade. Skills training is needed to improve the capability set of waste recyclers, depending on what they regard as important. This could include improving business skills or developing additional skills to enable them to be more employable, should other opportunities arise. The process of enhancing skills needs more than just training (Godfrey et al., 2016) and could also include mentoring to help them understand the waste sector, business, prices, negotiation, recycling, bookkeeping, transport, and other relevant processes (C. J. Schenck et al., n.d.)

THEME 1: Social Networks

Women waste recyclers are significantly resourceful, in that they are unqualified and have no formal entrepreneurial or skills training in micro-enterprises and yet they can access skills and the transfer of knowledge by tapping into the networks they have. Mlotshwa et al., (2022), ratifies this when he posits that social networks are important to access resources. They exercise a degree of self-agency, driven by a culture of “we’re all in this together” mindset. Fellow women act as a lifeline and have introduced unemployed candidates to waste recycling. Other women are instrumental in mentoring novice waste recyclers, so they can be successful in the role as a waste recycler. This is inherent in the recycling system, which the waste recyclers have been key agents in forging (Samson, 2015b).

These social networks are not simply a skills hub, but invariably become a support structure and haven for women waste recyclers. Who present as a force to be reckoned with on the landfills and on the streets as they work together. There is safety in numbers and the women

waste recyclers share the challenging load of being women waste recyclers together. The network of women recyclers provides a high degree of kinship and strength in their shared adversity, respecting they share a common purpose of providing for their families and making an honest living. Each is aware of their individual agency in creating a system in an unregulated informal sector (Samson, 2015b).

THEME 2: External networks

Women waste recyclers have self-organised and set up co-operatives, realising the bargaining power of representing as co-operative but also to pool resources and share the cost of running their micro-enterprise with the guidance and expertise of external actors in waste management services. The South African Waste Recyclers Association (SAWPA) promote and actively encourage its recycling members to form co-operatives, primarily because collective action promotes a stronger work identity creating more bargaining power (Ogando et al., 2017b).

The networks of the women recyclers extend beyond borders, as the waste recyclers connect to share information and experiences, throughout South Africa and abroad. Donnellan & Rutledge, (2019b) posit that external sources can be accessed for unique assets. Meeting with external parties internationally to cross pollinate ideas and experiences, which promotes a strengthened identity amongst informal waste recyclers. Ground Work organised an environmental course for the waste recyclers, which inspired participants with a sense of purpose in their roles in the informal waste management sector. So much so that a participant left determined to start a recycling centre.

Participant 5:

“I want to make sure that our environment is clean. So I am going to open a recycling centre and I will call it Plastic Recycling Centre”

This intangible resource of external networks offers a wealth of experience and knowledge that support the waste recyclers in improving their systems and protocols. Often external networks, in addition to formalised skills and organisational transfer, create an enabling environment with access to funds to support and help grow the informal sectors efficiently and promote their identity, improving the overall brand of the waste management in the informal sector (Schenck et al., 2016). There are external stakeholders that contribute resources to

the informal sector be it in funds to purchase a pickup truck, shipping containers for office and storage space (Samson, 2020). Participant 3 discussed how UNIDO, a Japanese firm donated a truck to their co-operative. Co-operatives are formalised groups of waste recyclers in the informal sector. Studies have shown that cooperatives are a means for waste recyclers to increase prices when approaching buyback centres and improve their position in the informal recycling sector (Samson, 2015a). Backed by literature that presenting as a collective creates a stronger worker identity, activating a unified voice and improved bargaining power (Ogando et al., 2017a).

THEME 3: Culture

There is a culture and value system that exists amongst networks in the formal sector. As mentioned by Yet, Yu & Wang (2021) who postulate that existing studies may lack cultural awareness. However, this research intended only to capture the culture amongst the women waste recyclers.

The informal sector has established a culture and a set of values that guide the behaviour of the waste recyclers, creating a strong sense of community (Sarkar, 2018). Women care for each other, and have an open network to guide and grow one another, promoting further education and self-development by making workshops available where women from the informal sector can grow their skills set. The culture is important as it presents the informal sectors ability to function, as a unit, instilling a sense of purpose and belonging for the community of waste recyclers.

6.3.3. RESEARCH QUESTION 2: CONCLUSION

Applying a bricolage of intangible networked relationships in the waste picking environment is conducive to leveraging the knowledge of experienced members in the network leading the informal organisation towards sustainability (Garcia-Lorenzo et al., 2018). This is crucial in BoP informal organisations, as is the case of the waste recyclers, pursuing alternative opportunities, which may lack prior expertise, decision-making biases, and imperfect data collection rendering a lack of organisational legitimacy. It is essential for waste recyclers to seek out others, establishing an informal network of strong bonds and a sense of community within the BoP, which form part of the entrepreneurial bricolage system (Sarkar, 2018). Almost all interview participants spoke to the importance of support from their household and their working community played a positive role in their sense of purpose.

As well as having this support, the deep sense of kinship created a culture of belonging (Wittmer, 2021).

6.4. RESEARCH QUESTION 3

6.4.1. What tangible resources are required for waste recyclers to create value?

The following is a discussion on the tangible resources and competencies the waste recyclers utilise when they apply their dynamic capabilities of sensing, seizing and reconfiguring these waste materials to create value (Kohtamäki et al., 2019).

In the analysis of the data, tangible resources refer to the materials collected by the waste recyclers and equipment needed to improve their efficiency and safety. Whilst the recyclers apply the mechanism of bricolage and make do with resources to hand, it is interesting to note how the much more their roles can be efficient and safer, if they had access to capital (Molecke & Pinkse, 2017).

There is more to the collection of waste materials, than what meets the eye. The process is not as rudimentary as collecting waste and exchanging it for cash at the buyback centre. The waste recyclers consider several factors in their choice of materials collected (Samson, 2015b) It is an informed decision requiring the skills learnt from the networks discussed in Research question 2. The choice of what tangible resource to collect is deliberate and not simply based on accessibility to which waste materials, but a deeper knowledge of prices offered at the buyback centres, knowing who are other actors on the scene and their price offering.

There is a cross over of application of what the tangible resources are and the intangible resources and are they aligned to achieve the same outcome of getting a higher price for materials offered (Donnellan & Rutledge, 2019c)

THEME 1: Materials collected

Initially, the data suggests that a novice waste recycler assumes that recycling in the informal sector is simply collecting the most of any assortment of waste materials possible. Indeed, the general public might make the same assumption. However, as discussed, the data points to the critical social networks that are key in transferability of knowledge amongst the waste recyclers in the informal sector which is unregulated, in this instance identifying waste materials (Sunduramurthy et al., 2016b). The new recruit then learns to discern which

materials will work best for their circumstance based on its tradeable rand value, and also learn how to decipher the various recyclable codes that are printed at the bottom of each consumer good. As the recyclers become more informed in selecting and sorting materials, their income improves and their skills improve (Samson, 2015a).

There were several findings in chapter 5, at 5.8.1. Materials collected point out the significance of discernment for which materials to collect in planning the days earnings, or for special occasions where they needed more spend. Where their workplace was located relative to the buyback centre that offered the highest price, was also a factor. Participant 2 narrates how cardboard boxes (K4) have no value to her, as it is traded 70c in Soweto buyback centre, a much lower price at the buyback centre where she lives and works from. She would then need to justify the extra cost of hiring a truck to get to the CBD to trade the K4, where it is exchanged between R1.50 to R1.70.

Another participant in the Free State, had applied a level of self-agency and collaborated with local retailers – namely Spar, Steers and Cosmetic International who agreed to give her their cardboard boxes weekly, and they wouldn't need to have it sitting in storage. In uncertain circumstances, entrepreneurs deploy a degree of self-agency pursuing channels to collaborate with network members to co-create opportunities (Kerr & Coviello, 2020). R. Schenck & Blaauw (2011) may view this degree of self-agency and skill as an upper-tier activity, to overcome a barriers.

The data identifies various participants who preferred certain materials, based on what their weekly and monthly requirements were. There is more to collection of waste in the informal sector than simply collecting and exchanging recyclable materials. Staying in touch with rates offered might adjust what recyclers collect and when they collect certain goods based on occasions they needed to cater for. Waste recyclers learn to discern, select, and sort materials based on their financial requirements, logistics and capabilities.

The data suggests that waste recycling in the informal sector, even if it is structured in its application of bricolage of resources at hand, requires from the waste recyclers an aptitude of application to manage a successful micro-enterprise (C. J. Schenck et al., 2016)

It was stated that men have first choice on heavier items, as they might be able to pick up items such as copper more easily than some of the women waste recyclers, intimating that women were left to collect the less valuable items. This supports the literature that men monopolise the higher value materials, reducing the pool of "gold" for women waste recyclers.

Meaning they must work much harder to meet their financial requirements, picking the lower valued items (Samson, 2020).

THEME 2: Equipment needed to improve efficiency and safety

The research explores bricolage as a mechanism to create value for the waste recyclers and focuses on making do with what resources are accessible to the recyclers (Yu & Wang, 2021) The enormous contribution to waste recycling is impressive given the very little they have had to work (Godfrey, 2021). However, as the women waste recyclers shared the significance of their lived experiences, a recurring theme emerged of how their roles in recycling will be made easier and safer.

As discussed in previous chapters waste recyclers at the BoP are seen as creatively entrepreneurial in how they are able to use what resources they have available in a constrained environment, to turn a profit. With no capital outlay and not having a steady inflow of financial investment the recyclers use what resources they have at hand (Molecke & Pinkse, 2017). However, they are mindful of ways to improve their processes. Unpacking their stories, from the transformation of how unsure the participants were when they first started to how they have grown their enterprises, is a success in itself.

The street recyclers pointed out how the strain of pushing makeshift trolleys would be reduced insurmountably if the waste recyclers had a truck. Some participants mentioned the distance they had to walk to get to the street location that they worked, which involved all sorts of safety complications and leaving at unsightly hours. A bailing machine to compact more tonnage of recyclable materials into transportable form was also presented in the data. As well as a glass crusher, which will make breaking glass down safer at a secure location.

Another key mitigation strategy for many of women waste recyclers is to secure a more permanent space – a material recycling facility (MRF) at a central point to sort and store their materials. This helps improve the supply chain of waste recycling, since both supply (as people know where to find them to drop off recyclable materials) and storage will be central, thereby reducing the need to move large quantities of waste around the city on the back of a trolley (Mlotshwa et al., 2022).

The value of setting up a co-operative cannot be underestimated. As a co-operative, waste recyclers increase the probability of securing a facility, allowing women waste recyclers to safeguard their materials and collectively pay for a truck to collect their recyclables and

transport them to the buyback centre. The benefits of having this fixed station also meant a safer working environment for the women waste recyclers, with access to ablution facilities.

Some participants spent some of their earnings on buying gloves for themselves. It is essential for the waste recyclers to have the required PPE, given the medical risks they're exposed to. However, few can ill afford their own PPE. All costs of running their enterprise are for their own pocket. There is the occasional donation of PPE from various organisations.

6.4.2. RESEARCH QUESTION 3: CONCLUSION

Chapter 6 contrasted the findings with existing literature presented in Chapter 2. Triangulating the various accounts of the 15 participants has verified significance constructed around the lived experience for the waste recyclers. For the most part, the outcomes concur with the literature. Whilst older literature postulates the main push factor for women pursuing recycling roles is for financial gain, the findings presented in this research agree with more recent study that there are various pull factors toward recycling that the women seek.

The intangible network of the waste recyclers is by far and large underestimated in its value to the women as individuals as well as in the literature. The social value may be shadowed by the ability of women waste recyclers to self-organise as a co-operative, which has more financial value.

CHAPTER 7: CONCLUSION AND RECOMMENDATIONS

7.1. Introduction

The research aimed to add to the pool of knowledge around the lived experience of women waste recyclers who apply bricolage as a mechanism to create value for themselves. As relayed in Chapter 1, there was an outcry for more rigorous accounts of women waste recyclers' lives and working experience (R. Schenck et al., 2016). The study's objective is to understand the causal factors that motivate women waste recyclers to work with waste, despite the occupational health hazards, with no supportive from formalised waste management (C. J. Schenck et al., 2019). Whilst literature might view this act of creative entrepreneurialism as an act born out of necessity (Garcia-Lorenzo et al., 2018), some studies theorise that there is more than just financial gain driving the growth in the informal waste management sector (C. J. Schenck et al., 2019).

There is sufficient motivation for the exploration into the lived experiences of women waste recyclers. Through 15 in depth semi-structured interviews, who better to gain an understanding than the women themselves. The most of whom revelled in the opportunity to narrate their stories.

Chapter 3 presented three research questions:

Research Question 1: What significance have women waste recyclers constructed around their lived experience as waste recyclers?

Research Question 2: What intangible resources pre-exist for waster recyclers to create value?

Research Question 3: What tangible resources are required for waste recyclers to create value?

7.2. Theoretical Summary

There was sufficient motivation to gain a richer understanding of the lives and working experiences of women waste recyclers and the significance they attached to their roles. (Mlotshwa et al., 2022). This would require further investigation into their perceptions and motives an uncovering of the various push and pull factors that might draw them to waste

recycling (C. J. Schenck et al., 2016).

The women waste recyclers are creatively entrepreneurial by applying bricolage to resources they have to hand, in a constrained environment (Namatovu, 2018). The benefit to understanding this in emerging economies invaluable, given that these economies rely on the advent of small enterprises (Witell et al., 2017). The application of bricolage at the base of the pyramid (BoP) creates societal value through the creative entrepreneurs, who despite functioning in constrained resource environments, can be entrepreneurial by extracting value despite limited resources to hand (Onwuegbuzie & Mafimisebi, 2021).

The study drew on the resource-based view (RBV) to understand the combination of both tangible and intangible resources that are applied and exploited to create a competitive advantage (Donnellan & Rutledge, 2019a)

7.3. Principal Findings

The principal findings of the research relate to the causal factors that attract recycling in the informal sector to a diverse group of women from the BoP. Who, whilst share a common socio-economic background, have had different experiences that have led them to waste recycling. The waste recyclers apply the mechanism of bricolage very successfully with the limited resources they have to hand. Waste materials for recycling are not in short supply, however there are other tangible resources that would improve their processes.

7.3.1. What significance have women waste recyclers constructed around their lived experience as waste recyclers?

Women waste recyclers are not a homogenous group (Samson, 2015a). Some participants had progressed further in school than others and there were a few that had gone into a tertiary qualification. Not all participants turned to recycling strictly out of financial desperation (C. J. Schenck et al., 2016). There were those who chose to be a waste recycler because it brought in a higher earnings per week, but also there were other pull factors in recycling which attracted women waste recyclers to the role. Independence and self-actualisation were the main pull factors. Waste recycling offered a sense of purpose beyond just catering for their children, it created an accessible portal for the women waste recyclers to pursue their own development.

7.3.2. What intangible resources pre-exist for waster recyclers to create value?

Sunduramurthy et al., (2016a), refers to intangible resources as the the reputation, knowledge, culture and social networks that are accessible to the women waste recyclers. The value instilled in this intangible resource is central to the success of the women waste recyclers. In addition to the 'sisterhood' which allows women to feel safer in their high risk roles, the knowledge learnt from their social network is the reason for their success. The strength of the social network is not simply in introducing each other to the informal system and how things are done, but it is a reason the women stay. This answers C. J. Schenck et al., (2016), as to understanding the pull factors to waste recycling. This concurs with Ogando et al., (2017) who posits that intangible asset fosters a stronger worker identity and self-dignity. Which waste recycling has certainly provided for the women waste recyclers in this sample

7.3.3. What tangible resources are required for waste recyclers to create value?

Donnellan & Rutledge, (2019), refer to tangible assets plant and equipment, most of which the women waste recyclers don't have access to. And yet through the application of bricolage, they are successful in their roles. The research doesn't refer to the make shift trolleys that the public see on the roads, but the bricks that are thrown to break biggers plastics because its easier to transport.

A few big- ticket items that will make such a difference to the roles of the waste recyclers, which some external parties recognise and contribute. These items seem so basic in any formal set up – a truck, baler machine and even more essential is PPE.

7.4. Recommendations for future research

Future studies could review the impact of "black tax" at its affect on waste recyclers and working communities at the BoP who by and large don't have wealth to afford tax (Lindiwe, 2017). The researcher found it curious, that the participants that had finished secondary school and done some form of tertiary qualification, seemed to show more agency in being organisers in a network of women. Lastly, research into why the women waste recyclers aren't afforded being seen as self-advocating entrepreneurs and seen rather as workers at the BoP.

7.5. Research limitations

As with any research project, there are limitations to the research presented. There was the opportunity to have interviewed more willing participants for this research, however language

was a barrier. This meant that the pool of participants there was a great need for more women who wanted to share their stories of waste recycling and the significance it held to them.

7.6. Conclusion

The research set out to understand the significance a role like waste recycling had to women entrepreneurs at the BoP, encourage by Mlotshwa et al., (2022) to gain an appreciation for the meaning obstructed around their lived experience. Confirmation was needed of whether women waste recyclers went into this strictly for financial gain or other social and economic factors (C. J. Schenck et al., 2016). The research clarified that whilst the financial compensation assists in breaking the poverty of financial desperation, the true value gained is in the sense of independence and self-actualisation. Where the women waste recyclers develop a higher level of self-efficacy, simply by utilising bricolage as a mechanism to create value.



Picture received from R14
Free State, cardboard boxes flatpacked. A consignments of flatpacked cardboard boxes from Spar, Steers and Cosmetic International.



Picture received from R7.

Marie-Louise Landfill, Roodepoort.

After R7's knee was caught under truck .

"The truck was pushing and as it was pushing, the refuse it like divided itself and then it fell on me! It fell on me, I was buried in an instant. I was just visible only from breast up, and the legs and the waist were under the rubbish, and there was a big brick, I think it was a brick and the knee, the knee went backwards!"



Picture received from R1 : Registering women waste recyclers



Picture received from R12:
Can you spot R12?
Krugersdorp Landfill, just after the Pick-it-up truck has dumped waste.



Picture received from R8. Marie-Louise Landfill

“Everybody is running to it and then we wait until they operate and offload.
After they offload now we are starting picking, picking, picking, picking until you are flat.
If that truck has got the stuff we’re after, we dig through it until we are flat, flat, flat”



Picture received from R3:
Recyclables stored at a facility offered by the Municipality in Paarl



Picture received from R3: storage offered by Municipality in Paarl, Sorted aluminium cans, compressed and packed making it easier for transport



Picture received from R1:
Event hosted by Unilever South Africa to raise awareness about recycling



Picture received from R1: Palm Springs Landfill, Vereeniging



Picture received from R1 : presenting at Jozi Book Fair.

R1 is also part of the Forum of Active Journalists.

“We write stories that is happening where we are. Stories about our organisations on a daily basis. Stories that are happening in our community,they are for a community to learn about things”



Picture received from R14 : East London collecting her cardboard boxes which are flat packed and carried on her head. R14 has an arrangement with Spar, Steers and Cosmetic International to collect their cardboard boxes weekly.

APPENDIX 4:

Consistency Matrix

Title : The lived experiences of women waste recyclers who use bricolage as a mechanism to create value for themselves

Questions	Literature Review	Data Collection tool	Analysis
What significance have women recyclers constructed around their lived experience as waste recyclers?	(Nambiar et al., 2020) (Mlotshwa et al., 2022) (C. J. Schenck et al., 2016)	Part A & B in interview guide	Exploratory
What intangible resources are necessary for women waste recyclers to succeed?	(Donnellan & Rutledge, 2019c) (Sunduramurthy et al., 2016b) (Samson, 2015b)	Part C in interview guide	Exploratory
What tangible resources are required for waste recyclers to succeed?	(Samson, 2015b) (Donnellan & Rutledge, 2019b)	Part C In interview guide	Exploratory

APPENDIX 1

Semi-Structured Interview Guide

Title			
Date		Time	
Place			
Medium	Whatsapp Video Call	Zoom	Voice Call
Interviewer			
Interviewee			
Contact Details	Mobile	Email	
Company			
Position			
Introduce the study:			
Introduce my organisation			
Introduce Self			
Confirm that the discussion is confidential & anonymous; don't need to answer if they prefer not			
Consent to participate	Yes/ No	Consent to audio recording	Yes/No
Questions :			
Age	Resident/Non Resident	Location	
Education level			
Previous work experience			
Broad Questions (to get interviewee comfortable)			
* How long have you been a waste recycler for			
* Do you work on landfills or on the roads			
* What are your working hours			
* How/why did you get into waste recycling as a living			
* How did you transition into being successful at it – what did you need to know/learn			

Part A :

- * How do you feel as a women being a waste recycler
- * Are you able to meet your financial commitments
- * If you could find another role would you leave waste recycling
- * What do you enjoy about your role
- *What do you not like about your role
- * What are important characteristics (things) to have to be a female waste recycler

Part B:

Main Questions (linked to Research)

- * Do you know the origin of collecting waste for recycling?
- * What made you think of collecting waste, organising it and then recycling it?
- * What sort of resources do you collect
- * What constraints in waste management exist in the formal waste management system?
Do you have access to everything you need?
- *How do you make do with what you have? In terms of, getting around, organising, collecting, sorting, connecting with others, systems in place ?

Part C:

Sub Questions (linked to research)

- *Which resources (things) do you need more of to function well?
- *What are the internal resources (things) you need to be a waste recycler?
- *What are the external resources (things) that make waste picking possible?

Clarifications and link to theory

Concluding Statement

Thank the participant for time and insight

Inform what will happen after the interview

Provide my contact information for any post interview questions

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Appendix 2: Table of raw codes and axial codes

Initial code list of 195 codes	Second Round 115 codes	Third Round	Fourth Round	#	Theme	#	Themes
Ability to influence	Aspects enjoyed		Challenges	9	Demographics	34	Environment
Age	Budget Requirements_ Earnings	Budget Requirements	Demographics	21	Entrepreneur	15	Intangible Resources
Age when started Recycling	Business area	Demographics	Entrepreneur	5	Materials	10	Tangible Resources
And that's what I will always do as long as I'm alive	Deleted item	Challenges	Environment Benefit	3	Recycling	21	
Area of residence	Challenges	Benefits_ Recycling	Formal Employment	3	Networks	27	
Aspects enjoyed working in informal sector	Challenges_ Formal Sector_ Co-ops	Empowerment	Household Budget	10	Process	20	
Being unemployed	Challenges_ Formal Sector_ Informal Sector	Entrepreneurial	Informal Org Culture	8	Informal Organisation Culture	8	
Being unemployed_ duration	Challenges_ network support		Machinery Required	5			
Benefit to Environment	Challenges within		Leadership	5			
Benefits offered by Formal Sector	Child Grant pm/household budget	Informal Org Culture	Materials	5			
Budgetery Requirements_ Expenses	Consolidated quotes/Intervivo	Leadership	Motivation to start Recycling	4			
Budgetery Requirements_ Earnings	Demographics	Logistics	Networks	18			
		Machinery required					
Business area_ Landfill	Empowerment/Motivation	Materials Collected	Preferred Job title	7			
Business area_ Material Centre	Entrepreneurial	Motivation	Process	20			
Business area_ Streets with trolleys	Entrepreneurial Mindset	Commitment	Recycling	7			
But if you are tired and sitting down, which means you are not making money	Environmental Benefit	Process	Self Actualisation	5			
Career development in formal sector	Financial Requirements_ Able to meet expenses	Networks					
Challenges faced by women recyclers	Financial Earnings_ Reduced as recycler	Stigmas					
Challenges_ Buy-back centres	Formal Employment prior	Formal Employment					
Challenges_ Informal Organisations	Formal Employment_ Reason left	Protocols					

Challenges_Landfills	Formal Sector_Restraints	Representation					
Challenges_Landfills_Women	Household Budget_Earnings	Protocols					
Challenges_Leaving Recycling	Household Budget_Expenses	Self Actualisation					
Challenges_Street Recyclers	Informal Sector	Stigmas					
Characteristics to have as a women recycler	Informal Sector_Committment_High						
Child grant amount per month	Informal Sector_Committment_Low						
Community Stigma	Informal Sector_Introduction to Recycling						
Community Stigma_overcoming	Informal Sector_Leadership_Characteristics						
Community Stigma_towards men	Informal Sector_Leadership_constraints						
community support_personal story	Informal Sector_Learnings Process_Landfill						
Conviction to purpose	Informal Sector_learning Process_Street Recyclers						
creating value	Informal Sector_Legitimate Processess						
Cultural Stigma presenting in Recycling	Informal Sector_Network_ External Or challenges						
Cultural Stigma_overcoming	Informal Sector_Organisations_Admin formalities						
Desire for recognition	Informal Sector_Values						
Development of Organisation	Informal Sector-Network_landfills & Buyback						
Disadvantaged background	Intervivo						
Discerning between materials	Intervivo - Job Title_Prefer Reclaimer						
Displeasure with position in formal employment	Intervivo "Throw Away Society"						
Distance covered as street picker	Intervivo Adaptability to Reclaiming						
Drawing child grant	Intervivo code using hands						
Dual Roles	Intervivo- leaving Reclaiming						

Ease of adaptability into Recycling	Intervivo or Consolidated quote??						
Educational attainment_Grade 12	Intervivo or Leadership?						
Educational Attainment_Lower than gr12	Intervivo Running a business						
Educational pursuits	Intervivo_using what we have available						
Empowering communities	Job Title						
Empowering future generations	Landfill_Benefit						
Entrepreneurial experience	Leadership						
Entrepreneurial mindset	Leadership Values						
Entrepreneurial solutions	Leadership_Skills						
Exiting the formal sector	Logistics						
Equipment needed	Machinery required						
External persons offering support to Recyclers	Materials collected						
Family support	Merged with networks						
Family support__ unhappy	Motivation						
Family support_overcoming barriers	Move to challenges						
FIN Requirements_Able to meet Expenses as Reclaimer	Move to commitment to Recycling						
FIN Requirements_Unable to meet Expenses as Reclaimer	Move to Job title						
Financial Earnings_intial	Move to learning the process/Intervivo						
Financial Earnings_Positive	Move to Networks						
Formal Employment	Move to Stigma_Overcoming_Community barriers						
Formal sector push back co-ops success	Network_Learning_Group Support						
getting to work	Network_support						
God has given us hands and minds to think! You have to use it, that is	Network_support_willingness to share						

High level of commitment to Recycling	network_Transfero of knowledge Externally						
Hm. Pushing a trolley. Day in, day out. Hm. (laughs) You know when I w	Network-Learning from Direct Network						
I am so proud about reclaiming.	Networks						
I love it, I have friends, I have friends like sister, chommie, ja.	Networks_External						
I love waste picking because it is my source of energy, everything. Be	Networks_within Informal Sector						
I prefer to be called a Reclaimer. Because what I am recycling is not	Organiational Growth within Informal Sector						
I thought because my bag was full and big, I had some money. Only to	Organisation affiliated with						
I would say Viva to SA, Viva to all those people who are working with	Organisational Growth within Informal Sector						
I'm living on the world where men power always dominates over the wome	Position_ Informal Sector						
Improved earnings as a Recycler	Positives_Recycling						
Independence in role	PPE						
Indifferent to title Wastepicker, Reclaimer, or Street Picker	Prior employment in Formal Sector						
Informal Organisation values	Process						
Interprovincial operations	Process of Collecting_						
Introducer	Process_working hours						
Introduction to Recycling	Protocols in Informal Sector						
It is the municipality can give us our land. I want to see myself work	QQ aspects enjoyed						
It means you are seeing something in this, you don't see 'okay dirty p	QQ Challenges						
It was not a hard work for me because I learnt it since I was small so	QQ Challenges on dumps						

Ja, now we were comparing those things. When we started it was easy, i	QQ Commitment						
Lack of support from friends	QQ Commitment to Recycling						
Lack of support_formal sector	QQ Community Stigma						
landfills and buy-back centres	QQ Empowering communities						
Leadership challenges_informal organisations	QQ entrepreneurial						
Leadership characteristics	QQ formal Sector_lack of support						
Learning formalities of organisations	QQ Introducer						
Learning formalities_informal organisations	QQ Job title Reclaimer						
Learning from personal networks	QQ learning about squashing						
Learning the process	QQ love Wastepicking						
learning the process_landfill	QQ Network						
Learnings support from networks	QQ Network appreciation						
Legitimate processes within informal sector	QQ Networks withing Recycling						
Life is life, about money and affording your life	QQ Pride in Recycling						
Like I can stand up there on top of the roof and tell the others where	QQ Pride in Recycling						
Materials collected	QQ Process						
Meaning of bagerezi	QQ Self actualisation						
Mid-High level of desire to leave Recycling	QQ Throw away society						
Misinformed on co-op registration	Recycler_Personal Positives						
Mmmm...some of the people they don't understand.	Representation of women						
Most of the time it's me and my children.	responsible journalism						
Motivation for others who joined recycling	Safety practices						
Motivation of self	Self Actualisation						
Motivation to form co-op	Self Development						

Motivation to join Recycling	Self Development in Informal Sector						
Motivation to register co-op	Sent to commitment and then deleted						
Need for recognition	Single Parent						
No, I want to work? I love it.	Stigma						
Non South African Citizen	studies						
Now, separation at source was one of the things that we were doing, an	Subcode of Budget Requirements_earnings						
Occupation prior to Recycling	Toxic Environment Formal Sector						
On the landfill I was working on they used to all me Big Show.	Ways to Improve_landfill						
Organisation affiliated with_Informal Sector	Ways to Improve_Recycling						
Organisation affiliated with_Informal_SAWPA							
Organisational growth in informal sector							
Other titles for Recyclers							
Personal aspects enjoyed being Recycler							
Perspective of Self							
Position occupied							
Positions in Formal Sector							
Potential in Co-op in informal sector							
PPE Required							
Prefer to be called a Waste Picker							
Prefer to be called Reclaimer							
Process involving buy back centre							
Process of collecting							
process on landfill							
Process with materials centre							
Professional Development							
Professional Development Informal Sector							

Protocols in the informal sector							
QQ challenges faced by women recyclers							
QQ Challenges on dumps							
QQ Community Stigma							
QQ Empowering communities							
QQ Introducer							
QQ learning about squashing							
QQ Learning the process							
QQ love Wastepicking							
QQ Moral support as women recyclers							
QQ Network appreciation							
QQ Personal aspects enjoyed about Recycling							
QQ Prefer to be called Reclaimer							
QQ Pride in Recycling							
QQ Proud to be Recycler							
QQ You can't be a throwaway society							
Reason for leaving school							
Reasons for leaving formal employment							
Reduced earnings as a recycler							
Reduced earnings since taken over by formal sector							
Reducing strain on landfill space							
Representation of women							
Resistance to being organised							
responsible journalism							
Safety practices	Subcode of Budget Requirements_earnings						
Self actualisation							

Self development within the informal sector							
Single parent							
Size of household providing for							
Sole Breadwinner							
Sort in own yard							
South African Citizenship							
Stealing from Reclaimers							
Strong communication skills							
Strong sense of survival studies							
Support from networks							
Support from networks_External							
Survival Skills							
Teenage pregnancy							
Tertiary Qualifcation completed							
Tertiary Qualification_not completed							
Those ones. And there are scraps, if you don't need a fridge or microw							
toxic environment in formal employment							
Transfer of knowledge							
Transfer of skills							
Travelling between work and home							
Undermined in formal employment							
Ways to improve existing process							
ways to improve existing process_landfill							
What I can say let us be strong ladies, let's unite, and continue to s							
Willingness to share							

With a brick. I take a brick and throw the brick and use all my energy							
Working environment required							
Working Times							
Yes. Yes. That is the whole truth, I was following my mum.							
Yes. And it keeps my mind busy every time. And it is really helping me							
Yes. I hear all the time, because if you leave another woman struggling							
You know what I like about reclaiming? It gives you your own time. It							
You know what, you must push yourself, because if you want something you must push							
You know, Fee, to be honest the municipality was chasing me away.							
Your peace of mind and the things that you get from the dump.							

