UNIVERSITY OF CAPE COAST

SMALL-SCALE GARMENT PRODUCERS' APPLICATION OF CIRCULAR ECONOMY PRACTICES IN THE CAPE COAST METROPOLIS

UMAR ABUBAKARI

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BY

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DECLARATION

Candidate's declaration

I hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in this University or elsewhere.

Candidate's Signature……Date……

Name: Mr. Umar Abubakari

Supervisor's Declaration

I hereby declare that the preparation and presentation of the thesis were supervised in accordance with guidelines on supervision of the thesis laid down by the University of Cape Coast.

Supervisor's Signature……...Date……

Name: Ms. Irene Ampong

ABSTRACT

This study aimed to assess the awareness, understanding, and application of Circular Economy (CE) practices among small-scale garment producers in the Cape Coast Metropolis, Ghana. It was guided by three theoretical frameworks: the Diffusion of Innovation Theory, the Theory of Planned Behaviour, and the Resource-Based View of the Firm, which collectively informed the analysis of factors influencing CE practice adoption. The study employed a mixed-methods approach using a Sequential Exploratory Design, carried out in two phases. In the first phase, involved qualitative data collection. Twenty (20) participants were purposively selected for semi-structured interviews, and an additional seven (7) participants took part in a focus group discussion, making a total of 27 qualitative participants. The thematic analysis technique was applied to identify emerging themes and perspectives from the qualitative responses. The second phase quantitative data to enrich the qualitative findings. The quantitative data were gathered from 140 randomly selected participants using structured questionnaires. These questionnaires collected data on the level of awareness, influencing factors, perceived benefits, and challenges associated with CE models. The data were analyzed using descriptive statistics and structural equation modeling to uncover patterns and relationships. Key findings revealed that while there is a moderate level of awareness of CE concepts, significant challenges such as limited access to technology, inadequate expertise, and poor infrastructure hinder adoption. Nevertheless, small-scale producers recognize several benefits of CE models, especially in terms of cost savings, reduced material usage, and environmental advantages. The study concludes that the integration of CE practices is promising but requires systemic support. It recommends that government agencies, financial institutions, and stakeholders provide targeted interventions such as capacity-building workshops, grants, subsidies, and low-interest loans to enable small-scale garment producers to transition sustainably into circular practices.

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DEDICATION

I dedicate this thesis to my parents; Hajia Adamu Abubakari (Dambis), my dad; Alhaji Abubakari Adam, my guardian Ms. Victoria Atanga and my late brother; Alhaji Al-Hussein Abubakari.

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CHAPTER ONE

INTRODUCTION

The small-scale garment industry is a significant sector in many countries, providing employment and contributing to economic growth. However, the traditional linear business model in the industry can lead to environmental degradation, resource depletion, and negative social impacts. The traditional linear business model is a linear approach to production and consumption that follows a take-make-dispose model. The adoption of circular economy practices has the potential to promote sustainability and economic benefits by keeping resources in use for as long as possible. Circular economy practices aim to reduce waste and promote sustainability by designing out waste and pollution, keeping products and materials in use, and regenerating natural systems. The circular economy business model can provide economic benefits for small and medium-sized enterprises (SMEs) in Ghana most especially to small-scale garment producers such as reduced costs and increased revenue, while also promoting sustainability. However, small-scale garment producers face several challenges in implementing circular economy practices, such as a lack of knowledge, resources, and infrastructure. This study, therefore, is aimed at assessing the application of circular economy practices among small-scale garment producers and their economic, environmental, and social impacts on them.

Background to the Study

Generally, the fashion industry is considered one of the most polluting industries globally (Ellen MacArthur Foundation 2017; UN Environment Programme, 2020). Small-scale garment producers form an essential part of

Ghana's informal and formal economic structure. Operating with limited financial capital, minimal mechanization, and often in home-based or micro-enterprise setups, these producers typically employ fewer than 30 workers and depend on traditional sewing techniques and local markets (NBSSI, 2020). They contribute significantly to employment, youth skills development, and local fashion trends. However, the sector faces major challenges, including inconsistent access to raw materials, rising production costs, lack of modern technology, and limited knowledge of sustainable production systems (Owusu & Yeboah, 2019). Additionally, the absence of structured waste management practices results in substantial textile waste, particularly from offcuts and unsold stock, which are commonly discarded into the environment or burned.

Given these realities, the circular economy (CE) practice offers a compelling framework to enhance both sustainability and profitability in Ghana's small-scale garment sector. Unlike the linear "take-make-dispose" model, CE aims to reduce waste and promote sustainability by designing out waste and pollution, keeping products and materials in use, and regenerating natural systems (Kirchherr, Reike & Hekkert, 2018; Ellen MacArthur Foundation, 2017). For Ghanaian garment producers, this could translate into practices such as recycling fabric scraps, upcycling old garments, and adopting production techniques that extend product lifecycles. These approaches not only reduce cost burdens but also align with traditional African values of reuse and resourcefulness.

Studies conducted in sub-Saharan Africa including Nigeria (Klemm, Rohn & Lettenmeier, 2021) and South Africa (Ganzevoort & Meda, 2020) have demonstrated the benefits of CE principles in small and medium-sized fashion enterprises. However, their implementation is often hindered by barriers such as low awareness, financial constraints, and poor institutional support. In Ghana, Amankwah-Amoah, Debrah, and Hinson (2021) explored CE in the textile and garment industry, while Agyekum-Mensah, Osei-Kyei, and Adinyira (2021) examined enabling environments

for CE among SMEs. Although these studies provided valuable insights, they focused largely on medium to large firms or addressed CE in broad industrial contexts. Little empirical work has been done to specifically assess the application, awareness, and practical implementation of circular economy practices among small-scale garment producers, especially in secondary urban centers like Cape Coast.

Furthermore, the fashion industry remains one of the world's most polluting industries, contributing significantly to global carbon emissions and resource depletion (UNEP, 2020; Niinimäki et al., 2020). With global textile consumption projected to rise significantly, the environmental footprint of fashion production is expected to grow unless systemic shifts—like the adoption of CE models—are mainstreamed. Although innovations such as clothing rental, resale, and fabric recovery are gaining traction in Western markets (Zamani, Sandin & Peters, 2017; Hvass, 2015), their localization in African contexts remains underexplored.

In Ghana, where environmental protection efforts are growing and youth unemployment remains a national concern, small-scale garment production offers an entry point for embedding circularity into local economies. Applying CE principles such as reuse, repair, remanufacture, and resource-efficient design could enhance the sector's competitiveness while mitigating environmental degradation. Moreover, building entrepreneurial and managerial capacity through CE practices can lay the groundwork for sustainable industrial growth (Bruton, 1998; Parker, Riopelle & Steel, 1995). As Afful (2002) argued, strengthening small-scale industries is key to indigenous entrepreneurship and national development.

Against this backdrop, this study seeks to examine how circular economy principles are understood, accepted, and practiced among small-scale garment producers in the Cape Coast Metropolis. The study responds to existing gaps in literature and aims to provide empirical insights that can guide policy, training, and institutional support for a more sustainable garment industry in Ghana.

Statement of the Problem

Universally, a number of scholars have written widely on a growing interest in the circular economy from consumers, the industry, and policymakers alike (Ellen MacArthur Foundation, 2017; Ki, Chong & Ha-Brookshire, 2020), which has resulted in the implementation of an increasing number of Circular Economy Business Model initiatives in the fashion industry. Circular economy practices have been gaining popularity in recent years as a way to reduce waste and promote sustainability in various industries. However, what remains largely unknown is the extent to which these models are accepted, understood, and implemented by small-scale garment producers in Ghana, who form a critical part of the fashion value chain but operate with unique constraints.

Rana, Mohammad, and Hossain (2021) investigated the issue in Bangladesh; while another study by Klemm, Rohn, and Lettenmeier (2021) focused on the potential of circular economy practices for small and medium-sized enterprises (SMEs) in the fashion industry in Nigeria. In Ghana, a number of scholars including Amankwah-Amoah, Debrah, and Hinson (2021); Agyekum-Mensah, Osei-Kyei, and Adinyira (2021) have also attempted to deal with the subject. Some of these studies were conducted within the barriers and enablers to circular economy practices in the Ghanaian textile and garment industry (Amankwah-Amoah, Debrah & Hinson, 2021) and in the context of small and medium-sized enterprises in the Ghanaian textiles and garment industry (Agyekum-Mensah, Osei-Kyei, and Adinyira, 2021). However, these studies tend to focus on medium to large enterprises, leaving a

significant gap in understanding how circular economy practices are perceived and applied by small-scale garment producers specifically.

According to Klemm, Rohn, and Lettenmeier (2021), circular economy approaches can have negative effects on the economy, health, sanitation, and agriculture such as increased costs, hazardous waste, and land use if not well regulated. These unintended consequences can create barriers to adoption if supportive structures are not in place. Ellen MacArthur Foundation (2015) also points out that the adoption of circular economy practices could generate $4.5 trillion in economic benefits by 2030. This is because circular economy principles can lead to the creation of new practices, such as product-as-a-service, which can provide economic advantages for businesses. Another study by Teli, Sarkis, and Cohen (2020) stated that the adoption of circular economy practices can promote sustainability and reduce the negative effects of environmental pollution and health hazards for workers.

The studies found that while small-scale garment producers were generally aware of circular economy concepts, their actual implementation remains low due to persistent challenges such as inadequate knowledge, insufficient access to resources, low technological capacity, and lack of institutional support. This limited adoption contributes to the continued prevalence of linear production practices, which have been associated with environmental degradation, inefficient resource use, and unsustainable growth issues that could worsen if not addressed.

Again, circular economy practices could provide economic benefits for small-scale garment producers, such as reduced costs and increased revenue, while also promoting sustainability. The Ghanaian government's commitment

to environmental sustainability through policies and initiatives provides a supportive backdrop for small-scale garment producers considering circular economy adoption (Ghana Ministry of Environment, Science, Technology, and Innovation, 2020). Industry associations and NGOs are also playing a role in promoting sustainable practices, offering training and capacity-building. Despite these policy-level efforts, there is still a lack of empirical evidence on how small-scale garment producers interpret and respond to CE models within their production processes.

Literature on acceptance practices generally concentrates on economic values gained from digital solutions and economies of scale in production (Stampfl, Prügl & Osterloh, 2013; Zhang, Lichtenstein & Gander, 2015). Furthermore, a growing stream of literature is dealing with the sustainability of social practices, wherein scaling the social impact is the main focus (e.g. Bauwens, Huybrechts & Dufays 2020; Bloom & Chatterji, 2009; Moore, Riddell & Vocisano, 2015). This provides a wider perspective on the sustainability of practices; however, it is not readily applicable to a Circular Economy Business Model context since it mainly addresses the social dimension and not environmental or economic concerns. Thus, the notion of "acceptability" in Circular Economy Models remains conceptually and empirically underdeveloped, particularly in the context of micro and small-scale garment producers operating in resource-limited settings like Ghana.

Therefore, to understand the application of circular economy practices by small-scale garment producers and to inform targeted policy and capacity-building interventions there is a pressing need to explore this issue more

holistically. This will support Ghana's transition to a sustainable fashion economy and prevent the widening of ecological and economic inequalities.

Purpose of the Study

The main objective of this study is to find out how small-scale garment producers accept and also use Circular Economy practices in their workshops and production.

Research Objectives

The specific objectives of the study are to;

1. assess the awareness and understanding of circular economy practices among small-scale garment producers.
2. identify the factors influencing the application of circular practices among small-scale garment producers.
3. explore the potential benefits associated with the adoption of circular economy practices among small-scale garment producers.
4. explore the potential challenges associated with the adoption of circular economy practices among small-scale garment producers.

Research Questions

1. Do small-scale garment producers understand the circular economy practices?
2. What are the factors influencing the application of circular practices among small-scale garment producers?
3. What are the potential benefits associated with the adoption of circular economy practices among small-scale garment producers?
4. What are the potential challenges associated with the adoption of circular economy practices among small-scale garment producers?

Significance of the study

The study is aimed at providing insights into the economic benefits of circular economy practices for small-scale garment producers. According to a study by Klemm et al. (2021), circular economy practices can provide economic benefits for small and medium-sized enterprises (SMEs), such as reduced costs and increased revenue. This can help small-scale garment producers to improve their economic sustainability and competitiveness.

The study will also provide small-scale garment producers on the role of technology in promoting the adoption of circular economy practices. While some studies have touched on the importance of infrastructure and resources, there is a need for more research on how technology can be used to overcome the challenges of implementing circular economy practices among small-scale garment producers.

Investigating the application of Circular Economy practices among small-scale garment producers can shed light on innovative approaches such as recycling, upcycling, and rental services, which can significantly minimize the demand for virgin resources and contribute to more sustainable production practices. Research on the application of CE practices among small-scale garment producers can inform the development of policies that incentivize and facilitate the adoption of circular practices. This, in turn, can create a supportive ecosystem for sustainable entrepreneurship and stimulate positive industry-wide transformations.

Limitations of the Study

This study had some limitations that may influence the interpretation and generalizability of the findings.

Firstly, the study was conducted with a limited number of small-scale garment producers in the Cape Coast Metropolis, which may restrict the generalizability of the results to the wider population of small-scale garment producers across Ghana. To mitigate this limitation, the researcher employed a mixed-methods approach involving both quantitative (n = 140) and qualitative (n = 27) participants selected through random and purposive sampling, respectively. This combination allowed for triangulation of data and enhanced the reliability of insights by capturing both breadth and depth of experiences.

Secondly, data collection relied on self-reported responses through questionnaires, interviews, and focus group discussions, which may be subject to social desirability bias or recall errors. To address this, the researcher conducted a pilot study to refine and reword the interview protocols and questionnaires to ensure clarity, neutrality, and relevance. During the main study, interview techniques such as probing and paraphrasing were used to clarify responses and reduce misinterpretation. Additionally, participants were assured of confidentiality and anonymity to encourage honest responses.

Thirdly, the cross-sectional nature of the study means data were collected at a single point in time, which limits the ability to assess long-term changes in the application of circular economy practices. Future studies could consider a longitudinal approach to track shifts in behaviour and outcomes over time. Despite these limitations, efforts were made to ensure credibility, dependability, and confirmability by using techniques such as member checks, prolonged engagement, and detailed documentation of the research process, as suggested by Patton (2015) and Lincoln & Guba (1985). These strategies helped reduce bias and strengthen the trustworthiness of the research findings.

Delimitation of the Study

The study was specifically targeted small-scale garment producers, which were characterized by their limited resources, workforce, and production capacity. This focused strategy will enable a nuanced exploration of the challenges and opportunities faced by these smaller enterprises in adopting CE practices in Cape Coast, Central Region. However, it also means that the study will not encompass medium or large-scale garment producers, potentially missing out on broader industry dynamics. The study was also focused on the availability of resources such as time, funding, and access to participants.

Definitions of Terms

Circular economy: economic model and framework that aims to minimize waste and make the most of resources by keeping products, materials, and resources in use for as long as possible.

Small-scale garment producers: are individuals, businesses, or organizations that operate at a relatively small scale in the clothing and textile industry.

Organization of the Study

This study will consist of five chapters with their content as follows:

Chapter one consists of an introduction that has background to the study, statement of the problem, objectives of the study, research questions, significance of the study, limitation of the study, delimitation of the study, and organization of the study. Chapter two covers review of related literature which captures the theoretical and conceptual basis of the study. Empirical review from relevant authorities and scholars are integral part of this chapter. The methodology which is the Chapter three will consist of research design,

descriptive of instruments for data collection sampling techniques and population. It also dealt with research procedures in data collection and analysis. Chapter four basically presents and discusses the findings while Chapter five is concerned with the summary of the findings from which conclusions are drawn and recommendations are made. Areas for further studies are also suggested in this chapter.

CHAPTER TWO

LITERATURE REVIEW

This section of the study is concerned with a review of literature related to small-scale garment producers' application of circular economy practices in the Cape Coast Metropolis, Ghana. The literature will deal with the theoretical and conceptual review of related literature to this topic under study. It will also look at theories and concepts as well as an empirical review of the study.

Theoretical Review

To situate this study in literature, the study draws more than one theory (eclecticism) to underpin the study. These theories have been comprehensively tuned to accommodate the main study concepts. These theories were employed due to their close links to the study objectives. These underpinning theories are outlined below.

Diffusion of innovation theory

Diffusion of innovation theory can be used in a wide range of fields, including politics, health, communication, education, and even economics, the idea of diffusion of innovations is often discussed when discussing digital innovation, technology, or the development of new goods (Dunne et al., 2013; Sahin, 2006). For the first time, as far as is known, this theory applied in this study to the circular economy, which is understood as an innovation in practices for small-scale businesses.

According to some authors (Ferasso, Beliaeva, Kraus, Clauss, & Ribeiro-Soriano, 2020; Pieroni, McAloone, & Pigosso, 2019; Ranta, Aarikka-Stenroos, & Väisänen, 2021), the circular business model is an innovation as

compared to the traditional business model or even the sustainability-oriented business model. According to Ferasio et al. (2020, p. 3008), having a circular business model is innovative because it allowed organizations to "propose, create, and capture value while applying the principles and practices of the circular economy (Bocken, de Pauw, Bakker, & van der Grinten, 2016)". Previous studies have examined the circular business model from a variety of angles, including supply chain management (Geissdoerfer, Morioka, de Carvalho, & Evans, 2018), customers or marketing (Bocken et al., 2018; Kalverkamp & Raabe, 2018), or innovation management (Linder & Williander, 2017). In their review of studies on circular economy practices, Ferasso et al. (2020) note the need for additional empirical study on supply-side terms, networks, and performance issues in the context of CE practices.

Additionally, Pieroni et al. (2019) talked about some observations on how future studies on the circular business model should take a comprehensive approach and help "engage in integrating knowledge from other theories" (p. 215). A new approach to examining how the circular business model innovation is spreading empirically combines the above-discussed innovation of the circular business model with Rogers' theory of diffusion of innovation, focusing on the key factors, the innovation-diffusion process, and its attributes, and, finally, what are the categories of actors in this process.

Innovation, communication channels, time, and the social system are the four main variables that can be clearly identified in Rogers' definition of innovation dissemination. Invention is only defined as something that an individual or a community perceives as novel. It is therefore possible that an

invention was created in the past but was not recognized as novel until recently or years later. This reflection serves as the exemplar of the circular economy as an innovation because we are discussing a circular system that, if we think back in time, can be found in agricultural systems where nothing was thrown away and everything was reused or in the recycling economy that was run at the household level. Although the term "circular" was not just recently coined, the innovation in the production world lies in the fact that we have years of research behind us on a linear production modality. Circular innovation, then, is the method through which the circular production model is perceived as "new," entailing a whole cycle of examination, from the resources and energies used in manufacturing to how production waste or end-of-life products are dealt. According to Rogers' theory, the circular economy is innovation in this sense since it is thought of as innovative. The relative benefits and drawbacks of an innovation undoubtedly affect one's willingness to accept it.

According to the Diffusion of Innovation Theory, Communication channels are the second key factor that is communicated in the circular economy today as innovation's attributes significantly impact its adoption. Circular economy concepts should be communicated in a simple, clear, and relatable manner to small-scale producers. Educational programs, workshops, and training sessions can facilitate their comprehension by providing practical examples and showcasing successful case studies of circular practices (Rogers, 2003). Clear communication channels and peer networks can play a pivotal role in disseminating knowledge about circular economy models and this agrees with the research question one. Another important component of the

diffusion theory is time. The development of the circular economy concept is also influenced by the passage of time: From 2016 to the present, the level of interest in CE has increased exponentially.

Time, as proposed by Rogers' theory, must thus be investigated in relation to circular innovation. The social system is described as "a set of interrelated units engaged in joint problem solving to achieve a common goal" (Rogers, 2003, p. 23). Understanding the propensity for creativity of the individuals who populate the social system and who, consequently, are influenced by its nature requires knowledge of the structure of the social system in which innovation arises.

According to Rogers' model, there are five stages in the decision-making process for adopting innovations: knowledge, persuasion, decision, implementation, and confirmation (Ferasso et al., 2020). This transition to circular business model innovation is also complex (Ferasso et al., 2020).

The knowledge phase marks the beginning of the innovation-decision process. The person or group encountering the innovation at this point wants to understand what it is, how it operates, and why it is helpful. The procedure at this point focuses on learning more about the innovation. This pertains to the circular economy and entails comprehending what it is, how it works, and the rationale behind its adoption. Awareness is the knowledge that circular economy principles exist, while understanding represents a deeper comprehension of these principles. This dimension is influenced by factors such as educational background, access to information, and exposure to sustainability initiatives (Ha, 2020).

According to Rogers' approach, persuasion is the point at which a person decides whether they are in favor of or against innovation. This is not to say that a negative attitude will prevent the innovation from being adopted; rather, it highlights the individual's approach, which is frequently determined by the social context in which he exists or by the opinions of other people who may have an impact on the "emotional, affective" sphere of the topic. Rogers cites a number of success characteristics that, in his opinion, influence an individual or an organization to move towards the decision phase because he is sure that the process of dissemination and acceptance of innovation is supported by a process of reducing uncertainty about how the innovation will operate.

These five success factors relative advantage, compatibility, complexity, trialability, and observability should be viewed as features of innovation in order for it to spread.

According to Rogers, relative advantage is the best predictor of an innovation's likelihood of being adopted. The degree to which an innovation is viewed as superior to those available to address the same problem is how he defines relative advantage. Relative advantage again refers to the perceived economic benefits of adopting an innovation in terms of cost, production effectiveness, or the difference position of the company or person, relative advantage can be quantified. With regard to CE practices, small-scale garment producers assess whether transitioning to circular practices offers them advantages in terms of cost reduction, resource efficiency, and overall profitability. For example, by reusing materials and reducing waste, they can lower production costs and enhance their competitive position in the market.

This attribute plays a pivotal role in the decision-making process, as small-scale producers are inherently concerned about the financial implications of adopting new practices.

Contrarily, compatibility is the extent to which an innovation is compatible with the existing value system, with prior knowledge, or with the requirements of potential innovators. If there is a high level of compatibility, the innovation will be able to spread more quickly; nevertheless, if it calls for a shift in the value system, such as in behaviour, its path of innovation-diffusion will be more challenging. Compatibility is a component of complexity, which Rogers defines specifically as "the degree to which an innovation is perceived as relatively difficult to understand and use." It is obvious that an innovation will be more difficult to implement the more complex it is thought to be. In the case of small-scale garment producers, compatibility determines whether circular practices can seamlessly integrate with their current production methods. If CE practices are perceived as disruptive or requiring significant changes, they may face resistance. However, innovations that harmonize with existing processes and systems are more likely to be adopted. Thus, small-scale garment producers weigh the compatibility of circular practices against the need for operational continuity.

Another quality outlined by Rogers is trialability "on a limited basis," or the ability to test an innovation in part without committing to a whole system of change. It will be simpler to decide to accept an innovation if it can be tried without completely interrupting a company's operations, for instance, on just one product in the line rather than having to alter the entire production system. In reality, many of the winning innovations make use of just this

characteristic to persuade potential innovators to use the new technology, even if just for a short period of time.

The ability of the innovation to demonstrate its outcomes to the outside world is the final component of observability. In other words, an innovation will spread more quickly the more it can show how much better things may be when they are adopted. The higher the acceptance rate and the faster its spread will be during the persuasion phase, the more the innovation is viewed as advantageous, consistent with the current system, easy, testable without requiring too much effort, and having clear results. Small-scale garment producers seek tangible evidence that transitioning to CE practices will yield positive results. This may include improved product quality, reduced environmental impact, or enhanced brand reputation for sustainability. The ability to observe these outcomes not only reinforces the decision to adopt but also serves as a model for others in the industry, encouraging a ripple effect of adoption.

When viewed in terms of cost savings, energy efficiency, or, more broadly, enhanced economic and environmental performance, circular innovation can have a relative benefit. Additionally, adopting circular methods might reveal the company with a higher market standing on a societal level. However, a crucial component of the circular business model is that the outcomes must be made quantifiable and visible, even from the outside.

Being compatible with the circular economy entails using the concept throughout the entire organization and integrating it into the company mission. In relation to this, the application of the circular system to the entire company rather than just on a single project, as is the case in the majority of cases

examined in the literature, is the source of the complexity attribute. But in practice, the circular economy can only be tested "on a limited basis," at least at first; this makes it more suited, in line with Rogers' criteria, to be implemented and, thus, directed toward diffusion.

The small-scale garment producers choose whether or not to adopt the innovation at this point. Since most people want to try new things before making decisions, innovations with a weak proof base are typically embraced more quickly (trialability feature). In reality, Rogers notes that there are two different forms of innovation rejection: the passive type, in which the innovation is never even evaluated, and the active type, in which the idea is tested, but is not afterwards accepted or adopted. A clear strategic and purposeful commitment to the changeover from a linear to a circular system is implied by the adoption of the circular model.

The theory suggests that factors such as the perceived relative advantage (economic benefits) of circular practices, compatibility (fit with existing practices), complexity (ease of implementation), and observability (visibility of outcomes) all contribute to the application of circular models. These attributes directly influence small-scale producers' willingness to adopt circular practices, serving as key determinants of their decision-making process.

The innovation is applied at the implementation phase. In fact, the innovation may even be adjusted or improved during this implementation phase if there is still some degree of uncertainty regarding the outcomes or the process. An innovation will spread more quickly the more it can be modified to meet the needs of the innovators. The various circular economy strategies

that organizations can use serve as the tangible application of the circular business model.

The final stage of the innovation diffusion process is the confirmation phase. Those who have used the technology may opt to keep doing so, which would "confirm" it. Others may decide to stop using it if they are dissatisfied with the performance or results. The circular economy is supported by the vast majority of businesses in the market, therefore if it becomes the new economic paradigm of the future, it will be because of this. Therefore, the perceived economic benefits and compatibility of circular models are potential benefits that may encourage adoption, while concerns related to complexity and the uncertainty of observable positive outcomes can represent the associated challenges. Therefore, understanding these attributes is essential for comprehending the potential benefits and challenges of adopting circular economy practices among small-scale garment producers.

Resource-Based View of the Firm Theory

The resource-based view emphasizes the role of a firm's internal resources and capabilities in shaping its competitive advantage, this is discovered by Barney (1991). Small-scale garment producers possess unique resource constraints and capabilities that influence their ability to adopt CE practices. Resource-based theory places a lot of emphasis on how tangible a firm's resources are. Physical assets, land, machinery, and cash are examples of tangible resources because they can easily be seen, felt, and quantified. As opposed to tangible resources, which can be seen, touched, or quantified, intangible resources include staff expertise and abilities, a company's reputation, and a firm's culture. When compared to tangible resources,

intangible resources are more likely to satisfy the requirements for strategic resources (i.e., being valued, uncommon, challenging to duplicate, and no substitutable). Therefore, executives should prioritize trying to cultivate and build their companies' intangible resources if they want to attain long-term competitive advantages. Another crucial idea in resource-based theory is the concept of capabilities, or what the organization can do given the resources at its disposal. This is an excellent and simple approach to remembering how to differentiate between resources and capabilities: Resources and capabilities are terms used to describe what an organization has and what it is capable of.

The Resource-Based View of the Firm (RBV) theory provides a valuable framework for understanding how small-scale garment producers' internal resources and capabilities influence their acceptance of circular economy (CE)practices. The RBV theory pointed out that small-scale garment producers' understanding of CE practices is rooted in their knowledge resources. Knowledge resources encompass their awareness of CE principles, such as waste reduction, material recycling, and sustainable production (Barney, 1991). Garment Producers who actively seek information about CE practices and have access to knowledge networks are more likely to comprehend the concepts and benefits of circularity. This understanding forms the foundation for their willingness to explore and accept CE practices and this can be applied to address the research question one of the research projects.

According to Awan, Sroufe, and Shahbaz (2021) the availability of resources, access to technology, knowledge, and skills, as well as the legal environment, are factors that affect small-scale garment producers' acceptance of circular practices. Due to a lack of funding, restricted access to technology,

and a lack of expertise and skills, small-scale garment producers may encounter difficulties implementing CE standards. Small-scale garment producers can, however, overcome these obstacles by fostering their ability to innovate, collaborate, and network.

RBV highlights that a firm's capabilities, both tangible and intangible, are instrumental in shaping its competitive advantage (Barney, 1991). In the case of small-scale garment producers, capabilities such as technological resources and organizational routines significantly impact their readiness to embrace circular strategies. For instance, garment producers with access to advanced recycling technologies or established routines for sustainable sourcing are better equipped to transition to CE models. Conversely, resource constraints, lack of technological infrastructure, and ingrained linear production routines can hinder acceptability. Small-scale garment producers often face resource constraints that affect their willingness and ability to integrate CE practices. These constraints may include limited financial resources and access to technology (Barney, 1991).

The RBV theory underscores the importance of resource availability and allocation. The availability of resources, both financial and material, is a significant determinant of small-scale garment producers' ability to adopt CE practices (Ranta et al., 2018). Many small-scale producers operate with limited budgets, making it challenging to invest in sustainable technologies or procure environmentally friendly materials. This resource constraint can hinder the initial steps toward circularity. Firms must strategically allocate their scarce resources to prioritize CE initiatives, balancing the long-term advantages of circularity against immediate resource limitations. RBV's focus on intangible

resources, such as reputation, is particularly relevant when considering factors influencing acceptability. Garment producers with a positive reputation for sustainability and responsible production practices are more likely to be open to CE practices. They recognize that embracing circularity can enhance their reputation further, attract environmentally conscious consumers, and strengthen their brand equity (Barney, 1991). Intangible resources encompass knowledge, reputation, and intellectual property. For small-scale garment producers, knowledge about CE principles and practices is a critical intangible resource. Understanding how to design products for recyclability, source sustainable materials, or establish reverse logistics networks is essential. Additionally, a positive reputation for sustainability can enhance a firm's competitiveness. Small-scale producers with a strong reputation for environmental responsibility may have a comparative advantage in attracting conscious consumers and partners (Charter, Tischner, & van der Eng, 2018).

Again, RBV theory also sheds light on the potential benefits of adopting CE practices. Small-scale garment producers who effectively leverage their internal resources and capabilities to integrate circular strategies can create a competitive advantage in the market (Lee, 2013). Benefits may include cost savings through reduced waste, access to new markets demanding sustainable products, and improved brand reputation. RBV emphasizes that resource limitations and the absence of particular capabilities might pose difficulties (Barney, 1991). Small-scale clothing manufacturers may face challenges implementing CE practices due to high upfront expenditures, modifications to their production methods, and the requirement for skilled workers to implement circular practices. Another difficulty is dealing with

consumer reluctance who are used to rapid fashion. Small-scale producers can overcome resource constraints by partnering with organizations, such as recycling facilities, NGOs, or research institutions, which possess complementary resources and expertise. Collaborative networks can provide access to knowledge, technology, and funding, facilitating the adoption of CE practices (Shah, 2019).

Theory of Planned Behaviour

The Theory of Planned behaviour (TPB) is a well-established social psychological theory that provides valuable insights into understanding the application of circular economy (CE)practices among small-scale garment producers. Developed by Icek Ajzen in 1985, TPB posits that human behaviour is driven by individuals' attitudes, subjective norms, and perceived behavioural control. It has been recognized that manufacturers of clothing frequently base their manufacturing decisions not on logical justifications but rather on more irrational, emotional, and subjective views and attitudes regarding a product (Fishbein & Ajzen, 2010). As major factors influencing attitude, beliefs, habits, knowledge, and social norms have been identified (Thgersen, 1995; Fishbein & Ajzen, 2010). The Theory of Planned behaviour is a behavioural theory that takes into account beliefs, attitudes, and intentions (Ajzen, 1985), and through extensive use over the past three decades, it has distinguished itself from other behavioural frameworks (Ajzen, 2011; Sniehotta, Presseau, & Araújo-Soares, 2014).

The Theory of Reasoned Action (TRA), which Fishbein and Ajzen developed in 1975, is where the TPB was formed. According to Sniehotta et al. (2014), behavioural research on health is where the TPB is most frequently

applied. The theory recognizes the significance of both intentions and attitudes influencing exposed fashion designer behaviour, therefore the research proposes to apply the TPB to explore CBM features in the context of garment producers. According to Ajzen's (1985) theory, the "will to perform a behaviour," or intention, directly influences the outcome variable "behavior," which is confirmed by another research (Sheeran, 2002; Webb & Sheeran, 2006). The TPB, however, has restrictions in that it does not take into account routines or prior behaviour (Ajzen, 2011). For instance, Klöckner (2013) claims that the TPB has no predictive value for repeated behaviour, especially when it comes to decision-making that is tied to the environment. According to TPB, attitudes represent an individual's evaluation of a behaviour.

In the context of small-scale garment producers, their understanding of CE practices significantly impacts their attitudes towards them. Those who comprehend the principles of circularity, such as waste reduction and resource efficiency, are likely to have positive attitudes (Ajzen, 1991). Awareness campaigns and educational initiatives can enhance their understanding and subsequently influence their attitudes. Harich (2010) emphasizes the role of subjective norms, which are perceived social pressures. Small-scale garment producers may be influenced by the opinions of their peers, industry associations, or customers regarding CE practices. If they are surrounded by a supportive network that values circularity, it can create positive subjective norms, thereby encouraging application (Ajzen, 1991). Bamberg and Möser (2007) argue that perceived behavioural control reflects an individual's belief in their ability to perform the behaviour. Factors such as resource constraints, technological limitations, and knowledge gaps can affect perceived control.

Producers who feel confident in their ability to integrate CE practices may be more inclined to accept them (Ajzen, 1991). Capacity-building programs and access to resources can bolster their perceived control.

As suggested by Thgersen (1995), the model incorporates habit to account for past experience learning. A habit is characterized as a "behavior repeated over time" and has been demonstrated to increase behaviour predictability (Triandis, 1977; Kok & Siero, 1985; Pieters, 1991; Verplanken & Holland, 2002). According to Harich (2010), a habit is measured by "past behaviour" as well as by the "wish to maintain the habit." According to Harich (2010), the challenge in creating a sustainable society may lie in the desire to uphold ingrained behaviours. Therefore, it is asserted that willingness to alter previous behaviour can have an impact on intention and CBM uptake. As mentioned earlier, subjective norms play a crucial role in TPB. If small-scale garment producers perceive that industry peers and stakeholders expect them to adopt CE practices, it can positively influence their application (Ajzen, 1991). Collaborative efforts and collective commitments to circularity within the industry can help shape these norms.

TPB posits that attitudes and perceived behavioural control jointly predict intentions, which in turn drive behaviour. Small-scale producers with positive attitudes toward CE practices and a strong belief in their ability to implement them are more likely to form intentions to adopt CE practices (Ajzen, 1991). Small-scale garment producers may face challenges in terms of initial investment costs, changes in production processes, and consumer resistance. However, TPB suggests that interventions aimed at addressing these challenges, such as financial incentives, technological support, and

consumer education, can enhance application by positively influencing perceived control (Ajzen, 2006; 2011).

Conceptual Framework

This section explains the interrelation between the variables underpinning. Factors considered under the study included economic variability, technology advancement, supply chain and logistics, consumer awareness and preferences and cultural factors. These factors were linked to application of circular economy business model. Holistically addressing these factors is crucial for accelerating the shift towards a sustainable and circular economy, ultimately yielding long-term environmental and economic benefits. Economic variability encompasses the fluctuations in economic stability, market conditions, and the availability of financial incentives. A stable economic environment encourages businesses to invest in innovative models like CE. Conversely, economic downturns can deter such investments due to the heightened perception of risk. Financial incentives, including subsidies and tax breaks, can play a significant role in enhancing the attractiveness of CE models by mitigating initial costs and improving financial viability. Technological advancement is a fundamental driver for the acceptance of CE practices. Innovations in technology enable the development and implementation of sustainable practices, such as advanced recycling processes, efficient waste management systems, and extended product lifecycles. These technologies facilitate the efficient use of resources, minimizing waste and promoting sustainability. Additionally, digital technologies like blockchain and the Internet of Things (IoT) enhance supply chain transparency and traceability, which are critical for the success of CE models. The effectiveness

of supply chain and logistics management is important for the successful implementation of CE practices. Transitioning from a linear to a circular economy necessitates a complete rethinking of supply chain operations. Efficient logistics systems are essential for managing reverse logistics, which involves collecting, sorting, and recycling products. Collaboration across the supply chain is crucial to ensure all stakeholders, including suppliers, manufacturers, distributors, and retailers, are aligned with CE principles and work together to close the loop. Again, consumer demands and preferences significantly impact the application of CE practices. As awareness of environmental issues and the benefits of sustainability grows, so does consumer demand for CE products and services. When consumers show a preference for sustainably produced products, businesses are more motivated to adopt CE practices. Educational campaigns, certifications, and labeling can enhance consumer knowledge and influence purchasing decisions toward supporting CE initiatives. Cultural factors, such as societal values and norms, also play a crucial role in the application of CE practices. Societies that value sustainability and environmental stewardship are more likely to embrace CE principles. Cultural acceptance of practices like sharing, reusing, and recycling can drive the adoption of CE practices. Conversely, in cultures where newness and disposability are highly prized, promoting CE models may require significant shifts in consumer behaviour and attitudes. The phenomenon above is presented diagrammatically in Figure 1.

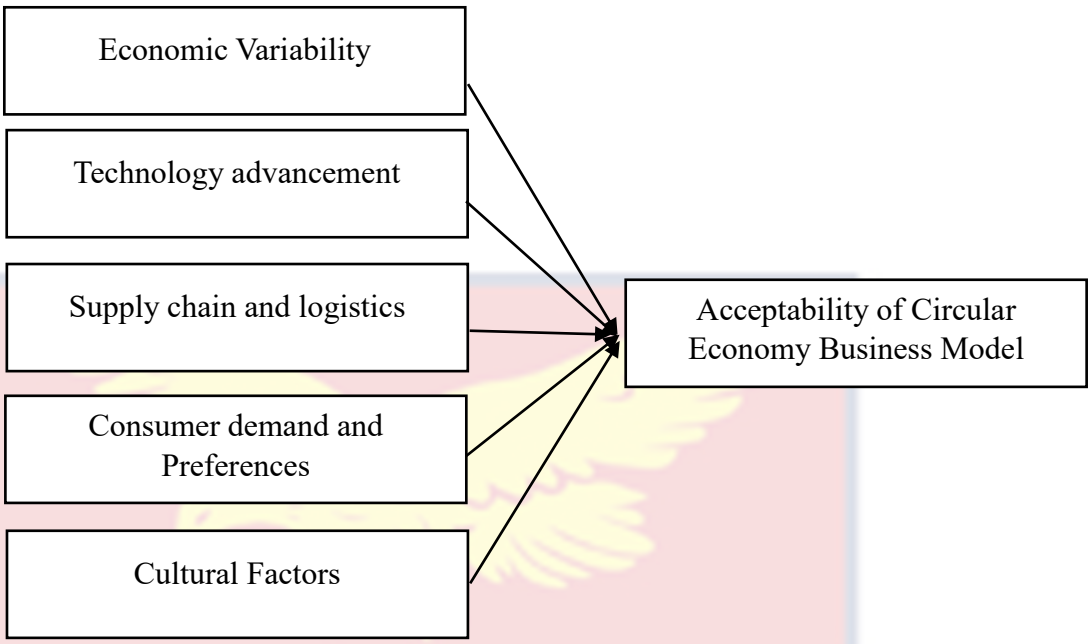

Figure 1: Conceptual Framework
Source: Author's Construct (2024)

Conceptual Review of the Literature

The concept of Circular Economy Business Model

A circular economy is a sustainable economic model that aims to minimize resource consumption, reduce waste, and promote the continuous use and reuse of materials and products. In this regenerative system, resources are kept in circulation for as long as possible, and their value is preserved even after a product's lifecycle ends. This concept stands in contrast to the traditional linear economy, which follows a "take-make-dispose" pattern, leading to resource depletion and environmental degradation (Kirchherr, Reike, & Hekkert, 2017). Instead of discarding products at the end of their life, the circular economy encourages recycling, repurposing, and remanufacturing. This reduces the generation of waste and extends the useful life of materials (Korhonen et al., 2018). Products are designed and manufactured with the idea of reusing their components or materials. Closed-

loop systems ensure that materials and products can be recovered and reintegrated into the production process (Blomsma & Brennan, 2017).

A new approach to identifying connections between industries, customers, and natural resources is the circular economy idea. It stands for the economic system where items are produced in cycles or closed loops. This is how the circular economy is described: renewing economics, which seeks to protect the maximum value of materials and goods. This procedure should produce a closed system that will permit long-term product and material reuse, refurbishment, remanufacturing, and recycling. Here is the system model, which includes the maximization of resource usage and its alpha and omega outside of the conventional supply chain.

According to Stahel and Reday-Mulvey (1981), the private sector's engagement in promoting economic prospects in industrial production has been stressed. The primary goal was to promote economic growth using a system of product loops that included reuse, repair, and recycling.

While there is some attention paid to economic and corporate views, research is mostly focused on waste, resource consumption, and environmental effect. Without mentioning any financial or industrial benefits, such study may hinder organizations' adoption of the circular economy due to a lack of understanding and incentive. According to Hvass and Pedersen (2019), the shift toward CE has been encouraged by a number of factors, including rising consumption habits, the rise of new product generations, growth in population, more challenging laws, and technology advancements. Designing out waste, enhancing resilience by creating products that can be customized and adjusted, utilizing renewable energy, taking into account how

various stakeholders affect one another and the overall, and reuse are the main principles of CE and reviving waste into the environment, as recommended by the Ellen McArthur foundation (2013). Additionally, the author claims that CE has a variety of advantages for small-scale garment producers, businesses, and economies. The economy will benefit from lower costs for materials and energy, more volatility and reduced supply risk, stronger multipliers as a result of sectoral shifts, potential employment advantages, and reduced external influences. Enterprises will benefit from expanding, acquiring a competitive edge, strengthening resistance to strategic challenges, and establishing new revenue streams. By having more options, receiving better from the services to the customers and experiencing less early product obsolescence, consumers will appreciate.

A Circular Economy business model (CEBM) is an economic and operational approach that emphasizes sustainability, resource efficiency, and waste reduction. Unlike the traditional linear economy, which follows a "take-make-dispose" pattern, a CE seeks to create a closed-loop system where resources are kept in circulation for as long as possible. In a CEBM, the core principles and strategies that are outlined by Ellen MacArthur Foundation, (2015) include the following:

Resource Optimization: Efficient use of resources is a central tenet of the circular economy. This involves reducing resource consumption, minimizing waste, and finding innovative ways to maximize the utility of materials and products.

Product Life Extension: CE encourages the design and manufacture of products with longer lifespans. This includes creating durable, repairable, and

upgradable products to extend their useful life. Small-scale garment producers can benefit from designing and manufacturing products with longer lifespans. This aligns with the quality and durability of their products, which can enhance their brand reputation and customer loyalty.

Closed-Loop Systems: In a circular economy, products are designed with the intention of reusing their components or materials. Closed-loop systems ensure that materials and products can be recovered and reintegrated into the production process, reducing waste. Small-scale garment producers can explore closed-loop systems by implementing practices like recycling and reusing materials. This not only reduces waste but also opens up opportunities for innovative practices such as clothing rental, which can be particularly beneficial for this industry.

Design for Sustainability: Sustainable product design focuses on elements such as recyclability, ease of repair, and the use of eco-friendly materials. Products are created with the goal of minimizing their environmental impact.

Waste as a Resource: Instead of viewing waste as a burden, a circular economy treats it as a valuable resource. This concept includes practices like recycling, reusing, and repurposing materials and by-products. Small-scale garment producers can view waste as a resource by finding innovative ways to repurpose fabric scraps and other waste materials. This aligns with reducing material costs and minimizing waste, both of which can contribute to their economic sustainability

Factors influencing application of Circular Economy Business Model

Economic variability

The fashion industry, known for its rapid turnover and significant environmental impacts, is increasingly exploring circular economy (CE) models as sustainable alternatives. For small-scale garment producers, the adoption of these models involves navigating economic variability, which refers to fluctuations in market conditions, resource availability, and financial stability (Griffin, 2017). Understanding how economic variability influences small-scale producers' acceptance of CE models is critical for promoting sustainable practices in the fashion sector. Economic variability is characterized by the unpredictability of income, costs, and market demands that businesses face (United Nations, 2007). On the other hand, for small-scale garment producers, this variability is often pronounced due to limited financial buffers, dependency on volatile raw material prices, and susceptibility to market shifts. These factors can significantly impact their ability to invest in and transition to circular economy practices, which require initial capital and a stable market environment. Franco (2017) contended that the CE model in the fashion industry emphasizes reducing waste through the reuse, recycling, and repurposing of materials.

The goal is to create a closed-loop system where products are designed for longevity, and end-of-life materials are reintegrated into production processes. This model contrasts sharply with the traditional linear economy of 'take, make, dispose' which dominates the industry (Bocken et al., 2016). Implementing CE practices can lead to cost savings, resource efficiency, and new revenue streams. However, it also demands a fundamental shift in

business operations and consumer engagement, which can be particularly challenging for small-scale producers facing economic variability. Small-scale garment producers often operate with narrow profit margins and limited access to credit. Economic variability can exacerbate these financial constraints, making it challenging to allocate funds for the initial investments required for CE initiatives, such as acquiring sustainable materials, updating production processes, and implementing recycling systems (Bocken et al., 2016). The precarious financial situation of these garment producers means that any additional costs associated with transitioning to a CE model can be prohibitive, potentially stalling their adoption of sustainable practices (Nidumolu et al., 2009).

The success of CE models relies on consumer demand for sustainable products. However, market demand for eco-friendly garments can be inconsistent, influenced by economic downturns and changing consumer preferences. Producers may be hesitant to invest in CE practices if they perceive an unstable market demand, fearing that the premium pricing of sustainable products may not attract sufficient buyers (Nidumolu et al., 2009). This uncertainty can discourage small-scale producers from committing to CE models, as they may not see a guaranteed return on investment. Griffin (2017) added that access to sustainable raw materials and reliable recycling facilities is crucial for CE practices. Economic variability can disrupt supply chains, making it difficult for small-scale producers to maintain consistent quality and availability of sustainable inputs. These disruptions can deter producers from committing to CE models, as they may struggle to meet production deadlines and quality standards (Geissdoerfer et al., 2017). Inconsistent supply chains

can lead to production delays, increased costs, and potential loss of business, further discouraging small-scale producers from adopting CE practices.

To mitigate the challenges posed by economic variability, it is essential to develop targeted strategies that support small-scale garment producers. Financial support and incentives from governments and financial institutions, such as grants, low-interest loans, and subsidies, can alleviate the initial investment burden and encourage more producers to adopt sustainable practices (Kirchherr et al., 2018). Additionally, building a stable market for sustainable garments requires educating consumers about the benefits of CE products and encouraging eco-conscious purchasing behaviours. Collaborative marketing campaigns and labeling schemes can help small-scale producers reach a broader audience and stabilize demand for their sustainable offerings (Gazzola et al., 2019). Strengthening supply chains for sustainable materials and recycling services is also crucial. This can be achieved through public-private partnerships, investment in local recycling infrastructure, and fostering networks of suppliers committed to sustainability. Such efforts can reduce the risk of supply disruptions and ensure a steady flow of sustainable inputs for small-scale producers (Franco, 2017). Some scholars contend that by addressing these challenges, stakeholders should support small-scale garment producers in their transition to a more sustainable and resilient fashion industry. Many researchers argue that governments and financial institutions can provide grants, low-interest loans, and subsidies specifically targeted at small-scale producers transitioning to CE models. Such financial support can alleviate the initial investment burden and encourage more producers to adopt sustainable practices (Kirchherr et al., 2018). Building a stable market for

sustainable garment production requires educating consumers about the benefits of CE products and encouraging eco-conscious purchasing behaviours. Collaborative marketing campaigns and labeling schemes can help small-scale producers reach a broader audience and stabilize demand for their sustainable offerings (Gazzola et al., 2019). Developing robust supply chains for sustainable materials and recycling services is crucial. This can be achieved through public-private partnerships, investment in local recycling infrastructure, and fostering networks of suppliers committed to sustainability. Such efforts can reduce the risk of supply disruptions and ensure a steady flow of sustainable inputs for small-scale producers (Franco, 2017).

Technology advancement

In the view of the Ellen MacArthur Foundation (2019), technological advancements play an important role in enabling the transition to a circular economy (CE) business model. According to Him, the CE model aims to create closed-loop systems where resources are reused, recycled, and repurposed, minimizing waste and environmental impact. Innovations in technology facilitate this transition by enhancing the efficiency of resource use, enabling better product design, and fostering new practices. One of the core principles of the circular economy is maximizing resource efficiency, and technological advancements are crucial in achieving this goal. Nevertheless, some researchers opined that advanced manufacturing technologies, such as 3D printing and precision engineering, allow for the creation of products with minimal material waste. These technologies enable the production of complex structures with exact specifications, reducing the need for excess material and allowing for the use of recycled inputs. As Bocken et al. (2016) noted, 3D

printing facilitates the efficient use of materials by enabling manufacturers to produce items layer by layer, significantly reducing waste. Moreover, precision garment constructions ensure that products are made to exact tolerances, which minimize the need for excess material and reduces overall resource consumption.

Additionally, the development of more efficient recycling technologies, such as chemical recycling processes, allows for the breakdown of complex materials into their basic components, which can then be reused in new products (Ellen MacArthur Foundation, 2019). Waste materials recycling involves the use of technological processes to convert waste materials into their original monomers or other useful manner. This process can handle materials that are difficult to recycle mechanically, such as multi-layer plastics and composite materials. Nevertheless, some researchers opined that by breaking these materials down to their constituent parts, chemical recycling offers a way to close the loop on resource use, turning waste back into valuable raw materials that can be fed back into the production cycle.

Technological advancements significantly impact product design, making it easier to create products that align with CE principles. The Ellen MacArthur Foundation (2019) emphasizes design for disassembly (DfD) and modular design as approaches that facilitate the easy repair, upgrade, and recycling of products. Modern software tools enable designers to create products with these considerations in mind, ensuring that components can be easily separated and reused. For instance, computer-aided design (CAD) software allows designers to plan and visualize how products can be assembled and disassembled, making it easier to incorporate (DfD) principles

into the design process (Geissdoerfer et al., 2017). Furthermore, advances in materials science have led to the development of sustainable and biodegradable materials that can replace traditional, non-recyclable materials. These new materials enhance the overall sustainability of products by reducing their environmental impact at the end of their life cycle. Bocken et al. (2016) discuss how innovations in materials science have produced biodegradable plastics and other sustainable materials that can be easily broken down and reabsorbed by the environment, reducing waste and pollution.

Technological advancements also foster the development of new practices that are conducive to the circular economy. Digital platforms and the Internet of Things (IoT) enable product-as-a-service (PaaS) models, where products are leased rather than sold. This model encourages manufacturers to design durable, repairable products since their revenue depends on the product's longevity and performance. As Tukker (2015) explains, PaaS models shift the focus from selling products to providing services, aligning the interests of manufacturers and consumers in maintaining the product's functionality over time. IoT technologies allow for real-time monitoring of products, providing data on usage patterns and maintenance needs. This data can be used to extend the product's lifecycle and reduce waste by ensuring that products are serviced and repaired before they fail. Accenture (2014), notes that IoT-enabled devices can communicate their status and alert users or manufacturers when maintenance is needed, thus preventing premature disposal and extending the product's useful life.

Efficient lifecycle management is a cornerstone of the circular economy, and technology plays a crucial role in this area. Advanced tracking

technologies, such as RFID (radio-frequency identification) and blockchain, provide transparency and traceability throughout the product lifecycle. These technologies help track the origin, usage, and disposal of products, ensuring that they are properly recycled or repurposed at the end of their life. Pearce (2018) highlights that blockchain, in particular, offers a secure and immutable record of transactions, which can enhance trust and collaboration among stakeholders in the CE ecosystem. RFID tags can be attached to products or components to provide a unique identifier that can be scanned at various points in the supply chain. This technology allows companies to monitor the movement and status of products, ensuring that they are handled correctly and that valuable materials are recovered at the end of their life (Ranta & Kyrö, 2021). Blockchain technology can further enhance this process by providing a tamper-proof record of each transaction, ensuring that all parties have access to reliable and verifiable information about the product's history (Ellen MacArthur Foundation, 2019).

Technological advancements facilitate better collaboration and knowledge sharing, which are essential for the circular economy (Tukker et al., 2015). Digital platforms and cloud-based systems allow for the sharing of best practices, design standards, and innovations across industries and geographies. These platforms enable companies to collaborate on developing new materials, products, and processes that support circularity. Franco (2017) emphasizes that open innovation and shared research initiatives can accelerate the adoption of CE practices by making cutting-edge knowledge and technology accessible to a wider range of businesses, including small and medium-sized enterprises (SMEs) and small-scale garment producers. For example, online platforms

such as Material ConneXion provide access to a vast database of sustainable materials, allowing designers and manufacturers to discover and utilize innovative materials that support CE principles. Similarly, cloud-based collaboration tools enable teams from different organizations to work together on joint projects, sharing insights and expertise to develop more sustainable products and processes.

Despite the benefits, the implementation of CE models faces several barriers, including technological, financial, and regulatory challenges. However, continuous advancements in technology can help overcome these barriers. For example, the decreasing cost of renewable energy technologies makes it more feasible for businesses to adopt sustainable energy sources, reducing their environmental footprint. Geissdoerfer et al. (2017) discuss how the declining costs of solar and wind power have made renewable energy more accessible, enabling companies to power their operations sustainably and reduce their dependence on fossil fuels. Additionally, advancements in artificial intelligence (AI) and machine learning can optimize supply chains, reducing waste and improving efficiency. Bocken et al. (2016) highlight that AI-driven analytics can help companies predict demand more accurately, optimize inventory levels, and reduce excess production.

Machine learning algorithms can also identify inefficiencies in production processes and suggest improvements, further enhancing resource efficiency and reducing waste. AI and machine learning can also play a crucial role in product design and development. By analysing vast amounts of data on material properties, usage patterns, and environmental impacts, these technologies can help designers create more sustainable products. For

example, AI can be used to simulate how different materials will behave under various conditions, allowing designers to select the most sustainable options for their products.

Supply Chain and logistics

The transition from a traditional linear economy to a circular economy (CE) represents a fundamental shift in how businesses operate, particularly in the management of supply chains and logistics (Hair et al., 2014). In a CE, the aim is to create closed-loop systems where resources are reused, recycled, and repurposed, minimizing waste and promoting sustainability. Transitioning to a circular economy (CE) model offers a promising solution by promoting sustainability through the continuous reuse, recycling, and repurposing of materials. (Nidumolu et al., 2009) researched into Why sustainability is now the key driver of innovation. They used content analysis and collected data mainly from secondary sources, published books, unpublished books, articles, archival materials, and local dailies. Their work was aimed at promoting the application of CE practices among small-scale garment manufacturers is ensuring they understand these models. The circular economy, as defined by Geissdoerfer et al. (2017), involves creating closed-loop systems where resources are continuously reused, minimizing waste and maximizing resource efficiency. However, small-scale producers often lack comprehensive knowledge about CE practices due to limited access to information and educational resources. According to Franco (2017), many small-scale garment producers are unfamiliar with the principles of CE, which can hinder their ability to implement such models. Increasing awareness through targeted educational programs and providing practical examples of successful CE

implementation can bridge this knowledge gap. Without a clear understanding of CE, garment producers are unlikely to invest in the necessary changes to their supply chain and logistics processes. The circular economy concept revolves around principles such as designing out waste, keeping products and materials in use, and regenerating natural systems (Ellen MacArthur Foundation, 2019). Unlike the traditional linear model, which follows a "take-make-dispose" pattern, CE promotes a restorative and regenerative approach. According to Geissdoerfer et al. (2017), the circular economy aims to decouple economic growth from resource consumption by transforming waste into a resource.

Supply chain and logistics are essential in operationalizing CE models. They involve the entire lifecycle of a product, from raw material extraction to production, distribution, use, and end-of-life management (Kock & Lynn, 2012). Efficient supply chain management ensures that materials continuously flow within the system, reducing the need for virgin resources and minimizing waste. Bocken et al. (2016) emphasize that supply chain strategies in a CE focus on maximizing resource efficiency. This involves optimizing the use of materials through practices such as remanufacturing, refurbishing, and recycling. Advanced manufacturing technologies, such as 3D printing, play a crucial role by enabling precise material usage and reducing waste (Henseler, Ringle & Sarstedt, 2015). By adopting these technologies, businesses can produce goods with minimal excess materials, thus contributing to a more sustainable supply chain. Product design is another critical aspect of CE that impacts supply chain and logistics. According to Ellen MacArthur Foundation (2019), design for disassembly (DfD) and modular design are essential for

creating products that can be easily repaired, upgraded, and recycled. These design principles require close collaboration across the supply chain, ensuring that components can be efficiently disassembled and reused at the end of their lifecycle.

Managing logistics in a circular supply chain involves overcoming several challenges. Geissdoerfer et al. (2017) identify issues such as the complexity of coordinating multiple stakeholders, ensuring the continuous flow of recycled materials, and maintaining quality standards. Effective logistics management is crucial for tracking the movement of materials and products, ensuring that they are appropriately collected, processed, and reintegrated into the production cycle. Again, technological advancements significantly enhance supply chain efficiency in CE models. For instance, RFID and blockchain technologies provide transparency and traceability throughout the product lifecycle. Pearce (2018) notes that these technologies enable real-time tracking of products, ensuring that they are correctly recycled or repurposed at the end of their use. Blockchain, in particular, offers a secure and immutable record of transactions, which can enhance trust and collaboration among stakeholders in the CE ecosystem.

The financial viability of transitioning to CE models is a significant concern for businesses, especially for small-scale garment producers. Bocken et al. (2016) alluded that the initial investment required for implementing CE practices, such as upgrading production technologies and reconfiguring supply chains, can be substantial. However, the long-term benefits, including cost savings from reduced material use and waste, can offset these initial costs. Companies must carefully evaluate the economic trade-offs and potential

return on investment when considering CE adoption (Ellen MacArthur Foundation, 2019). Government policies and regulations play a crucial role in promoting or hindering the adoption of CE practices. Franco (2017) points out that supportive regulatory frameworks, such as incentives for using recycled materials and penalties for waste generation, can encourage businesses to adopt CE models. Conversely, a lack of regulatory support can pose significant barriers to implementation. Consumer demand for sustainable products is a critical driver of CE adoption. According to Accenture (2014), growing awareness of environmental issues has led to increased demand for eco-friendly products. Businesses that align their supply chains with CE principles can capitalize on this trend and gain a competitive advantage. However, fluctuating market conditions and economic downturns can affect consumer willingness to pay premium prices for sustainable products, impacting the stability of demand.

The review of the adoption of circular supply chains and logistics indicates it was bedeviled with a lot of challenges which have been cited by Domian Avevor in his presentation of Blockchain technology for supply chain transparency; Logistics Management in 2012.

Consumer demand and Preferences

The fashion industry is currently experiencing a turning point in which the models of the circular economy (CE) and sustainability are gaining traction (Hair et al, 2013). In this shift, consumer demand and preferences are crucial. Businesses looking to adopt sustainable practices must comprehend how customer behaviour affects the adoption and success of CE models in the garment production sector. Consumer awareness of environmental issues has

surged in recent years, significantly influencing purchasing behaviours in the fashion industry (Voorhees, Brady, Calantone, & Ramirez, 2023).

According to a survey by Nielsen (2018), 81% of global respondents feel strongly that companies should help improve the environment. This heightened awareness has led to increased demand for sustainable fashion products, driving brands to adopt circular economy practices. Consumers are increasingly prioritizing sustainability over fast fashion. The rise of eco-conscious consumerism is evident in the growing popularity of second-hand clothing, rental services, and brands that emphasize ethical production. For instance, platforms like Thred-Up and Rent the Runway have capitalized on this trend by offering consumers sustainable alternatives to traditional fashion consumption (Bocken et al., 2016).

Transparency is a significant element in building consumer trust in sustainable fashion. Consumers want to know where their products come from, how they are made, and the impact of their production on the environment (MacKinnon, 2023). Brands that provide transparent information about their supply chains are more likely to gain the trust and loyalty of eco-conscious consumers. Research by the Fashion Revolution (2020) shows that 75% of consumers believe fashion brands should be required by law to publish information on the environmental and social impacts of their business practices. Nielsen (2018) stated that eco-certifications and sustainability labels also is a significant role in guiding consumer choices. Certifications such as Fair Trade, Global Organic Textile Standard (GOTS), and OEKO-TEX reassure consumers that the products they purchase meet specific environmental and ethical standards. A study by Testa et al. (2015) found that

eco-labels positively influence consumers' purchasing decisions, highlighting the importance of credible certifications in promoting circular economy practices in the fashion industry.

Despite the growing interest in sustainable fashion, consumer skepticism remains a significant barrier. Many consumers doubt the authenticity of brands' sustainability claims, often perceiving them as "greenwashing." This skepticism underscores the need for brands to be genuinely committed to sustainability and to communicate their efforts transparently and authentically (Geissdoerfer et al., 2017). According to Williams (2021), stakeholders, NGOs, and the government rated Educating small-scale garment producers and consumers about the benefits of CE models as crucial for their wider acceptance. Brands of garment manufacturing businesses can play an active role in raising awareness through marketing campaigns, product labeling, and partnerships with environmental organizations. Engaging both garment producers and consumers through interactive experiences, such as in-store recycling programs or online sustainability workshops, can also foster a deeper understanding and commitment to sustainable fashion practices (Ellen MacArthur Foundation, 2019).

According to some research, Patagonia is a prime example of a brand that has successfully integrated Circular economy principles into its business model while building a loyal customer base through transparency and engagement. The research has that the company's "Worn Wear" program encourages consumers to buy, sell, and trade used Patagonia gear, promoting the reuse and longevity of its products. Patagonia's commitment to

environmental responsibility is communicated clearly through its marketing efforts, reinforcing its reputation as a leader in sustainable fashion (Bocken et al., 2016).

Cultural factors

The garment production sector faces increasing pressure to adopt sustainable practices through circular economy (CE)practices. Cultural factors play a significant role in influencing the acceptance and implementation of CE principles among garment producers (Cronbach, 2021). Understanding cultural contexts is crucial for the successful adoption of CE models. Cultural awareness involves recognizing and respecting the diverse beliefs, values, and practices that influence how different societies perceive and engage with sustainability. According to Geissdoerfer et al. (2017), cultural factors significantly impact how businesses and consumers respond to environmental initiatives. In the garment sector, producers in various regions may have different attitudes towards waste reduction, recycling, and sustainable production based on their cultural backgrounds.

As Rathje, (2016) Japan's traditional concept of "mottainai," which expresses a sense of regret over waste, has been a driving force behind the country's acceptance of CE principles. This cultural attitude promotes mindfulness in resource use and supports practices like recycling and upcycling (Rossiter, 2022). Japanese garment producers often integrate "mottainai" into their practices, creating products that emphasize durability and minimal waste (Rathje, 2016). Again, Scandinavian countries, known for their minimalist and sustainable lifestyle, have a strong cultural emphasis on simplicity and functionality. This cultural preference supports the adoption of

CE models that focus on high-quality, long-lasting products. Scandinavian garment producers often prioritize eco-friendly materials and design for longevity, aligning with their cultural values of sustainability and simplicity (Bocken et al., 2016).

In many cultures, as it found in the literature traditional textile and garment production techniques inherently support CE principles. These practices, often passed down through generations, emphasize resource efficiency and minimal waste. Reviving and modernizing these techniques can facilitate the integration of CE models in the garment industry (Hair et al 2016). The Khadi movement in India, which promotes hand-spun and hand-woven textiles, aligns well with CE principles. Khadi production uses natural fibers, minimal energy, and promotes local craftsmanship. This traditional practice not only supports sustainability but also empowers local communities economically. Integrating Khadi into modern fashion can enhance the cultural and environmental value of garments (Banerjee, 2019).

Smith, (2020) points out that In Peru, the traditional use of alpaca wool for garment production is both sustainable and culturally significant. He added that Alpaca wool is a renewable resource, and its production has a low environmental impact. The cultural heritage associated with alpaca wool adds value to the products and supports the preservation of indigenous practices. Promoting such traditional, sustainable materials can strengthen CE models in the garment sector (Smith, 2020). It is in this light that the consumer culture significantly influences the adoption of CE practices in the garment industry. Consumer preferences, driven by cultural values and social norms, determine the market demand for sustainable products. Understanding these preferences

will be essential for garment producers aiming to implement CE models successfully (Markowski et al., & Hasan et al. 2020, 2021).

In Western cultures, characterized by high levels of consumerism, there is a growing trend towards sustainable fashion (Fornell & Larcker, 2021). However, this shift is often accompanied by challenges such as greenwashing and the need for substantial consumer education. Brands that genuinely adopt CE practices and transparently communicate their efforts can gain a competitive advantage by aligning with the increasing consumer demand for sustainability (Geissdoerfer et al., 2017). China, traditionally known for its rapid industrial growth and consumption, is experiencing a cultural shift towards sustainability. Government policies promoting environmental protection and increasing consumer awareness are driving this change. Chinese garment producers are beginning to adopt CE models to meet the rising demand for eco-friendly products. This cultural shift highlights the importance of adapting to evolving consumer preferences to remain competitive in the global market (Ellen MacArthur Foundation, 2019).

Moreover, Social norms, which dictate acceptable behaviours within a community, also help crucially in the adoption of CE models. In cultures where sustainability is a social norm, there is greater acceptance and support for CE practices. In Nordic countries, sustainability is deeply embedded in social norms. The strong societal emphasis on environmental responsibility encourages both consumers and garment producers to adopt CE practices. This cultural backdrop facilitates the implementation of sustainable practices in the garment industry, as seen with brands like Fjällräven and Nudie Jeans, which focus on durable and repairable products (Bocken et al., 2016). In many

African communities, collective action and community-based initiatives are integral to social structure. This cultural characteristic can be leveraged to promote CE practices through community-based recycling programs, cooperative garment production, and shared use of resources. These initiatives not only support sustainability but also foster social cohesion and economic resilience (Geissdoerfer et al., 2017).

While cultural factors can support the adoption of CE models, they can also pose challenges. Resistance to change, deeply ingrained consumption habits, and lack of awareness are common barriers.

Firstly, raising awareness through educational campaigns that resonate with local cultural values is essential (Boström & Klintman,2016). For example, storytelling and community engagement can be effective in cultures with strong oral traditions. Collaborating with local influencers and community leaders can also enhance the impact of these campaigns to help in the acceptance and practice of the circular economy by small-scale garment producers (Rathje, 2016). Developing practices that align with local cultural practices can facilitate the acceptance of CE principles. For instance, creating modular and repairable garments that appeal to cultures with a tradition of mending and repurposing clothing can encourage sustainable consumption (Banerjee, 2019).

Secondly, identifying and leveraging cultural strengths can create opportunities for promoting CE models in the garment industry. Celebrating traditional craftsmanship, promoting local materials, and fostering community initiatives are ways to integrate cultural values with sustainability. According to Smith (2020) incorporating sustainability themes into cultural celebrations

and festivals can raise awareness and promote CE practices. For example, fashion shows featuring sustainable designs during cultural festivals can highlight the importance of eco-friendly garment production (Smith, 2020).

Third, partnering with local artisans and craftspeople can enhance the cultural value of sustainable garments. These collaborations not only support traditional practices but also create unique products that appeal to consumers looking for authentic and culturally significant fashion (Bocken et al., 2016).

Perceived Benefits to CE Practices

At the core of the framework lie the perceived benefits and barriers associated with CE practices. Perceived benefits involve economic advantages (access to new markets, cost savings, revenue growth), environmental gains (reduced waste, enhanced sustainability), and social benefits (improved brand reputation, customer loyalty) (Kirchherr, Reike, & Hekkert, 2017). Conversely, perceived barriers encompass financial constraints, complexity of implementation, and potential disruption of existing operations. These perceived attributes influence small-scale garment producers' attitudes towards CE practices (Venkatesh & Davis, 2022). In accordance with each business strategy, resources, and capabilities, accepting CE practices requires overcoming a number of obstacles and difficulties. Small-scale garment producers are particularly affected by this since they frequently have more resource availability restrictions than do bigger businesses (Ghisetti, Mancinelli, Mazzanti, & Zoli, 2016; Ormazabal, Prieto-Sandoval, Puga-Leal, & Jaca, 2018).

Cost Savings

CE practices emphasize waste reduction and resource optimization, resulting in reduced material costs for small-scale garment producers. By reusing materials, recycling, and reducing waste, producers can reduce the need to purchase new materials, ultimately lowering their production costs. CE practices promote efficient product design and production processes. Small-scale producers who adopt CE can streamline their operations, leading to operational efficiency. This, in turn, reduces costs associated with energy consumption, labor, and time, contributing to cost savings (Niinimäki et al. 2020). The cost savings achieved through CE practices enhance profitability. Producers who perceive CE as a means to reduce expenses are more inclined to embrace it as a strategy to improve their bottom line. The efficient use of resources leads to increased profitability and long-term sustainability (Charter et al., 2018).

Revenue Growth

The transition to CE practices can attract environmentally conscious consumers. As sustainability becomes a key consideration for buyers, producers who align with CE principles can tap into this consumer segment. The perception that CE attracts eco-conscious consumers motivates small-scale producers to adopt these practices (Geissdoerfer et al. 2017). CE encourages diversification in product offerings. Producers who integrate circularity into their practices often explore new product lines and services that cater to the growing demand for sustainable alternatives. This expansion can lead to revenue growth as small-scale producers diversify their portfolios (Niinimäki & Hassi, 2011).

Environmental Gains

CE practices contribute significantly to reduced waste generation. Small-scale producers who adopt circularity actively minimize their environmental impact by prioritizing waste reduction. The recognition of this environmental gain motivates producers to prioritize CE adoption. Ellen MacArthur Foundation (2013) pointed out that CE practices lead to minimized environmental impact in terms of reduced energy consumption, emissions, and resource depletion. Producers who recognize these advantages, such as a reduced carbon footprint and resource conservation, are more likely to prioritize CE adoption as it aligns with their sustainability goals (Braungart & McDonough, 2022)

Social Benefits

CE practices enhance brand reputation. Small-scale garment producers who adopt circularity convey a commitment to sustainability, which positively influences consumer perception. The perception of an improved brand reputation is a strong motivator for producers to embrace CE practices. Patwa and Seetharaman (2019) state that CE practices foster customer loyalty. Producers who prioritize CE are more likely to attract and retain customers who value sustainability and eco-conscious choices. The potential for stronger customer relationships and loyalty motivates small-scale producers to embrace CE practices. Recognizing the potential to contribute to a more sustainable future through CE adoption acts as a motivator for small-scale producers. Producers who perceive CE as a way to make a positive social impact and support a more sustainable future are more inclined to embrace CE practices (Moorhouse & Moorhouse, 2017).

Perceived Barriers to CE practices

Several barriers and challenges stand in the way of the acceptance of CE practices in the garment construction industry. Muthu (2018) claims that cultural hurdles are the main impediments to the adoption of circular practices in this sector. The primary causes of cultural hurdles include lack of individual knowledge and interest, as well as organizational culture's resistance to adopting circular practices (Boström & Klintman,2016). The informational constraints Niinimäki (2018) mentions are related to businesses' ignorance of garment recycling, garment collection, and reverse logistics.

Inadequate communication between Workers and waste management as well as a lack of knowledge about product content and limited access to it. The primary technological constraints, according to Muthu (2018) and Niinimäki (2018), include low scale processing or techniques for recycling and low investment in them. It hasn't yet been standardized how to gather used clothing in an efficient manner. The transition to circular design model production takes a lot of time, and organizations generally lack the knowledge, skills, and expertise necessary to make the switch to circular practices (Curry & Philip, n.d.),. The market for circular clothing is modest since it is more expensive to produce these clothes and because their costs are higher than those of the so-called traditional clothing options. A challenge to material input, according to Niinimäki (2018), is the small number of textiles that can be recycled. It is difficult because it requires commitment from numerous stakeholders to increase the quantity of appropriate fabric. Government laws could stop the transition to CE.

A few of the barriers, according to Muthu (2018) and Stewart, Bey & and Boks (2016), are unreliable communications and complex, fluctuating, and numerous regulations. The process is also hampered by insufficient pressure, a lack of regulation's ability to regulate things, and its constrained room for creativity. The minimization of trash entering landfills and the decrease of waste formation are both key challenges for the small-scale garment industries, according to Koszewska (2018). The issues of disposing of waste properly, using reprocessing technology, and creating items that are both desired and sustainable are also covered by Koszewska (2018). The viability of regenerating garments is also influenced by product development, disposal methods, and technological variables, according to the author. Moreover, there were also financial challenges related to this matter. The initial financial investment required for CE adoption can be perceived as a substantial barrier. Costs associated with new technologies, sustainable materials, and changes in production processes can be daunting for small-scale producers (Teixeira et al., 2020). Producers who perceive these financial constraints as significant may hesitate to embrace CE practices.

The complexity of CE implementation can be perceived as a barrier, especially for producers with limited resources and expertise (Charter et al., 2018). Radical changes in production processes and supply chain dynamics can be challenging to navigate. Producers who perceive CE as overly complex may resist its adoption. CE practices can disrupt existing practices and operations. Small-scale producers may fear the potential disruption to their established practices and relationships with suppliers and customers (Teixeira,

Pigosso, Bocken, & Jabbour, 2020). The perception of disruption can deter them from embracing CE models.

Each business will try to develop its own unique sustainable strategy based on its technological capabilities, knowledge base, and resource base (Sáez-Martnez, Lefebvre, Hernández, & Clark, 2016). A resource-based view (RBV) of the firm (Wernerfelt, 1984) emphasizes the significance of an organization internal resources in line with this contention. Similar to this, Rumelt (1984) suggested that the organization's competitive edge mostly lies in the exploitation of a variety of readily available resources. Demirel and Danisman (2019) noted that Small-scale garment producers must invest a sizeable threshold amount (more than 10% of revenues) in order to successfully conduct CE business activities. For organizations of this size, only equity financing contributes to positive growth.

Aranda-Usón, Portillo-Tarragona, Marín-Vinuesa, and Scarpellini (2019) seek to link the use of financial resources (that is, the employment of different sources of funding) with the adoption of CE activities and show that the level of investment is closely related to the CE scope. Lüdeke-Freund, Broeck, and Brezet (2013) noted indeed, the lack of funding is one common obstacle that small-scale garment businesses acknowledge as causing them not to engage in the CE. Technology advancement is fueled by physical, human, and financial resources. As a result, an organization's tendency to innovate is influenced by the resources it has access to as well as its ability to produce. In this sense, information resources, human capital, availability, and financial accessibility are key forces behind innovative technologies and the CE. A definite barrier to participating in CE activities is the absence of available

skilled personnel or resources. In fact, an organization's capacity to identify and seize new opportunities for resource efficiency has historically been correlated with its resources, capabilities, and internal knowledge base (Cainelli, Mazzanti, Montresor, 2012; Horbach, Rammer, & Rennings, 2012; Triguero, Moreno-Mondéjar, & Davia, 2013).

Financial resources aid in the development of creative activities that lessen the influence on the environment, according to Horbach (2008) and Arranz et al. (2019). In the specific case of the adoption of CE activities, Rizos et al. (2016) highlights two main barriers for small-scale garment manufacturers in this transition: the lack of financial resources and the lack of technical skills, with the former being especially difficult for garment producers in their established organizations to overcome because their nonavailability of internal funds combines with the high costs of having to go to the financial markets. Although some progress has been made in the literature using the RBV theory as a potential exploratory variable of engagement in the CE practices (Del Río, Carrillo-hermosilla, Könnölä, & Bleda, 2016), some aspects of the debate are still open to clarification. An organization’s resources (internal conditions) and capabilities (strategies) are the main elements facilitating CE activities, and their unavailability can result in the organization limiting its commitment to the development and engagement in CE business model practices.

Integration of Technology Acceptance Model (TAM)

Davis (1985) created the technology acceptance model (TAM) based on the theory of reasoned action to provide a broader theoretical underpinning for reasoned actions. The conceptual framework for the application of the

Circular Economy (CE) practices among small-scale garment producers embraces the Technology Acceptance Model (TAM) to evaluate the perceived ease of use and perceived usefulness of CE practices (Boström & Klintman, 2017). TAM provides a valuable lens through which to assess how the integration of CE into existing operations influences the attitudes and intentions of producers toward adopting circular practices. This integration aids in comprehending how the perceived attributes of CE practices impact their application within the context of small-scale garment production.

Circular economy practices are said to be made possible by digital technologies. However, the existing research is based on conceptual and review studies, which results in a lack of understanding of how digital technologies assist small businesses in real-life situations to better their resource flows, value generation, and capture, enabling the emergence of novel practices (Ranta et al, 2021). The role of technological advancements in forming closed-loop systems is one of the connections between circular practices and technology, as is the role of the circular economy in encouraging organizations to recognize disruptive technologies and new practices (Rajala, Hakanen, Mattila, Seppälä, & Westerlund, 2018). A systematic literature review of past achievements and future promises of linking CE and digitalization technologies found that digital technologies can enable CE practices by facilitating the sharing of information, resources, and knowledge. A study conducted by Ro (2020) in Malaysia developed a new conceptual framework for business model innovation in a circular economy and found that the acceptance of CE practices is influenced by several factors, including

technological readiness, regulatory support, and awareness and understanding of CE practices.

According to Zeng and Shi (2020) TAM posits that the perceived ease of use is a critical factor influencing an individual's or, in this case, a garment producer's intention to use technology. In the context of CE, the perceived ease of integrating CE practices into existing operations plays a pivotal role in determining their application among small-scale garment producers. Producers who perceive CE as an accessible and feasible endeavor, where the transition does not entail significant disruption or complexity, are more inclined to adopt circular models.

Perceived usefulness, as defined by TAM, underscores the belief that using a technology will enhance one's performance and productivity (Farrell, 2020). In the context of CE practices, perceived usefulness pertains to the extent to which small-scale garment producers believe that embracing circularity will yield favorable outcomes. Garment producers who perceive CE as a valuable addition to their operations, contributing to improved sustainability, cost savings, and market competitiveness, are more likely to consider it a useful endeavor (Ellen MacArthur Foundation, 2015) .

Alenezi, Abdul karim, and Veloo (2010) reported that TAM emphasizes that the perceived ease of use and perceived usefulness of a technology collectively influence attitudes and intentions. For small-scale garment producers, this means that their perceptions regarding the ease of adopting CE practices and the potential usefulness of these practices significantly impact their attitudes and intentions toward adopting CE practices. Positive attitudes and intentions are precursors to action, indicating

that producers who view CE as both easy to integrate and highly useful are more inclined to embrace circularity.

The integration of TAM within the conceptual framework elucidates how the perceived attributes of CE practices, encompassing factors like ease of integration and perceived usefulness, directly impact their application among small-scale garment producers. Producers who perceive CE practices as easy to adopt and advantageous to their operations are more likely to find them acceptable. This application translates into a willingness to invest in CE practices and make the transition toward circularity (Alsofyani, Eynon, & Majid, 2012; Arbaugh, 2000). TAM's focus on ease of use and usefulness can also help address perceived barriers. By emphasizing the ease of integration and the benefits of CE practices, the framework can mitigate some of the barriers that might otherwise deter small-scale garment producers. Producers may be more willing to overcome challenges when they perceive CE as both user-friendly and beneficial.

Lee, Kozar, and Larsen (2003) have conducted a study on TAM which is inherently user-centered, which aligns well with the needs and perspectives of small-scale garment producers. By considering the ease of use and usefulness from the producer's viewpoint, the framework provides a more holistic and pragmatic perspective on the adoption of CE practices. Sanchez-Franco (2010) used TAM to encourage data-driven decision-making. Producers' perceptions of ease of use and usefulness can be quantitatively assessed, providing valuable insights for policymakers, industry stakeholders, and businesses looking to drive CE adoption.

Rietveld & van Houten (2016)

As Rietveld and van Houten (2016) recognizes TAM attitudes and intentions to be not static but can evolve over time. This dynamic perspective is particularly relevant for the ever-evolving landscape of CE practices, as small-scale garment producers' attitudes and intentions may change as they gain experience with circular models and witness their outcomes. Ultimately, the integration of TAM enables a more comprehensive and nuanced understanding of the factors that impact the application of CE practices within the small-scale garment production industry.

Empirical Review

Globally, there was an increasing concern about the adoption of circular economy practices. This has resulted in many researchers venturing into the area with a lot of writings, especially on the Circular Economy practices in the Small-Medium Enterprise Sector and the Circular Economy Business Model: Examining Consumers' Acceptance of Recycled Goods. One such researchers are Calvo-Porral, and Lévy-Mangin, (2020). They observed that, the circular economy strategy supports the transformation of the linear consumption model into a closed-production model to achieve economic sustainability, with the consumers' and small- medium enterprises' acceptance of circular products being one of the major challenges. Results indicate that the positive image of circular products is the most important driver of consumers' acceptance, followed by the product's perceived safety. Brendzel (2021) contends that the modification of practices toward circular economy becomes a necessity. However, questions arise as to whether the use of circular economy practices is widely practiced and how enterprises are coping with the implementation of these models. This article shows the findings of research

done to evaluate how well organizations have adopted the circular economy's guiding principles. The results collected prevent one from drawing any particularly upbeat conclusions.

First off, it was determined that there was a competency gap in the area of circular practices, which translates into a limited practical use of these models. The models that are used the most frequently are circular raw materials, raw material recovery, modification, and repair. The majority of businesses frequently engage in actions that are typical of the circular economy. Furthermore, as an organization becomes older, these operations become more crucial.

In another development, Rizo et al. (2016) conducted research in an effort to explain the implementation of Circular Economy practices by Small and Medium-Sized Enterprises (SMEs): Barriers and Enablers. The article was primarily written for French readers. Circular economy business model was explained as well Small and medium-sized enterprises (SMEs). The relevant closing loops and improving resource efficiency was periodized in three alignments. Thus, such as saving material costs, creating competitive advantages, and accessing new markets. This study aims to advance awareness and comprehension of the challenges and opportunities faced by SMEs in implementing circular economy practices. Then, a number of supportive elements that aid SMEs in adopting circular economy methods are noted. Although there are a number of legislative tools available to assist SMEs in incorporating circular economy ideas into them. There are still several obstacles to their practices. The authors suggest that nationals of both European and policies increase their emphasis on promoting greener consumer

preferences, market value chains, and corporate encourage the recognition of green practices used by SMEs. This can be done by using the development of specific markets and communities of practice, for instance.

Another, Wójcik-Karpacz et al. (2023) explored the ways Barriers and Drivers for Changes in Circular economy practices in a Textile Recycling Sector: Results of Qualitative Empirical Research. The methodology took the form of Using a mixed-methods case study approach, data from the studied company's websites and semi-structured interviews with business professionals were combined. The findings imply that the primary boosting elements include pertinent European-level rules, appropriate technologies, digitized processes, growing consumer awareness of social and environmental issues, and managerial skills. Supply chain collaboration and complexity in relation to a large scale of business in crisis situations, a wide scope and range of geographic diversification of outlets in light of the effects of the information gap, and a willingness to take the risk of "being the first in the market" are however inhibiting factors. This effectively means that the CBMs' general drivers may make it easier to reuse used apparel and recycle textiles into brand-new products as the main CE action. On the other hand, businesses must overcome a variety of technological obstacles, and in the case of the garment recycling industry, it is important to know which obstacles they must overcome in order to take the right steps. Research findings point to variables that managers or governments may choose to intervene on or support. This work offers ideas for future research directions and has practical ramifications.

In Africa, Coscieme et al. (2022) worked on a framework of circular practices for fashion and textiles: the role of business model, technical, and

social innovation in the clothing industry. The European Commission's (2020) Circular Economy Action Plan prioritizes the garment industry's production and consumption system as a product-value chain. In order to develop markets for circular and sustainable textile goods, services, and practices, the Action Plan envisions a European Union strategy for sustainable textiles. The consumption of clothing, footwear, and household textiles in Europe is on average the fourth highest category of environmental and climate impacts from a consumption perspective and from a vantage point that considers the entire life cycle, according to research by the European Environment Agency (EEA) and its Topic Center on Waste and Materials in a Green Economy (ETC/WMGE). More than 60% of all textiles are used by the fashion sector, and apparel will likely continue to be the dominant use of garments in the future. A change in fashion consumption and production is required to create a sustainable and circular textiles system. This transformation necessitates innovation in technology, social practices, and business model design through the adoption of certain enablers for policymaking, education, and behavioural change. In this short report, we outline a methodology for implementing and expanding circular practices. The exploration of four distinct circular business-model approaches for fashion and textiles, including models based on product durability, access models based on renting, leasing, and sharing, garment collecting and resale, and recycling and reuse of materials, serves as an illustration of this. They discussed resources needed based on technological and social advancements, policy, behavioural change, and education for each type of business model.

In Ghana, Kwarteng, Simpson, and Agyenim-Boateng, (2022) and Kwame, (2020), conducted research on the effects of circular economy initiative implementation on business performance: the moderating role of organizational culture in the Ghanaian business enterprises. The purpose of the study was to investigate the micro-level effects of adopting a circular economy (CE) business model on enterprises' financial performance and the role organizational culture plays in this situation. Design/methodology/approach depending on institutional and legitimacy theories and a survey strategy to collect 617 usable questionnaires from various business sectors in Ghana, a country that has not been extensively studied. According to the study, implementing CE policies that reduce, reuse, recycle, recover, and restore the resources utilized in production, distribution, and consumption processes results in increased financial efficiency. Additionally, organizational culture is modified by enhancing the association between CE and superior firm financial success.

Again, Björkdahl, (2022), Tukker et al. (2015), researched into Sustainable and Circular practices: Textiles in West Africa. The focus of the paper was to investigate the circular and sustainable practices currently used in West Africa. It also looks at how organizations interact with social issues like poverty, a limited garment production sector, fierce import rivalry, and high import levels of textile waste. Thirty clothing production companies in West Africa are the subject of secondary data collection using a qualitative methodology. These Businesses are studied via the framework of the eleven sustainable business model (SBM) pattern groupings by Lüdeke-Freund, et al. (2018). Five major SBM pattern groups are revealed in his findings: Supply

Chain, Social Mission, Closing-the-Loop, Eco-design, and Cooperative pattern groups. Most companies don't cleanly fit into one pattern; instead, they represent a variety of hybrid sustainable practices.

Observations/Gaps from the Empirical Review

The empirical review of the literature has revealed a number of observations and gaps. In the first place, the work done by Ranta and Kyrö in Filand' (2021), Calvo-Porral, and Lévy-Mangin, (2020) revealed to have focused on the barriers and enablers of circular economy practices in small and medium-sized enterprises (SMEs) and the acceptance of recycled goods by consumers. The gap is that this work was carried out in a foreign country, not Ghana, specifically on circular economy practices in the small-scale garment production sector in Ghana. The studies highlight the importance of sustainability, resource efficiency, and cooperation with stakeholders in the implementation of circular economy practices. However, the study failed to do more research on the practical strategies and tools that SMEs can use to adopt circular economy principles. The studies suggest that consumers' acceptance of recycled goods is influenced by factors such as perceived quality, image, sustainability/environmental benefits, and safety. However, there is a need for more research on how these factors apply to the small-scale clothing production sector in Ghana. The studies reviewed provide valuable insights into the potential benefits and challenges of circular economy practices. However, there is a need for more empirical research on the implementation and impact of circular economy practices in different sectors and contexts, including the small-scale clothing production sector in Ghana.

Secondly, on his part, Brendzel (2021) contends that the modification of practices toward circular economy becomes a necessity: his studies reviewed provide evidence that circular economy practices are essential for promoting sustainability and resource efficiency. The studies also highlighted the importance of stakeholder engagement, effective communication, and the development of new skills and awareness to enable the transition towards a circular economy. His studies again suggested that circular economy practices can lead to economic benefits, such as cost savings and new revenue streams. It employed only content analysis as its method of investigation. It revealed the potential benefits and challenges of circular economy practices in the fashion industry.

Furthermore, the study by Rizo et al. (2016) provides valuable insights into the barriers and enablers of circular economy practices in small and medium-sized enterprises (SMEs). The study highlights the importance of stakeholder engagement, effective communication, and the development of new skills and awareness to enable the transition towards a circular economy. In his research, his study reviewed provides valuable insights into the potential benefits and challenges of circular economy practices. The gap revealed is that, the study was done in South Africa not Ghana. It used only case studies to collect and analyze data.

Also, Bocken et al, (2016), Kwarteng, Simpson, and Agyenim-Boateng (2022) studies provide valuable insights into the effects of circular economy initiative implementation on business performance in Ghanaian business enterprises. However, the study focuses on the moderating role of organizational culture, and there is a need for more research on other factors

that may influence the application of circular economy practices in Ghana by small-scale garment industries. The study employed quantitative approach to collected and used thematic analysis to analyze the data.

In another development, Björkdahl, (2022) researched Sustainable and Circular practices: Textiles in West Africa. He used a similar methodology as Kwarteng et al (2022). A questionnaire was used to collect data. Both studies highlighted the importance of stakeholder engagement and effective communication in promoting circular economy practices to get Ghanaians to accept the circular economy practices. These researches were conducted in a similar context.

Last but not least, St. John James and Kent (2018) assessed the medium and large clothing enterprises' knowledge of circular economy practices in Ghana. The research was conducted among medium and large clothing organizations in, Accra, Ghana. Qualitative paradigm and Case study design were used. Interviews and content analysis were explored to collect data. The study recommends that there is a need for more empirical research on the practical strategies and tools that small-scale clothing production enterprises can use to accept the circular economy business principles. The gap here is that this study was done among medium and large-scale clothing organizations in Ghana while my study was conducted among small-scale garment producers in Ghana. Besides, my work is limited to Cape Coast, Central region of Ghana.

The adoption of Circular Economy (CE)practices is not without its fair share of challenges and barriers, especially for small-scale garment producers. Several studies have shed light on these impediments, emphasizing the need to

address them to facilitate the transition toward a more sustainable and circular fashion industry. One of the most significant impediments to the wide spread application of CE practices is the lack of awareness among both small-scale garment producers and consumers. Many garment producers remain unaware of the multifaceted benefits that CE practices can offer. This lack of awareness can stem from various factors, including a limited understanding of the principles and potential advantages of circularity. As a result, garment organizations might not fully comprehend the economic, environmental, and social benefits that CE can bring (Rizos et al. 2016).

Brendzel-Skowera, (2021) reported that consumers, on the other hand, may not be entirely willing to pay more for sustainable products. The perception that CE products are pricier due to their eco-friendly features can deter individuals from actively seeking and purchasing these items from the producers in the fashion industry. This creates a challenging market dynamic, where businesses may hesitate to invest in circular practices if they do not perceive a corresponding increase in consumer demand.

Furthermore, the adoption of CE practices often necessitates substantial changes in production processes. This transition can be technically challenging for small-scale garment producers, particularly those that have operated within traditional linear models for an extended period. For instance, incorporating the use of recycled materials may demand the implementation of new equipment or processes that enterprises may not be familiar with (Deloitte, 2022).

The technical hurdles can range from issues related to material compatibility to production efficiency. Adapting to these new processes

requires businesses to invest time and resources in understanding and integrating these changes. The associated learning curve and potential disruptions can be significant deterrents, making the shift toward CE a technically demanding endeavor.

Also, according to Björkdahl, (2022), economic challenges represent a formidable barrier to the adoption of CE practices, particularly for small and medium-sized enterprises (SMEs). The transition to circularity often requires substantial investments in new equipment, processes, and training. SMEs, in particular, may find these financial requirements burdensome, given their resource constraints.

The economic challenges can include not only the initial capital investments but also the ongoing costs associated with the implementation of CE practices. The need for specialized equipment or the purchase of recycled materials may involve higher upfront expenses. While these investments often yield long-term benefits, the immediate economic strain can deter businesses, especially SMEs, from embracing CE.

Amores-Salvadó et al. (2020) noted another significant challenge: the perceived complexity of CE implementation. Small-scale garment producers may view the transition to circular practices as a complex and intricate process, involving changes in their existing practices, production processes, and supply chains. The adoption of CE practices can seem overwhelming, particularly if they lack access to guidance, resources, or technical expertise in a sustainable fashion.

This perceived complexity is further exacerbated by the prevalence of fast-fashion practices, which prioritize high-volume, low-cost production. The

shift to CE often requires rethinking product design, materials, and production methods, which can be at odds with the rapid and disposable nature of fast fashion. Small-scale producers may perceive the coexistence of these two models as incompatible, causing hesitation in transitioning to CE.

Chapter Summary

The review covered both theoretical and conceptual. The theoretical review which encompassed the diffusion of Innovation theory, the resource-based view of the Firm Theory, and the theory of planned behaviour, was meant to guide the analysis and the discussion of the data. The conceptual review was also done and discussed various factors affecting the application of CE models, including economic variability, technological advancement, supply chain logistics, consumer awareness, and cultural factors. The framework posits that addressing these factors holistically is essential for promoting CE practices and achieving long-term environmental and economic benefits. It further, explored the transition from linear to circular supply chains, emphasizing efficient resource use and the role of technology in enhancing transparency and traceability, and also identified challenges such as coordinating multiple stakeholders and maintaining quality standards in a circular system. The review analyzed the growing consumer demand for sustainable fashion and the importance of transparency and eco-certifications in guiding purchasing decisions. It further discusses the role of brands in raising awareness and engaging consumers through sustainability initiatives. The conceptual review further looked at the influence of cultural beliefs, values, and practices on the acceptance of CE models. Further, provided

examples of how traditional practices and social norms in different regions support or hinder the adoption of CE principles

The empirical review saw a lot of articles relating to the adoption of CE practices in different contexts, including the challenges and enablers faced by small and medium-sized enterprises (SMEs) among garment producers and the role of organizational culture and consumer acceptance. Some of these studies showed the importance of consumer perception, safety, and image in accepting circular products. While others emphasized the moderating role of organizational culture and the importance of stakeholder engagement in promoting CE practices, some researchers found the need for more research on practical strategies for SMEs in the fashion industry to adopt CE principles. Some others again looked at practical strategies for implementing CE principles, and the impact of cultural factors. It emphasized the importance of addressing barriers such as technical challenges, and economic constraints to facilitate the transition to circular economy practice in a linear way. Thus, these results remain unreliable and diametrically opposite to each other, therefore, difficult for businesses, policy formulators, and academia to understand and use. It consequently, calls for a reassessment of the small-scale garment producers' application of circular economy practices in Cape Coast Metropolis.

CHAPTER THREE

RESEARCH METHOD

This chapter highlights the procedures and approaches used in data collection to provide answers to the research questions. It describes the type of data, target population, accessible population, research design, sampling, and sampling strategies. The research instruments for the research are also discussed. The last part of the chapter describes other aspects of the methodology like pilot study, data processing and analysis as well as problems encountered in the course of the research.

Research Approach

A mixed-method approach (qualitative and quantitative) was used for the study, such as observation and questionnaires to collect necessary data from the respondents (Creswell, Plano-Clark, and Hanson, 2003). While the qualitative approach used techniques that produce non-numerical data, such as textual or visual information, the quantitative approach concentrated on acquiring and analysing numerical data. This approach allowed for a more holistic understanding of small-scale garment producers' attitudes, perceptions, and behaviours concerning CE practices.

Research Design

A sequential exploratory design was employed for the study. Sequential Exploratory Design is a mixed-methods research approach that involves collecting and analysing qualitative data first, followed by quantitative data. The two phases qualitative and then quantitative are implemented in sequence, allowing the initial qualitative findings to inform the development of the quantitative instrument (Creswell et al., 2003).

This design was selected because the research aimed to explore in-depth perspectives, experiences, and contextual realities of small-scale garment producers regarding their application of Circular Economy practices (CEP), and then use these insights to guide the construction of a broader quantitative survey instrument. Given that limited empirical work exists on this topic within Ghana's context, an exploratory qualitative phase was necessary to identify key variables and themes that could later be tested on a larger sample.

In the first phase (qualitative), data were collected through semi-structured individual interviews and a focus group discussion. Specifically, 20 participants were purposively selected for one-on-one interviews, and an additional 7 participants participated in a focus group. These participants included garment shop owners, employees, and tailors within the Cape Coast Metropolis. Interviews were guided by a protocol designed to probe their knowledge, challenges, practices, and attitudes related to circular economy adoption. All interviews were audio-recorded with consent, transcribed, and analyzed thematically.

In the second phase (quantitative), data were gathered using a structured questionnaire designed based on the findings from the qualitative phase. This questionnaire was administered to 140 randomly selected small-scale garment producers in the metropolis. The survey instrument included both closed-ended and Likert-scale items aimed at capturing the prevalence, challenges, and drivers of CE practices. To ensure data quality, the questionnaire was pre-tested, and necessary revisions were made before full deployment. The quantitative data were then analyzed using descriptive

statistics and inferential tools, including structural equation modeling, to identify patterns and relationships.

The two phases were connected during the interpretation stage, where the quantitative results were used to validate and expand upon the themes derived from the qualitative data. This integrated approach enabled a comprehensive understanding of how small-scale garment producers apply CE practice, and why certain practices are more or less adopted.

Study Area

Cape Coast, a historic city located in the central region of Ghana, offers a compelling and culturally rich context for studying the application of CE practice among small-scale garment producers. Cape Coast is the capital city of the Central region of Ghana. Cape Coast boasts of a thriving and diverse garment industry (fashion centers), with a substantial number of small-scale garment producers engaged in garment manufacturing and tailoring services.

The presence of numerous small-scale garment producers in the region made it an ideal location to investigate their attitudes and behaviours regarding CE practice. The garment industry in Cape Coast holds economic significance for the region. It served as a source of livelihood for many individuals and contributed to the local economy. Understanding the dynamics of CE adoption and practices within this sector can have implications for sustainable economic development in the region.

Ghana, like many countries, is increasingly focusing on environmental sustainability and conservation. The government and various organizations are promoting eco-friendly practices. Understanding how small-scale garment

producers in Cape Coast align with these environmental goals and their willingness to adopt CE practices in response to sustainability efforts is an essential aspect of the study.

Population

The population for this study includes Ghana National Tailors and Dressmakers Association members within the Cape Coast Metropolis.

Targeted Population

The population for the study consists of all registered members of GNTDA in the Cape Coast Metropolis who have established their workshops and have been operating five years and above. Enquiries from the GNTDA executives showed that there are eight (8) registered zonal branches in the Cape Coast Metropolis. Two (2) being zonal branches A, four (4) zonal Branches B and two (2) zonal branches C. Each zonal branch has about 450 registered members and 300 master craftsmen and women from each zonal branch established themselves with garment production centers. 88 master craftsmen and women of GNTDA are from zonal A, have established themselves and also have worked five (5) years and above, 120 master Craftsmen and women from zone B and 64 from zonal branch C respectively.

Samples and Sampling Procedure

The sample was drawn from the registered members of the Ghana National Tailors and Dressmakers Association (GNTDA) within the Cape Coast Metropolis who have established their garment production workshops and have been operating for five years or more. The total population from the eight zonal branches in the metropolis was stratified into three categories: Zonal Branch A, Zonal Branch B, and Zonal Branch C, with 88, 120, and 64 eligible members, respectively.

A sample of twenty (20) participants were purposively selected for in-depth interviews for the qualitative phase and a seven (7) member focus group discussion was also conducted. These participants were chosen from across the zonal branches to ensure balanced representation from Zones A, B, and C. Purposive sampling was used in the qualitative phase because it allowed the researcher to select participants with rich experience and insight into garment production and the circular economy. This technique is commonly recommended in qualitative research for targeting participants who can provide in-depth information (Creswell, 2014).

For the quantitative phase, a total of 140 participants were selected using proportional stratified random sampling, based on the population distribution across the zones. This sampling technique was chosen to ensure that all three zones were fairly represented in accordance with their size and number of eligible members. Stratified sampling was necessary because the zonal branches vary in size and number of craftsmen and women who have been operating for five years or more. The breakdown of eligible participants from each zone was as follows: Zonal A: 88 eligible master craftsmen and women, Zonal B: 120 eligible master craftsmen and women, and Zonal C: 64 eligible master craftsmen and women.

The quantitative sample of 140 respondents is considered adequate and representative for this study because it covers approximately 51% of the total eligible population (272 members) across the three zones. This percentage exceeds minimum recommended thresholds for statistical representativeness in survey research, thereby ensuring that findings can be reasonably generalized to the broader population of small-scale garment producers in the Cape Coast Metropolis. Furthermore, random sampling within each stratum ensured that each eligible participant had an equal chance of being selected, minimizing bias and enhancing the reliability of the results.

The researcher therefore used purposive sampling to select the 20 qualitative participants and stratified random sampling to select the 140 quantitative participants, making a total of 167 respondents for the study. Each zone was proportionally

represented based on the number of eligible participants, with more participants drawn from Zonal B (the largest), followed by Zones C and A.

According to Adler & Adler (1987), qualitative researchers should typically work with sample sizes between 12 and 60, with 30 being a recommended average. Ragin (1992) also recommends 20 participants as a standard for qualitative work. For quantitative research, the number of participants may vary widely depending on population size and research objectives. The sample sizes used in this study therefore fall within acceptable academic guidelines and are sufficient for drawing meaningful conclusions.

Data Collection Instruments

An eclectic approach using different instruments was employed to obtain the necessary data and to address the research questions. This includes the use of questionnaires, interviews, and focus group discussions. Together, they provide rich sources of detailed information and ensure validation of the findings through triangulation.

Questionnaire

The questionnaires were deemed appropriate for the study because they can reach a large number of garment producers relatively quickly and with minimal expenditure (Ary et al., 2006). Thus, the questionnaire was used to gather structured and quantifiable information on small-scale garment producers' understanding, perception, and application of Circular Economy practices (CEP). The instrument was developed based on themes from the literature review and findings from the qualitative phase.

The questionnaire comprised mostly Likert-type scale items (e.g., Strongly Agree to Strongly Disagree) to measure attitudes, behaviours, and perceptions, alongside a few open-ended questions that allowed respondents to elaborate on

their responses. The Likert items helped in statistically analysing trends and patterns, while the open-ended responses provided depth and clarification. The instrument was administered face-to-face by trained research assistants who distributed the questionnaires across the stratified zones, ensuring high response rates and clarifying ambiguities on the spot when necessary.

The Interview Process

The interviews took a semi-structured form. Semi-structured interviews permitted interviewees sufficient space and opportunity to express their varied views which made it possible for the researcher to follow up on the interviewee's emerging ideas and viewpoints (Alshenqeeti, 2014). In the same vein, it also allowed participants to share their personal experiences. Furthermore, semi-structured interviews will give room for the interviewer to evaluate the validity of the respondent's answers via observing non-verbal clues which is especially beneficial due to the sensitive nature of this research (Gordon, 1969). It reduces the burden of having to compare respondents' responses since similar questions are asked across all respondents (Alshenqeeti, 2014).

There was an interview guide that spelled out key areas of questioning and identifies specific issues and areas that ought to be discussed with participants. The intention was to probe general and specific areas of interest, on the four research questions. The interview was also flexible enough for both the interviewer and the interviewee to express a wide range of ideas about selected topics under the four research questions. The interview was commenced by briefing participants about the research, its purpose, and why their input into the interview is crucial. Interviewees were alerted about the

opportunity to withdraw from participation in the research at any time, they deem fit.

A letter of informed consent contained a briefing on the option to withdraw, and this information was reiterated at the start of the interview. The researcher then informed them that he was willing to digitally record the interviews. Before moving on to the primary research questions, the interviewer started the procedure by asking a few background questions about the participants. The interview was formal and conversational, with most of the questions open ended. As stated earlier those who could not be physically accessible, were interviewed on phone. It should be noted that, while telephone interview is flexible in terms of scheduling, it is limited, in that, the interviewer would be deprived of interviewee's other cues such as body language and facial expressions that are present in face-to-face interviews.

The researcher made use of research assistants to enable him carry out the interview successfully. It took the researcher and his assistants, one month to conduct the interview and also collect the data for both qualitative and quantitative data phases. Each interview lasted for thirty (30) minutes to complete. In all, there were twenty interviews each of which took thirty minutes to complete. All interviews were completed in English Language except some master Craftswomen who could not speak the English Language. So, they were interviewed in Fante language and Twi. The recorded data from the interviews was transcribed verbatim into a word document. All transcribed data were read through to highlight responses which are relevant to answering the research questions posed. Thereafter, the most relevant responses were

systematically identified and categorized under each research question and finally, these data were presented for interpretative purposes.

Sampling for Focus Group Discussion

The researcher purposively selected seven (7) participants for the focus group discussion. The participants were made up of experienced master craftsmen and women within the Ghana National Tailors and Dressmakers Association (GNTDA). This selection was based on their expertise and relevance to the subject matter.

Purposive sampling was appropriate for focus group discussions because it ensures that only individuals with rich knowledge and experience are engaged (Krueger & Krueger, 2002; Nyumba et al., 2018). The discussion was guided by a pre-developed protocol to explore shared experiences, group dynamics, and divergent opinions on CE Practices.

The session was held in a neutral, quiet location and lasted approximately 60 minutes. It was audio-recorded, and key points were manually noted during the session. Transcripts were analyzed thematically in conjunction with interview data to enrich and validate the findings.

Observation

Though not emphasized in the initial design, informal observation was used as a complementary method during field visits, interviews, and questionnaire administration. This allowed the researcher to take note of the physical working environments, tools used, waste management practices, and display of garments. Such observations supported or challenged claims made by participants and added non-verbal contextual depth to the data.

Field notes were taken during visits and cross-checked against participants' verbal responses, further enhancing the trustworthiness of the data.

Recruitment and Training of Field Assistants

The researcher recruited and trained four field assistants to help him carry out the interview and the focus group discussions. The training centred on purpose of the research, the interview guide and the focus group discussions guide. Skills required for interviewing and how to facilitate focus group discussions were discussed. Also, discussed were questions and questioning techniques. All these are necessary for effective implementation of the data collection activities. Looking at labourious nature of interviews and focus group discussions for the qualitative data phase, I solicited the assistance of field officers of great service to my work.

Validity and Reliability

The validity and reliability of the research instruments used in this study were ensured through a combination of methodological strategies, including both qualitative trustworthiness criteria and quantitative validation procedures.

The qualitative phase utilized interviews, focus group discussions, and document reviews. Credibility of the qualitative data was achieved through techniques such as prolonged engagement with participants, triangulation of data sources (interviews, FGDs, and documents), member checks, reflexivity, and thick description, as recommended by Patton (2015). Participants were given the opportunity to review and validate the transcriptions and summaries of their responses to ensure accuracy and truthfulness. This ensured that the

data genuinely reflected the experiences and perceptions of small-scale garment producers regarding Circular Economy practices.

Transferability was addressed by providing a rich, detailed description of the research context, sampling procedures, and participant characteristics, allowing others to determine the applicability of findings to similar contexts. Dependability was enhanced by maintaining a clear audit trail of the research process including field notes, interview protocols, coding schemes, and analysis procedures which would enable future researchers to replicate the study under similar conditions.

Confirmability was assured by grounding all interpretations in actual data collected and documenting how conclusions were derived. Direct quotations from participants were used to support key findings, ensuring that the researcher's interpretations remained faithful to the participants' intended meanings (Creswell, 2014; Patton, 2015).

For the quantitative phase, a structured questionnaire was developed based on themes identified during the qualitative phase. To ensure content and face validity, the instrument was reviewed by the research supervisor and two experts in fashion entrepreneurship and sustainability. A pilot study was conducted among 15 small-scale garment producers in a zone not included in the main study, to pre-test the questionnaire. Feedback from the pilot informed revisions to improve clarity, structure, and item relevance.

The reliability of the questionnaire was evaluated using Cronbach's Alpha, which tested the internal consistency of the scale items. Only items that met acceptable reliability thresholds (typically $\alpha \geq 0.7$) were retained for the

final analysis. These steps helped ensure that the questionnaire would yield consistent and dependable results when administered in the main study area.

Additionally, external and internal criticism methods were applied to document analysis to evaluate authenticity and credibility of sources (Merriam, 1985; Lundy, 2008; Berg, 2001). External criticism verified the genuineness of documents, while internal criticism examined the meaning and trustworthiness of their content.

Ethical Considerations

The Institutional Review Board was approved of the Ethical Issues to be dealt with in the study before the commencement of the face-to-face interview with the participants. I was therefore, applied for ethical clearance from the Institutional Review Board of the University of Cape Coast to that effect. A clearance letter was obtained. The prospective participants were duly be informed about the objective and purpose of the study.

The objectives and purpose of the study were outlined in a letter seeking their permission to partake in the interview which was delivered to them a week before the due date for the interview. Verbal and written agreement of the participants were considered irrespective of their educational background and social status. Participants' responses were provided in respect of this study and the focus groups discussion in lieu of this study to be protected. The data obtained from the participants was kept safe and shared with only relevant persons who would review the data, especially my supervisor. Alase (2017). argued that researchers need to give protection to their research participants, develop trust with respondents, enhance the integrity of the research, and prevent misconduct and indecency that might

reflect on their institution. In response to these requirements, as proposed by Alase, the interview was commenced by refreshing the minds of participants about the research, its purpose, and why their input into it was crucial.

Interviewees were alerted about the opportunity to withdraw from participation in the research any time, they deem it fit. Briefing on the possibility of withdrawing was included in a letter of informed consent, and this information was re-emphasized at the commencement of the interview. In a situation where a participant could not read and understand the informed consent, the participant was given the opportunity to bring a relative who could read and interpret it to him or her before he/she agreed to participate. Also, the interview for the study made no provision for the name of respondents rather; the interviewer coded interviewees with letters to prevent the identification of information by a participant. As a consequence, the study will ensure that all ethical issues concerning the confidentiality and anonymity of participants as well as consequences of the interviews were adhered to before the commencement of the interview. Finally, the participants were then told about my willingness to digitally record the interviews. The majority of participants accepted to be recorded, some refused but later they were convinced that it will not use against them.

Findings and Results of the Pilot Study

The pilot study of this research was an important part of comprehending the small-scale garment producers' application of the circular economy business model in the Cape Coast metropolis, Ghana. The variety of participants and data collected from the pilot study was appreciable by way of getting responses from a cross-section of the total population of master Craftsmen and women of GNTDA, Cape Coast, Ghana.

The results from the pilot study were generally positive because participants showed gratitude for being endowed with a platform that enabled their voices to be heard. The rapport created appreciated participants' confidence and made them relaxed throughout the process. Some participants in the pilot study advised the researcher to contact some particular *garment producers* who were potential participants in the main study. The use of an interview procedure was crucial in explaining the experiences participants have relative to the circular economy business model. Results further showed participants felt the interview protocol's content and readability level were easily understood, though, several questions were misconstrued by some participants and needed to be reworded.

Participants' observations, both positive and negative, were very helpful and gave the researcher useful feedback to review and improve the interview protocol for the main study. Several questions were restructured, or reworded to ensure relevance, readability and solicitation of extensive and varied responses from participants. The reviewed interview tool permitted participants to engage in meaningful dialogue that described their positive and negative experiences about the circular economy business model. The positive comments from most of the participants showed that the reviewed interview protocol would be a valuable data collection tool during the main study

Data processing and analysis

The data collected for this study were both quantitative and qualitative in nature, and the analysis approach corresponded with the type of data and the specific research questions (RQs) being addressed. RQ1 was analyzed qualitatively. Responses from semi-structured interviews and focus group

discussions were subjected to manual thematic analysis. This method was selected because it allows for a rich interpretation of participants' perceptions, lived experiences, and contextual understanding of circular economy principles.

The data were read carefully and coded line-by-line, phrase-by-phrase, and word-by-word using an open coding system (Arunthari, 2005; Suter, 2006). This approach was deemed suitable for capturing the depth and complexity of garment producers' awareness and understanding. RQ2 was analyzed using both qualitative and quantitative approaches. On the qualitative side, data from interviews and focus groups were analyzed thematically, focusing on participants' narratives about the advantages barriers in adopting CE Practices.

This dual-level analysis allowed the researcher to understand not only how producers experience CE practices but also how frequently certain benefits and challenges appear across the sample.

On the quantitative side, structured questionnaire responses related to RQ2 were analyzed using descriptive statistics (frequencies and percentages) through SPSS version 26.0. This approach was selected to quantify the proportion of producers who experienced specific benefits or challenges, and to detect any dominant patterns. RQ3 was analyzed quantitatively using Structural Equation Modeling via Partial Least Squares (SEM-PLS). This method was chosen because it enables the researcher to examine complex relationships among variables such as age, experience, education, and firm size, and their influence on CE application. SEM-PLS was especially suitable

given the exploratory nature of the study and the moderately sized sample (n=140).

The model provided both path coefficients and statistical significance levels, allowing for predictive insights. RQ4 was also addressed through quantitative data analysis using structural equation modeling via partial least squares (SEM-PLS). Data were presented in tables using frequencies and percentages to indicate the prevalence of each strategy. Additionally, supporting qualitative data from interviews and focus group discussions helped to contextualize and validate the quantitative findings.

Chapter Summary

The chapter first discussed the suitability of the research design, the population, and limitations, delimitations, and ethical considerations of the research design. Under the research design, the study adopted a sequential exploratory of research. This resulted in the use of a mixed-methods research approach.

Subsequently, the chapter touched on the study population and sampling procedures. Data will be from both primary and secondary sources. The instrument's design will be a questionnaire, interview guide, and focus group discussion. Also, it explained data collection procedures as well as data analyses procedures, which included identifying recurring patterns and themes from the answers collected from participants' audio-taped, manually-recorded semi-structured interviews for the qualitative phase. Again, quantitative data analysis consisted of descriptive statistics.

Finally, Chapter Four reported the results of the main study which will be presented and discussed.

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

The purpose of this study was to assess small-scale garment producers' application of Circular Economy practices in the fashion industry in Ghana. The study adopted a mixed-method approach and used a sequential exploratory research design. Questionnaires were used to gather numerical data and establish patterns or relationships. Structural Equation Modeling using Partial Least Squares (SEM-PLS) was applied to examine the relationships between variables on the quantitative data.

The primary aim of this was to provide a broad understanding of small-scale garment producers' application of circular economy practices. An open coding system was used to analyze participants' narratives. It has the advantage of analysing the responses line-by-line, phrase-by-phrase, and word-by-word. The researcher used a purposive sampling technique and sampled 20 participants whom he interviewed for data; however, 17 participants were finally interviewed. 140 respondents were again used to answer the questionnaires. The table below indicates the characteristics of the participants who responded to the semi-structured interview guide. Again, the researcher embarked on a Focus Group Discussion with another seven (7) participants. This is important, so, the credibility of the personal interview conducted earlier would be ascertained. As a consequence, 24 interviewees were involved in the data collection qualitatively and 140 respondents were involved in data collection quantitatively.

Qualitative Analysis

Table 1: Demographic Information on the Participants

S/N	Pseudonym	Z(branches)	Age	Nationality	Education
1	Participant A	Apewosika	34	Ghanaian	B.ed in clothing and textiles
2	Participant B	Abura	55	Ghanaian	B.Tech fashion design
3	Participant C	Bonkus	40	Ghanaian	NVTI proficient 1
4	Participant D	Bonkus	50	Ghanaian	B. Ed clothing and textiles
5	Participant E	Abura	34	Ghanaian	Teller master
6	Participant F	Abura	56	Ghanaian	High Diploma in fashion design
7	Participant G	Aguna	55	Ghanaian	madam
8	Participant H	Cape coast	50	Ghanaian	HND
9	Participant I	Cape coast	54	Ghanaian	HND
10	Participant J	Abura	52	Ghanaian	B.ed Home Economics
11	Participant K	Abura	50	Ghanaian	HND in fashion Technology
12	Participant L	Abura	52	Ghanaian	NVTI proficient I
13	Participant M	Kotokoraba	56	Ghanaian	NVTI proficient II
14	Participant N	Kotokoraba	45	Ghanaian	NVTI proficient I
15	Participant O	Abum Wells	45	Ghanaian	COVET facilitator
16	Participant P	Abum wells	55	Ghanaian	NVTI proficient II
17	Participant Q	Amamoma	56	Ghanaian	NVTI proficient II

Source: Field Work, 2024

Table 2: Demographic Data on Participants for Focus Group Discussion

s/n	Pseudonym	Religion	age	Nationality	Education
1	Participant R	Christianity	55	Ghanaian	B.Ed. Home Economics
2	Participant S	Christianity	46	Ghanaian	Practice fashion knowledge (private)
3	Participant T	Islam	56	Ghanaian	B.tech fashion and design
4	Participant U	Christianity	62	Ghanaian	NVTI Proficiency 1 and 2
5	Participant V	Christianity	50	Ghanaian	MPhil in fashion design technology
6	Participant W	Christianity	48	Ghanaian	NVTI proficient II
7	Participant X	Islam	49	Ghanaian	NVTI proficient II

Source: Fieldwork, 2024

In this chapter, the researcher explores the participants' awareness and understanding of circular economy practices in the garment production

industry. The themes identified through semi-structured interviews shed light on various aspects of this awareness and its influence on their practices. Every participant was not able to discuss every theme succinctly because responses depended on how experienced the participants were, how they had been practicing their current circular economy as producers in garment production, and their familiarity with it. The ranges of selections were envisioned to allow the maximum number of participants' voices to be heard, and to represent the variety of topics inherent in the emergent themes. Eight (8) major themes related to small-scale garment producers' application of circular economy practices. Each theme has been labelled as follows: 1). Familiarity and Understanding of Circular Economy Principles and Concepts, 2). Knowledge of the Term "Circular Economy", 3). Sources of Knowledge Acquisition, 4). Organization of Educational Materials and Resources, 5). Industry Training and Workshops, 6). Lack of awareness or understanding and Education, 7). Financial Constraints in Adopting Circular Economy practices, 8). Motivations for Adoption.

The above themes were identified and selected because they appeared to be recurring in each participant's interview. Although other categories came up, they were not cogent enough to be selected. The results were presented based on the research questions one and two of the study. The themes identified from the semi-structured interview are as follows:

Research Question One: Do small-scale garment producers understand the circular economy practices?

This question sought to solicit insights into the level of comprehension among small-scale garment producers regarding circular economy practices. It

was answered by all participants except the Zonal Training Coordinator of the Ghana Tailors and Dressmakers Association, Abura branch as their interviews related to the circular economy BM.

Familiarity and Understanding of Circular Economy Principles and Concepts

The following were responses with respect to this theme.

Participant A said that

> *"Although I am still in the early stages of learning about Circular Economy principles and concepts, I'm enthusiastic about their potential impact. I have participated in workshops and training sessions to familiarize myself with principles such as waste reduction, product remanufacturing, and circular supply chain management. While I have not yet applied these concepts extensively in real-world projects, I'm eager to explore opportunities for integrating Circular Economy strategies into my work. I see Circular Economy principles as essential for driving innovation and sustainability across industries."*

Participant B also had this to say

> *"While I have not had extensive hands-on experience with Circular Economy concepts, I have a solid understanding of their importance and potential impact. I've studied the principles of waste minimization, product refurbishment, and eco-design strategies. Although I have not yet applied these concepts in-depth in my work, I'm actively seeking opportunities to incorporate Circular Economy practices into future projects. I recognize the*

value of adopting circular approaches to drive sustainability and resource efficiency."

The contribution of participant C on the theme was that

"Even though I have not had much schooling, I have learned from my community about Circular Economy. It's not just about using things again; it's also about sharing and helping each other. For example, we pass down clothes and tools to younger ones instead of buying new ones all the time. We also repair broken things together, like spoilt iron, old clothes, old sewing machines, so they do not end up in the trash. Circular Economy is like a big circle where nothing gets wasted, and everyone benefits."

Participant F also added that

"My familiarity with Circular Economy concepts stems from a combination of academic research and practical implementation. I have conducted research projects focused on sustainable supply chains, circular practices, and resource recovery strategies. I have also, studied the principles of waste minimization, product refurbishment, and eco-design strategies. In my professional experience, I have led initiatives to redesign products for circularity, optimize material use, and promote recycling and reprocessing practices. I believe that Circular Economy principles offer viable solutions to address global environmental challenges and foster economic resilience."

From the narratives of the participants above, it could be concluded that the circular economy was somehow understood, but not practiced by garment producers in the Cape Coast Metropolis. This conclusion agrees with the work of 'Ranta and Kyrö in Filand' (2021) and Bocken et al, (2016) who contend the idea of implementing Circular Economy principles at the grassroots level so that all can understand and practice it. These localized circular initiatives can be effective in engaging small-scale enterprises fostering bottom-up sustainability transitions and exploring circular practices that focus on waste reduction, recycling, and creating value from discarded materials.

Circular Economy has emerged as a pivotal concept in addressing environmental challenges and fostering sustainable economic growth. In the case of Cape Coast Metropolis, where small-scale garment producers play a significant role in the local economy, understanding their application of Circular Economy practices is important. Through the narratives of Participants who represent varying levels of familiarity with the Circular Economy, I can infer their attitudes towards and readiness to embrace Circular Economy principles within the garment production sector. Expression of enthusiasm and eagerness to integrate Circular Economy strategies into work, despite being in the early stages of learning. This indicates a positive attitude towards adopting Circular Economy practices.

The evidence of enthusiasm and awareness among stakeholders are key drivers for the successful implementation of Circular Economy practices in business settings especially in the fashion industry. This opinion by Participant A was true but it is no more valid today. Even though garment

producers are getting to know and understand the circular economy taught by the stakeholders such as; redesigning products for circularity, optimizing material use, and promoting recycling and reprocessing practices, etc. Again, the assertion that solid understanding and recognition of circular economy among garment producers is of significance. According to Tukker et al. (2015), even a basic understanding of Circular Economy principles can lead to a willingness to incorporate circular approaches into business strategies, especially when there is a recognition of the value in driving sustainability and resource efficiency.

It is also very clear from the narratives that not having extensive hands-on experience, shows a solid understanding of the importance and potential impact of Circular Economy practices among small-scale garment producers when it comes to the spread of circular economy practices. The small-scale garment producers within GNTDA did not have sound familiarity with circular economy practice education so, they taught only the reusing and repairing items while fashion designers, who were very knowledgeable in sewing and designing but operating in big organisations, taught and became familiar with Knowledge associated with the circular economy business model.

The narrative also attributed localized Circular Practices to the garment producers. This finding aligns with the perspectives of Bocken et al. (2016) and Curry and Philip (n.d.), who argue that Circular Economy practices were introduced to stakeholders and small-scale garment producers in a blended manner, combining elements of traditional business practices with innovative sustainability principles.

Similarly, in the context of Circular Economy practices, it is evident that the initial proponents of GNTDA were primarily focused on their commercial activities rather than evangelizing the Circular Economy concept. Their primary interest lies in the potential economic gains from adopting Circular Economy practices, viewing sustainability as a secondary concern. This perspective resonates with the findings of Zeng and Shi (2020), who observed that certain designers, such as the tailors, were more focused on trade profitability rather than actively promoting Circular Economy principles.

Furthermore, the focus group discussions aligned with the personal interview results, indicating that stakeholders within the Circular Economy sphere recognised the role of various trade organizations such as the Ghana National Tailors and Dressmakers Association (GNTD), NVTI, CTVET, Municipal/District Assemblies, GIZ, in driving the adoption and spread of Circular Economy practices.

Knowledge of the Term "Circular Economy"

This theme sought to establish and assess individuals' knowledge of Circular Economy, encompassing their grasp of its principles, strategies, applications in sustainability, resource efficiency, waste reduction, and innovative practices, highlighting its relevance in sustainable development and environmental stewardship

Participant B

> *"I have heard about Circular Economy through various sources, including media and educational materials. It involves sustainable practices like reducing waste, recycling materials, and designing products for longevity. I believe Circular Economy strategies are*

essential for environmental protection and long-term resource management".

Participant C

"I do not know much about Circular Economy from books or schooling, but I understand it from my community. It is about not wasting things and using resources wisely. We repair and reuse items instead of throwing them away. Circular Economy is practical and helps us save money while protecting the environment."

Participant D

"I have a good understanding of Circular Economy concepts. It's about closing the loop in production and consumption cycles, reducing waste, and promoting sustainable practices. Circular Economy encourages innovation and resource efficiency, which are crucial for a sustainable future."

Participant F

"I have studied Circular Economy principles in my academic coursework and through professional training. It involves strategies like waste minimization, product redesign, and closed-loop systems. Circular Economy is a holistic approach to sustainability that considers environmental, social, and economic factors."

Participant H

"I am familiar with Circular Economy concepts, which focus on creating a regenerative system by reducing, reusing, and recycling

resources. It is about designing products for durability and minimizing environmental impact throughout their lifecycle. Circular Economy promotes sustainability and resilience in business practices."

Participant M

"I have not learned about Circular Economy from books or formal education, but I understand it from discussions in my community. It's about using things wisely and not wasting resources. We repair, share, and reuse items to make the most of what we have. Circular Economy is practical and benefits everyone."

From the data gathered, it is clear that the Circular Economy covers sustainable practices aimed at reducing waste, promoting resource efficiency, and fostering environmental protection within a holistic framework of sustainability and resilience in business practices. According to participants B and F, Circular Economy involves strategies such as waste minimization, recycling materials, product redesign, and closed-loop systems. They emphasize the importance of Circular Economy strategies for environmental protection and long-term resource management, highlighting its relevance in sustainable development.

A key component of the circular economy is waste reduction, which tries to lower the quantity of trash produced during the whole production and consumption process. To lessen their negative effects on the environment and preserve natural resources, businesses are encouraged to streamline their operations, cut down on surplus materials, and come up with creative methods to use available resources. A further crucial tactic in the circular economy is

material recycling. It includes repurposing waste materials into new goods or raw materials through recovery and processing, prolonging their useful life, and lowering the demand for virgin resources. Circular Economy encourages recycling, which helps with trash reduction, energy saving, and resource management that is more sustainable. Recycling materials is another key strategy within the Circular Economy.

It involves recovering and reprocessing waste materials into new products or raw materials, thereby extending their lifecycle and reducing the need for virgin resources. By promoting recycling, the Circular Economy contributes to waste reduction, energy conservation, and a more sustainable approach to resource management. Product redesign is a proactive approach to Circular Economy, focusing on designing products that are durable, repairable, and recyclable. By incorporating principles such as modular design, use of sustainable materials, and easy disassembly, businesses can create products that have a lower environmental footprint and contribute to a circular system where materials are reused and repurposed rather than discarded.

Participant H remembered that the circular economy focuses on creating a regenerative system through reducing, reusing, and recycling resources. This approach aims to design products for durability and minimize environmental impact throughout their lifecycle, promoting sustainability and resilience in garment production practices. The focus group discussion indicates the emphasis on the practicality and benefits of the Circular Economy in terms of using resources wisely, reducing waste, and promoting environmental sustainability.

The knowledge of the circular economy described above indicates that Circular Economy principles are highly relevant to small-scale garment producers in the Cape Coast Metropolis. This underscores the fact that Circular Economy strategies such as waste minimization, recycling materials, product redesign, and closed-loop systems are crucial for environmental protection and long-term resource management. According to Geissdoerfer et al. (2017), waste reduction, product redesign, and closed-loop systems as key elements of Circular Economy practices in the fashion industry. These strategies are essential for small-scale producers to minimize waste, optimize resource use, and promote sustainable practices throughout their supply chain.

According to Participant A, the circular economy is simple these days since, everything is now on the internet especially 'YouTube' where one can just go there, watch a movie that has the process and practices of circular economy, memorize the steps, and start practicing on your own. This resonates with studies by Braungart & McDonough (2022). These studies highlight the importance of making use of the internet to learn circular systems that prioritize durability, resource efficiency, and environmental impact reduction, on an individual own to be able to practice them simply without demanding intensive training on the integral of Circular Economy practices in the fashion industry. On this basis, I disagree with scholars who describe learning and implementing circular economy practice as a simple, self-leant, and memorization process. It must also be made clear that a comprehensive understanding of circular economy goes beyond simplistic descriptions and acknowledges the complexity and diversity of strategies and approaches involved.

Sources of Knowledge Acquisition

This theme sought to find out how small-scale garment producers acquired knowledge of the circular economy business model. Participants views were solicited and various responses were recorded.

Participant B

"I have acquired knowledge about Circular Economy practices through formal education, including courses and workshops focused on sustainability and environmental management. Additionally, I stay updated with industry trends and best practices by reading relevant publications and attending webinars conducted by experts in the field of fashion."

Participant F

"My knowledge of Circular Economy has been enriched through academic coursework during my studies, as well as through professional training programs and certifications. I actively engage with online resources, such as industry forums and research articles, to deepen my understanding of sustainable practices and innovative practices."

Participant K

"hmmm I may not have formal education, but I have gained practical knowledge of Circular Economy practices through hands-on experience and mentorship from fellow entrepreneurs in the garment industry. Participating in community workshops and listening to local experts has also contributed to my understanding of sustainability principles."

Participant M

"Despite not having a formal education, I have learned about Circular Economy practices through discussions within my industry and interactions with knowledgeable individuals. Sharing experiences with other garment producers and observing sustainable practices in action have been valuable sources of knowledge for me."

Participant P

"My knowledge of Circular Economy business comes from observing changes in the industry and adapting practices that promote resource efficiency and waste reduction. While I may not access formal educational materials, I am proactive in seeking guidance from experienced peers and learning through practical examples."

Sources of Knowledge Acquisition in those days was not as we experience it today. According to Participant B, acquiring knowledge through formal education, including courses, workshops and other capacity training helps both individuals with education and those without to focus on sustainability and environmental management. All the participants contend that continuous learning and staying informed about evolving Circular Economy practices deepen understanding of sustainable practices and innovative practices and then also contribute to understanding sustainability principles. They also mention staying updated with industry trends through relevant community workshops and listening to local experts, publications, and webinars about the circular economy. This approach reflects a structured

learning process that combines theoretical knowledge with practical insights from industry experts and current research. All these contributed to sustaining the fashion industry.

Aside this, the available data indicates that small-scale garment producers in the Cape Coast Metropolis heard and do acquire small knowledge of the Circular Economy business model through a combination of formal education, online resources (watching videos from YouTube, Facebook, Pinterest, and Instagram, etc), practical experience, community engagement, peer learning, observational learning, and continuous adaptation to industry changes. Participant K recalled that practical knowledge gained through hands-on experience, mentorship from fellow entrepreneurs, and participation in community workshops as crucial sources of knowledge acquisition. Interactions with local experts and discussions within the industry were also noted as valuable sources of learning.

It should be noted that adaptation, continuous learning, and staying informed about changes in the industry promote resource efficiency, waste reduction, and sustainable business practices, despite not having access to formal educational materials. Based on the responses of the focus group discussions, sources of knowledge acquisition in circular economy BM practices include: capacity training, formal education, online learning, practical experience, community engagement workshops, peer guidance, and continuous adaptation to industry changes. The responses also showcase the interconnectedness of these approaches, emphasizing the importance of a holistic learning mindset and staying informed about sustainable practices in

the garment production sector. These responses have substantiated the responses of the individual interview results.

Organization of Educational Materials and Resources

This theme is about how educational materials and resources were organized about circular economy practices among garment producers. Various participants have expressed their views on how it was organized when it was being heard and introduced.

Participant A has this to say:

> *"When I first heard about circular economy business model practices, there were no organized educational materials or resources available for us as small-scale garment producers. The information was scattered, and there was a lack of structured guidance on how to implement these practices effectively. It was challenging to navigate through the concepts without proper resources or support from the government or relevant associations. The introduction to circular economy practices felt disjointed and disorganized, leaving many of us uncertain about how to proceed."*

Participant B

> *"Upon hearing about circular economy business model practices, I realized that there was a significant gap in the organization of educational materials and resources. There were no comprehensive guides or training sessions provided by the government or GNTDA in our region. This lack of organization made it difficult for small-scale garment producers like us to*

understand the intricacies of circular economy practices and how to integrate them into our businesses. The introduction was not accompanied by structured resources, which hindered our ability to adopt these sustainable practices effectively."

Participant C

"When I heard circular economy practices, there was a noticeable absence of organized educational materials and resources. The information was sporadic, and there was no clear guidance on how to apply these practices in our garment production processes. This disorganization made it challenging for illiterate individuals like me to grasp the concepts fully and benefit from the potential advantages of circular economy practices. It felt like a missed opportunity to provide us with the necessary support and resources to succeed in adopting sustainable practices."

On the basis of the above narratives, Educational Materials and Resources on circular economy practices at the time of its introduction, were not organized. It was a kind of informal education and it is still to date which did not have proper training, no professional resource persons to assist in better and effective learning, and its implementations, and no certification. Participant B argued that there is a significant gap in the organization of educational materials and resources in the circular economy. That is, there were no comprehensive guides or training sessions provided by the government or GNTDA in our region and even these days, even though there are pieces of information and other materials available it involves online matters, and this is for those who can afford smartphones and data. Participant

C opined that the information is sporadic, and there is no clear guidance on how to apply these practices in our garment production processes.

Based on the responses of Members E, A, and C of the focus group, expressed frustration and challenges due to the lack of organization in educational materials and resources about circular economy business model practices among small-scale garment producers in the Cape Coast Metropolis. The absence of structured guidance, comprehensive guides, and training sessions from governmental or industry bodies hindered their ability to understand and implement these practices effectively, highlighting the need for organized support and resources in the future. These responses supported those of the individual interviews.

Industry Training and Workshops

The theme discusses knowledge, skills, and resources needed to transition towards more sustainable and environmentally conscious practices in businesses among small-scale garment producers. Participants have presented their opinions on the theme. Analysis of the data below would suffice.

Participant B:

> *"I believe that industry training and workshops may play a crucial role in equipping us with the knowledge and skills needed to adopt sustainable practices. These provide valuable insights into waste reduction, eco-friendly materials sourcing, and innovative production techniques. They also offer practical training on implementing circular economy principles, which are essential for*

transitioning towards a more environmentally conscious business model."

Participant C:

"Attending industry training and workshops has been instrumental in enhancing my understanding of circular economy practices. This training provides hands-on experience, case studies, and expert guidance on topics like product redesign, resource efficiency, and waste management. They empower small-scale garment producers like me to make informed decisions and take proactive steps towards sustainability in our businesses."

Participant D:

"Industry training and workshops could have been a game-changer for me in adopting circular economy practices. They offer comprehensive training on sustainable production methods, and environmental impact assessment. These sessions I think would have provided access to valuable resources, tools, and networks that facilitate the transition towards more eco-friendly and socially responsible practices."

Participant E:

"I have found industry training and workshops to be invaluable in acquiring the knowledge and skills necessary for implementing circular economy practices. These sessions cover a wide range of topics, including circular design principles, waste management strategies, and sustainable sourcing but we are not getting them. They also provide practical guidance on overcoming challenges and

leveraging opportunities in the transition towards a circular economy business model."

Participant K also has this to be added:

"Participating in industry training and workshops has been enlightening and transformative for other people in another country, maybe for the other garment producers in other regions but for me no to my garment production business. I heard industry training and workshops offer tailored insights into circular economy practices, such as material reuse, remanufacturing, and circular supply chain management. They provide a roadmap for sustainable growth and help small-scale producers navigate the complexities of transitioning towards a circular business model."

Participant P:

"Industry training and workshops have been instrumental in building other people's capacity to adopt circular economy practices in their garment production processes. However, those of us here to get workshops to attend to get such insightful training. Workshops would have empowered us to embrace sustainability, reduce waste, and enhance resource efficiency in their operations."

From the above analysis, the reasons for which the small-scale garment producers appeared to dislike the practice and implementation of the circular economy principle are clear and significant. In the first place, a common thread across their responses is the absence or limited access to such industrial training and workshops, which has hindered their ability to fully embrace circular economy principles in their businesses. Even when the majority of

them have identified the crucial role of industrial training and workshops in equipping small-scale garment producers with the knowledge, skills, and resources needed to transition towards more sustainable and environmentally conscious practices.

The foregoing is in consonance with the findings of Boström and Klintman (2017). They contended that the practical challenges encountered by small-scale garment businesses in accessing the necessary training and workshops to embrace sustainable practices fully is a lack of resources on the part of most organizations and countries. The absence of industry training and workshops represents a missed opportunity for SMEs to acquire the knowledge, skills, and guidance required for the effective implementation of circular economy strategies and other sustainability initiatives. The results of the focus group discussion confirmed the absence of industry training and workshops, as a missed opportunity for small-scale garment producers to acquire the knowledge, skills, and guidance required for the effective implementation of circular economy strategies and other sustainability initiatives. Without access to these resources, garment producers face challenges in adopting circular economy practices and maximizing their potential for sustainable growth.

Secondly, Accessibility; one significant challenge is the limited accessibility of industry training and workshops and circular economy practices, especially in regions where small-scale garment producers are located, Cape Coast is not an exception. The narratives also revealed that limited accessibility of industry training and workshops can be attributed to geographic barriers and lack of transportation infrastructure. This means that

these trainings and workshops may not be easily reachable for small-scale garment producers, especially those located in remote or rural areas. The absence of adequate transportation infrastructure, such as public transport, or logistical support, can make it challenging for garment producers to physically attend these workshops, leading to limited participation and missed learning opportunities. This finding contradicts that of Kwame, (2020) as cited in Rietveld & van Houten (2016). According to him, Government agencies and NGOs often provide access and funding to organize industry training and workshops for SMEs in urban and rural communities. This funding can cover costs related to venue rental, expert speakers, training materials, and logistics.

Thirdly, some small-scale garment producers may not be aware of the existence of industry training and workshops or may lack information on the circular economy about their benefits and relevance to their business operations. This lack of awareness can result in missed opportunities for skill development and knowledge acquisition.

And lastly, Government agencies or organizations responsible for organizing industry training and workshops may face challenges in allocating sufficient resources, including funding, staff, and infrastructure, to reach all garment producers, especially those in remote or marginalized areas. Addressing these disadvantages requires concerted efforts from policymakers, industry stakeholders, and training providers to enhance accessibility, reduce costs, improve cultural relevance, raise awareness, tailor training programs, and allocate resources effectively to ensure that all garment producers can benefit from industry training and workshops for sustainable and environmentally conscious practices.

Research Question Two: What are the factors influencing the application of circular practices among small-scale garment producers?

This question sought answers on how various factors contribute to or hinder the acceptance and adoption of circular economy business modules practice among small-scale garment producers**.** Each participant discussed their experiences. After analysis of the data, the following themes emerged under the research question:

Lack of awareness or understanding and Education

The theme was discussed by each participant. While the majority expressed that there was a significant lack of awareness and understanding, and regarding circular economy practices, a few participants had differing views. The majority, however, of participants agreed that the lack of awareness and understanding persisted, particularly during the early stages of introducing circular economy concepts to the garment industry. Moreover, many participants felt that there was a substantial gap in educational initiatives and resources related to circular economy practices. They emphasized that government, NGOs, and industry stakeholders did not adequately and directly address the educational needs required to promote circular economy principles among small-scale garment producers. This lack of educational support directly impacted the awareness, understanding, and adoption of circular practices within the industry.

Participant A

> *"I strongly believe that the lack of awareness and understanding about circular economy practices is a major obstacle for small-scale garment producers. Without proper education and awareness*

initiatives, it is challenging for small-scale garment producers to transition to sustainable practices. Educational workshops and awareness campaigns are crucial to bridge this gap."

Participant C

"From my experience, I can affirm that the lack of awareness and education regarding circular economy practices is a significant barrier. Many producers are unaware of the benefits of sustainable practices and how they can implement them effectively. There is a clear need for educational programs tailored to the garment industry."

Participant H

"Lack of awareness and understanding about circular economy practices hinders our ability to adopt sustainable practices. Educational efforts should focus on explaining the principles of circular economy in simple terms and providing practical guidance on implementation."

Participant M

"In my opinion, the primary challenge we face is the lack of education and awareness about circular economy practices. Many of us who are garment producers are not familiar with the concept or its potential benefits. We need educational initiatives that target small-scale garment producers specifically and address their unique needs and challenges."

Participant N

"I echo the sentiment that the lack of awareness and understanding about circular economy practices is a significant barrier. Without proper education, we may not realize the environmental and economic advantages of sustainable practices. Circular economy education should be a priority to drive adoption."

Participant O

"I share the view that the lack of awareness and education about circular economy practices is holding us back in the fashion industry especially those of us in the Cape Coast here We need workshops, training programs, and educational materials that can enlighten us about sustainable practices. Increased awareness will lead to better adoption of circular economy principles."

Based on the responses above, lack of awareness, understanding, and education about circular economy practices is a critical barrier for small-scale garment producers and also has a direct impact on circular economy acceptance and implementation. Although it sought to see the level of knowledge and understanding among garment producers regarding circular economy principles, practices, and benefits. According to Participant A, many garment producers may not be familiar with the concept of circular economy, its principles, and its potential benefits. This lack of awareness can hinder their ability to implement sustainable practices effectively. That notwithstanding collaboration between industry stakeholders, government agencies, NGOs, and educational institutions is crucial in organizing effective educational

workshops and awareness campaigns. This collaborative effort can ensure that the information reaches a wider audience and has a lasting impact.

I share the view that the ultimate goal of education and awareness initiatives is to bridge the gap between current practices and sustainable practices. By providing small-scale garment producers with the necessary knowledge, skills, and resources, they can make informed decisions and take proactive steps toward sustainability. For instance, the crucial role of education and awareness in promoting the adoption of circular practices in industries Boons, Lüdeke-Freund, Broeck, & Brezet (2013) educational initiatives, workshops, and awareness campaigns are essential tools for bridging the knowledge gap and fostering a mindset shift towards sustainability.

It is also clear from the narrative that Participant C stresses the need for educational programs specifically tailored to the garment industry. These programs should focus on explaining the benefits of sustainable practices, providing practical guidance on implementation, and addressing the unique challenges faced by small-scale garment producers.

Once again, responses from the focus group discussion alluded to the fact that there is a widespread lack of awareness and understanding regarding circular economy practices among small-scale garment producers. This is because circular economy education and understanding is at the rudimental level and did not warrant government intervention or NGO however, the group noticed some kind of indirect positive and negative effects on the part of garment producers are aware and understand circular economy education and those who do not.

Again, based on Participant H's narrative, he acknowledged that the lack of awareness and understanding is a significant barrier to adopting sustainable practices based on circular economy principles. This lack of awareness extends to comprehending the core principles and benefits of circular economy practices. So, he suggested that educational initiatives should focus on explaining circular economy principles in simple terms, ensuring that they are easily understandable and accessible to all garment producers and stakeholders in the garment production industry. Providing actionable steps, tools, and resources that small-scale garment producers can utilize to integrate sustainable practices into their daily operations effectively as quoted by Geissdoerfer, Savaget, & Evans (2017) alluded to this finding. In their report of the practical guidance on the circular economy by Small and Medium Size Enterprise (SMSE), they lamented that practical guidance involves offering clear and actionable steps that producers can follow to integrate circular economy practices into their operations. This includes guidelines on waste reduction, resource efficiency, product design for longevity, and recycling strategies. These steps should be specific, achievable, and tailored to the unique challenges faced by small-scale garment producers.

Furthermore, from the narrative of Participant M, the overarching challenge of insufficient education and awareness among garment producers regarding circular economy practices. This lack of knowledge extends to understanding the concept itself, its principles, and the potential benefits it offers. Participant M, however, admitted that many small-scale garment producers, including myself, are not familiar with the concept of circular economy. This lack of familiarity indicates a gap in educational initiatives and

awareness campaigns tailored to their specific industry and business needs. Participant N contended that the lack of awareness and understanding is a significant barrier to adopting circular economy practices. He argued that with adequate education and awareness, garment producers can better understand the potential benefits of circular economy practices. These benefits may include cost savings, resource efficiency, waste reduction, improved environmental sustainability, and enhanced competitiveness in the market.

On the basis of the narrative of Participant O, workshops, seminars, and hands-on training sessions educate garment producers on sustainable practices, waste management techniques, and eco-friendly production processes. Capacity building also helps empower producers with the knowledge and skills needed to implement circular economy business model strategies.

Financial Constraints in Adopting Circular Economy Business Modul

This is another theme that relates to financial constraints faced by small-scale garment producers which research question two sought to answer. About nine participants responded to the question that answered this theme. Each of them contended that financial constraints pose a significant challenge in embracing circular economy practices among small-scale garment producers. There was a general feeling that it was rather the Ghanaian government and industry stakeholders that did not want to support garment producers to understand accept, and practice circular economy principles. Let's look at the various responses and get the experience of the participants on financial constraints in the context of the circular economy business module.

Participant A

"The financial constraints we face as small-scale garment producers are a major hurdle in adopting circular economy practices. It's not just about the initial investment in eco-friendly materials or equipment but also ongoing costs associated with sustainability measures. Limited access to funding and high operational expenses make it challenging to implement circular practices."

Participant B

"Financial constraints significantly impact our ability to transition to circular economy practices. Investments in new technologies, sustainable materials, and waste management systems require substantial capital. Without adequate financial support or incentives, it's difficult for small-scale producers like us to make these changes."

Participant C

"I believe that financial constraints are a key factor hindering the adoption of circular economy practices. While we understand the benefits of sustainability, the upfront costs and lack of access to affordable financing options make it impractical for many small-scale garment producers like us to invest in eco-friendly solutions."

Participant D

"Financial constraints are a harsh reality for those of us in rural communities. The cost of sustainable materials, machinery upgrades, and employee training is often prohibitive. Without

accessible financing or government support, it's hard for us to embrace circular economy practices."

Participant E

"Operating in a rural setting amplifies the financial challenges of adopting circular economy practices. Limited access to financing and resources makes it difficult to invest in sustainable technologies or training programs. The high upfront costs and ongoing expenses are major obstacles for small-scale producers like us."

Participant H

"Our rural location poses significant financial constraints in adopting circular economy practices. Lack of access to affordable loans or grants makes it hard to afford eco-friendly materials and equipment upgrades. Financial assistance and support programs are crucial to overcoming these barriers."

Participant K:

"I have personally experienced the financial challenges involved in adopting circular economy practices. The initial investment in sustainable materials, machinery upgrades, and employee training is daunting for small-scale producers. Without financial assistance or support programs, it's hard to overcome these barriers."

Participant L:

"Financial constraints pose a significant obstacle to adopting circular economy practices. The cost of transitioning to sustainable production methods, managing waste, and complying with environmental regulations is prohibitive for many small-scale

garment producers. Access to funding and affordable loans would facilitate the adoption of circular practices."

Participant P

"The financial challenges we face as small-scale garment producers make it difficult to embrace circular economy practices. Investments in eco-friendly materials, recycling infrastructure, and energy-efficient technologies require substantial capital. Without financial support or incentives, it is hard to prioritize sustainability initiatives."

Based on the responses above, financial constraints have a significant direct impact on adopting circular economy practices faced by small-scale garment producers. According to Participant A, financial constraints are not just limited to the initial investment in eco-friendly materials or equipment but also extend to ongoing costs associated with sustainability measures to ensure that circular economy practices are implemented well. This indicates that the financial burden continues even after the initial investment, making it challenging for garment producers to maintain circular business practices. That notwithstanding, there are still more garment producers who have more interest in practicing the circular economy in the industry. I share the view that financial constraints are a significant barrier to the adoption of circular economy practices among small-scale garment producers. For instance, the lack of affordable financing options, grants, or incentives makes it difficult for small-scale producers in Ghana to invest in eco-friendly materials, machinery upgrades, and employee training necessary for implementing circular

economy principles (Boström and Klintman,2017) and that is what happened to small-scale garment producers in Cape Coast Metropolis.

It is also clear from the narrative of Participant C that while there is an understanding of the benefits of sustainability, the upfront costs and lack of access to affordable financing options pose practical barriers. This suggests that even with awareness and willingness, financial constraints remain a significant hurdle. Once again, responses from the focus group discussion alluded to the fact that financial constraints significantly impede the adoption of circular economy practices among small-scale garment producers. The group noticed the challenges posed by limited access to funding, high upfront costs, and ongoing expenses associated with sustainability measures. This consistent feedback underscores the critical role of financial support and incentives in facilitating the transition to more environmentally conscious practices. Again, based on Participant H's narrative, rural location exacerbates the financial hurdles associated with adopting circular economy practices. He added that rural areas often lack the infrastructure, resources, and access to financing that urban counterparts may enjoy. This underscores the need for targeted support and interventions to bridge the gap between rural and urban producers. As quoted by the Ellen MacArthur Foundation (2020) alluded to these findings. In His annual report of Barriers and Enablers for Small and Medium-Sized Enterprises in Adopting Sustainability Practices, he lamented the difficulty in accessing affordable loans or grants. This is a common issue among small-scale businesses, especially in rural settings where financial institutions may be limited, and loan terms may not be favourable. Improving

access to finance through specialized programs or partnerships with financial institutions could help alleviate this barrier.

Furthermore, the narrative of Participant M, emphasizes the critical role of financial assistance and support programs in overcoming these challenges. Participant M, however, admitted that government initiatives, industry collaborations, or NGO-led programs that offer grants, subsidies, or low-interest loans tailored to the needs of small-scale garment producers can significantly aid in the transition to circular economy practices. Participant N contended that hints at the importance of collaboration and partnerships. He argued that engaging with stakeholders such as government agencies, financial institutions, industry associations, and NGOs can lead to the development of targeted solutions and support mechanisms that address the specific financial constraints faced by garment producers. On the basis of the narrative of Participant O, the challenge of financial constraints in promoting the adoption of circular economy practices among small-scale garment producers, as misconceptions and resistance can hinder progress despite the potential for positive outcomes and success stories among those who have embraced sustainable practices.

Motivations for Adoption

This is another theme that relates to motivations for the adoption of circular economy practices and how various factors contribute to small-scale garment producers' decision-making process, which research question two sought to answer. About nine participants responded to the question that answered this theme. Each of them contended by identifying key drivers and incentives that can promote the widespread adoption of sustainable and

environmentally conscious practices in the garment industry. Let's look at the various responses and get the experience of the participants on how motivation influences the adoption of circular economy practices.

Participant A

"I will be motivated to adopt circular economy practices because of the environmental benefits they offer. they reducing waste and recycling materials, I can contribute to sustainability and protect the environment for future generations. Additionally, embracing circular practices can also lead to cost savings and improved resource efficiency in my business."

Participant B

"My motivation for adopting circular economy practices stems from market demand and customer preferences. Consumers are increasingly seeking sustainable products, and by aligning with circular economy principles, I can meet their expectations, differentiate my brand, and gain a competitive edge in the market."

Participant C

"The economic benefits of circular economy practices are a strong motivation for me. By optimizing resource use, minimizing waste, and exploring innovative production methods, I can lower production costs, increase profitability, and create new revenue streams through recycling and upcycling initiatives."

Participant D:

"As a small-scale garment producer, my motivation for adopting circular economy practices would have been driven by regulatory

compliance and industry standards. Adhering to environmental regulations, certifications, and sustainability guidelines not only ensures legal compliance but also enhances my reputation as a socially responsible business."

Participant E:

"Social impact is a key motivation for me to adopt circular economy practices. By embracing sustainable and environmentally conscious practices, I can contribute positively to my community, support local economies, improve working conditions, and foster partnerships with stakeholders who share similar values."

Participant G:

"I am motivated to adopt circular economy practices because of the long-term benefits they offer. While there may be initial investments and changes required, the resilience, resource efficiency, and future-proofing aspects of circular practices make them a strategic choice for sustainable growth and business continuity."

Participant I

"Motivation for adopting circular economy practices also comes from the desire to innovate and stay ahead of market trends. Embracing circularity allows me to explore new business opportunities, develop creative solutions, and differentiate my products in a crowded market while addressing environmental concerns. I have been able to make good use of the bottle cans and can openers in the society to create trimmings for some of the garments that I sew sometimes."

Participant J

"Education and awareness play a significant role in motivating some of us to adopt circular economy practices. I think understanding the environmental impact of traditional production methods and the benefits of circularity has inspired me to make changes in my business operations and contribute positively to sustainability as I begin to understand the circular economy small, small."

Participant Q

"Collaboration and partnerships are motivating factors for me to adopt circular economy practices. Working with industry experts, government agencies, NGOs, and other stakeholders would have allowed me to access resources, share best practices, and collectively drive the adoption of circular practices in the garment industry."

On the basis of the responses, about nine participants believed that adopting circular economy practices can significantly reduce waste, promote recycling, and contribute to sustainability efforts. This belief stems from a sense of responsibility towards protecting the environment and minimizing the ecological footprint of their businesses. Farrell (2020) indicated this in his work. According to him, the significant influence of environmental consciousness among SGPs (Small garment producers) and its impact on decision-making regarding sustainability initiatives. He further alludes that GPs, when environmentally conscious, are more likely to prioritize sustainability initiatives, including the adoption of circular economy practices.

This influence stems from a sense of responsibility towards environmental protection and the recognition of the benefits of sustainable practices in reducing waste, promoting recycling, and contributing to overall sustainability efforts. Participant A intends to express a desire to reduce waste and recycle materials, thus contributing to sustainability and protecting the environment for future generations. Additionally, Participant A sees embracing circular practices as a way to achieve cost savings and improve resource efficiency within their business operations. He cited one Rana, an Indian-based businessman who emphasizes the environmental advantages of circular economy practices, pinpointing reduced resource consumption, minimized waste generation, and lower environmental impact as key motivators for businesses.

Ellen MacArthur Foundation (2015) agreed with this when he said that economic benefits associated with circular economy practices, including reduced production costs, improved supply chain resilience, and enhanced profitability over the long term. These financial incentives often complement environmental motivations, making circularity an attractive proposition for businesses seeking both sustainability and economic viability. The narrative of Participant B indicates that their motivation to adopt circular economy practices is primarily driven by market demand and customer preferences. He contends that a recognition of the increasing consumer preference for sustainable products and the importance of aligning with circular economy principles to meet these expectations. He sees this alignment as a way to differentiate their brand, meet market demands, and gain a competitive advantage. He emphasizes the role of consumer demand in pushing businesses

towards circular economy practices, particularly as more consumers prioritize sustainability and eco-friendly products.

This finding supported the focus group discussions. The discussion found that businesses are increasingly recognizing the shift in consumer awareness and expectations regarding circular economy practice and sustainability. Customers are becoming more conscious of environmental issues and are actively seeking products and services that align with their values. This growing awareness has created a market demand for sustainable products and practices. According to the group discussion, education, awareness and understanding of circular economy practices promote resource efficiency by minimizing resource consumption and maximizing their utility throughout the product lifecycle. This includes strategies such as product redesign for durability and recyclability, implementing closed-loop systems for materials recovery, and adopting energy-efficient production methods. These practices not only reduce environmental impact but also optimize resource use, leading to long-term sustainability.

However, businesses that proactively adopt circular economy business module practices are better positioned to comply with environmental regulations and mitigate risks associated with resource scarcity, waste management challenges, and climate change impacts. This proactive approach can reduce potential fines, legal liabilities, and reputational risks. The group discussion findings have substantiated the responses of the individual interview responses. Small-scale garment producers should understand and recognize that investing in circular economy practices is not just about short-term gains but about building resilience, future-proofing operations, and

ensuring business continuity in a rapidly changing economic and environmental landscape.

Conversely, participant C argued that while there are potential long-term gains such as cost savings and resource efficiency, rather, there may be significant upfront costs associated with transitioning to circular practices. This includes investments in sustainable materials, machinery upgrades, training programs, and operational changes. For Participant D, adopting circular economy practices is seen as a way to enhance the business's reputation as a socially responsible entity. He acknowledged that consumers, stakeholders, and the industry as a whole increasingly value businesses that demonstrate a commitment to sustainability.

By embracing circularity, he aims to showcase environmental stewardship and ethical business practices, which can contribute to building trust and loyalty among customers and partners. For instance, “In industries where sustainability is becoming a key differentiator, businesses that proactively integrate circular economy practices can stand out from competitors. This can lead to increased market share, customer loyalty, and access to new market segments that prioritize sustainability which becomes social impact as a primary motivation for adopting circular economy practices (Kirchherr, Reike, & Hekkert, 2017). This is evidenced in the response of participant E. He contended that embracing circular economy practices allows them to contribute positively to their community. He added that this contribution can take various forms, such as creating job opportunities, supporting local businesses, and enhancing overall economic development.

Prioritizing sustainability, the circular economy aims to foster a positive social impact that extends beyond business operations.

The response of participant G indicates that circular practices are often more resilient to external shocks and disruptions compared to linear models. He acknowledges that accepting circularity can help businesses withstand economic fluctuations, supply chain challenges, and environmental uncertainties. This resilience is achieved through strategies such as product durability, reuse, repair, and remanufacturing, which reduce dependency on finite resources and minimize environmental impacts.

Quantitative Analysis

Demographic Characteristics of Quantitative Data

This section analysed the demographic characteristics of respondents employed in the quantitative analysis. The gender of respondents, age of respondents, educational level of respondents and length of service of respondents were demographic characteristics employed.

Table 3: Demographic Characteristics of respondents

Variable	Frequency	Percent
Gender		
Male	53	37.9
Female	87	62.1
Age		
21 - 30 years	39	27.9
31- 40 years	76	54.3
41 - 50 years	22	15.7
51 - 60 years	3	2.1
Educational Level		
SHS/SSS	57	40.7
Diploma	10	7.1
First Degree	41	29.3
Postgraduate	32	22.9
Length of service (in years)		
Less than 5	33	23.6
6 - 10 years	28	20.0
11 - 15 years	19	13.6
16 - 20 years	45	32.1
Above 20 years	15	10.7
Total	140	100.0

Source: Field Survey (2024)

From Table 3, 87 of the respondents were females. This represented 62.1 percent of the respondents. 53 of the respondents were males. This represented 37.9 of the respondents. 76 of the respondents were between 31 to 40 years. This represented 54.3 percent of the respondents. 39 of the respondents were between the ages of 21 to 30 years. This represented 27.9 percent of the respondents. 22 of the respondents were between the ages of 41 to 50 years. This represented 15.7 percent of the respondents. 3 of the respondents were between 51 to 60 years. This represented 2.1 percent of the respondents.

Fifty-seven (57) of the respondents were holding SHS certificate. This represented 40.7 percent of the respondents. 41 of the respondents were holding first-degree. This represented 29.3 percent of the respondents. 32 of

the respondents were holding postgraduate certificates. This represented 22.9 percent of the respondents. 10 of the respondents were holding diploma. This represented 7.1 percent of the respondents.

Forty-five (45) of the respondents had 16 to 20 years length of service. This represented 32.1 percent of respondents. 33 of the respondents had less than 5 years working experience. This represented 23.6 percent of the respondents. 28 of the respondents had between 6 to 10 years' experience. 19 of the respondents had between 11 to 15 years. This represented 13.6 percent of the respondents.

Factors influencing the application of circular economy practices among Small Scale Garment Producers

The second objective of the study was to analyze to the factors influencing the application of circular practices among small-scale garment producers. The structural equation model was employed in analysing this objective.

Assessment of Measurement Models for the Study

The measurement models that were used for the investigation are the primary emphasis of this section. The evaluation of the indicator loadings comes first in this part of the section. Indicator loadings, internal consistency reliability (also known as composite reliability), convergent validity (AVE-average variance extracted), and discriminant validity are some of the aspects of the measurement model that are evaluated throughout the process (Fornell-Lacker and HTMT). In order to provide indications for the evaluation of the measurement model, a dependable PLS algorithm was put through its paces. The findings are summarized in the tables that are shown below.

Assessing Indicator Loadings

The data in Table 4 reveals that some of the indications have been removed. To make the overall model more reliable, we eliminated any and all indicators that had a loading score lower than the suggested threshold of 0.7, which was established by Hair et al (2016). All 30 measurement items scored significantly over the threshold, which was established at 0.7, while all of the ones that fell within the individual variables were kept.

Table 4: Cross Loadings

	Acceptability	Consumer Awareness	Cultural Factors	Economic Variability	Supply chain and logistics	Technology Advancement
ACEBM1	0.956	0.460	0.759	0.608	0.557	0.601
ACEBM2	0.950	0.450	0.706	0.624	0.567	0.575
CAP1	0.418	0.845	0.564	0.491	0.740	0.496
CAP2	0.447	0.860	0.565	0.496	0.721	0.476
CAP3	0.296	0.865	0.552	0.411	0.654	0.412
CAP4	0.418	0.887	0.640	0.381	0.631	0.417
CAP5	0.447	0.866	0.691	0.394	0.599	0.371
CF1	0.420	0.817	0.709	0.396	0.610	0.379
CF2	0.491	0.731	0.712	0.373	0.538	0.357
CF3	0.592	0.457	0.828	0.519	0.511	0.517
CF4	0.732	0.496	0.869	0.653	0.609	0.625
CF5	0.740	0.476	0.855	0.611	0.557	0.594
EV1	0.656	0.463	0.655	0.881	0.690	0.810
EV2	0.478	0.408	0.522	0.891	0.672	0.750
EV3	0.538	0.436	0.528	0.894	0.653	0.724
EV4	0.603	0.498	0.638	0.914	0.713	0.810
EV5	0.554	0.419	0.551	0.850	0.646	0.792
SCL1	0.551	0.434	0.585	0.768	0.804	0.862
SCL2	0.555	0.457	0.582	0.745	0.827	0.821
SCL3	0.360	0.737	0.494	0.544	0.828	0.547
SCL4	0.441	0.786	0.568	0.522	0.853	0.557
SCL5	0.468	0.880	0.630	0.495	0.818	0.525
TA1	0.650	0.558	0.678	0.806	0.778	0.880
TA2	0.534	0.457	0.545	0.798	0.734	0.892
TA3	0.427	0.339	0.480	0.712	0.631	0.860
TA4	0.589	0.425	0.564	0.832	0.764	0.924
TA5	0.505	0.428	0.548	0.761	0.758	0.909

Source: Field Survey (2024)

All the indicators used to the constructs be all maintained. They all had an indicator loadings more than 0.7

Assessing Internal Consistency Reliability

In this particular investigation, the composite reliability was used in order to determine the level of internal consistency and dependability possessed by the various structures. Cronbach's alpha is not the most effective way to quantify internal consistency; the composite reliability is a more acceptable metric (Rossiter, 2022). According to the findings shown in Table 3, which show that all of the latent variables investigated in this research are trustworthy since their loadings were all very close to the 0.7 criterion.

Table 5: Validity and Reliability

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Acceptability	0.899	0.901	0.952	0.908
Consumer Awareness	0.916	0.923	0.937	0.748
Cultural Factors	0.858	0.887	0.897	0.636
Economic Variability	0.932	0.939	0.948	0.786
Supply chain and logistics	0.885	0.893	0.915	0.682
Technology Advancement	0.937	0.949	0.952	0.798

Source: Field Survey (2024)

Before a data collection instrument can be considered dependable, Cronbach (2021) suggests that its Cronbach alpha value should be at least 70 percent. According to the findings shown in the table that is located above, the levels of reliability achieved were higher than those considered to be acceptable (Cronbach's alphas >.70, Average Variance Extracted >.50, and composite reliability >.70), as suggested by researchers (Fornell & Larcker, 2021). In addition, the factor loadings, which ranged from 0.7 and above,

demonstrated high convergent validity. The discriminant validity of the measurement model was also evaluated as part of the overall evaluation process.

Assessing Discriminant Validity

In order to establish discriminant validity, a construct has to demonstrate that it is singular and can reflect phenomena that are not captured by any of the other constructs in the model (MacKinnon, 2023). In order to determine the discriminant validity of the HTMT and the Fornell-Lacker criterion's results, this research was carried out. The Fornell-Larcker criteria is a comparison that is made between the square root of the AVE values and the correlations of the latent variables (Fornell & Larcker, 2021). To be more specific, the square root of the average variance explained for each construct need to be higher than the greatest correlation it has with any other construct (Hair et al, 2013). According to the findings in Table 4, the square root of each variable has a correlation that is much higher than its correlations with the other constructs that were investigated in this research. This indicates that every construct is one of a kind and that no two constructions capture the same phenomena in the same way.

Table 6: Fornell-Lacker Criterion

	Acceptability	Consumer Awareness	Cultural Factors	Economic Variability	Supply chain and logistics	Technology Advancement
Acceptability	0.953					
Consumer Awareness	0.478	0.865				
Cultural Factors	0.769	0.701	0.798			
Economic Variability	0.646	0.505	0.659	0.886		
Supply chain and logistics	0.589	0.775	0.699	0.763	0.826	
Technology Advancement	0.617	0.503	0.639	0.880	0.827	0.893

Source: Field Survey (2024)

The performance of the Fornell-Larcker criteria is quite low, particularly when the indicator loadings of the constructions that are being considered differ just little from one another (e.g., all indicator loadings vary between 0.60 and 0.80). The efficacy of the Fornell-Larcker criteria in identifying discriminant validity difficulties increases when indicator loadings fluctuate more significantly; nonetheless, the criterion's performance in evaluating the overall discriminant validity remains very low (Voorhees, Brady, Calantone, & Ramirez, 2023). Henseler, Ringle and Sarstedt (2015) suggest evaluating the heterotrait monotrait ratio (HTMT) of the correlations as a potential solution. According to Henseler et al. (2015), a latent construct is said to have discriminant validity when the HTMT ratio of the construct is less than 0.850. The findings are provided in Table 6, and they reveal that the HTMT values are significantly higher than 0.850.

Table 7: Heterotrait-Monotrait Ratio (HTMT)

	Acceptability	Consumer Awareness	Cultural Factors	Economic Variability	Supply chain and logistics	Technology Advancement
Acceptability						
Consumer Awareness	0.516					
Cultural Factors	0.647	0.634				
Economic Variability	0.698	0.540	0.707			
Supply chain and logistics	0.643	0.883	0.806	0.516		
Technology Advancement	0.659	0.531	0.680	0.333	0.671	

Source: Field Survey (2024)

Assessing the Structural Model

Table 7 presents the findings, which reveal that HTMT values are much lower than 0.850. The results of determining whether or not the indicators in this research exhibit multicollinearity are shown in Table 6. In the context of PLS-SEM, a possible collinearity issue is indicated by a tolerance value of 0.20 or lower and a VIF value of 5 or higher, respectively (Hair et al. 2013). To be more explicit, if the Variation Indicator Fit level of an indicator is 5, it suggests that the other formative indicators connected with the same construct account for eighty percent of the indicator's variance. Based on the data that were obtained from this study, it was determined that there was no multicollinearity between the indicators.

Table 8: Collinearity amongst Constructs

	VIF
Consumer Awareness -> Acceptability	2.690
Cultural Factors -> Acceptability	2.646
Economic Variability -> Acceptability	2.784
Supply chain and logistics -> Acceptability	2.955
Technology Advancement -> Acceptability	2.826

Source: Field Survey (2024)

Additional proof that the standard method does not include any bias may be seen in Table 8, which presents the VIF's results. According to the criteria that were proposed by Kock and Lynn (2012), the occurrence of a VIF value that is greater than 3.3 is proposed as an indication of pathological collinearity, and it is also proposed as an indication that a model may be contaminated by common method bias. Both of these indications were proposed as a result of the work that was done by Kock and Lynn (2012). Both of these signals are founded on the standards that Kock and Lynn put up in their proposal (2012). Because of this, we are able to say that the model is free from the problem of vertical or lateral collinearity as well as common method bias if all of the VIFs that come from a comprehensive collinearity test have a value that is equal to or lower than 3.3 (Kock). In addition, we are able to say that the model is free from the problem of common method bias (2013).

Assessing Coefficient of Determination and Predictive Relevance

According to Hair et al. (2014), a level of significance of 0.25, 0.5, or 0.75 for a structural model's coefficient of determination (R^2) is considered to have a low level of significance, moderate level of significance, and large level of significance, respectively. In addition, the author said that a predictive relevance (Q^2) of 0.02, 0.15 and 0.35, as well as an effect size (f^2) of 0.02,

0.15 and 0.35, are each regarded as being little, mid, and large, respectively, for structural models. The following conclusion is one that may be drawn from the data that is shown in Figure 2. Economic variability, technology advancement, supply chain and logistics, consumer awareness and preferences and cultural factors showed a moderate coefficient of determination (0.638) and together they account for 63.8 percent of the variation in application of circular economy business model. The results show that the model has a modest level of predictive relevance when it is applied to the endogenous variable. This is based on the examination of the predictive relevance of the model (0.209). This indicates that the independent variables are capable of generating accurate predictions about the dependent variable. The results of the impact size indicate that each variable has a very little influence on the endogenous variable.

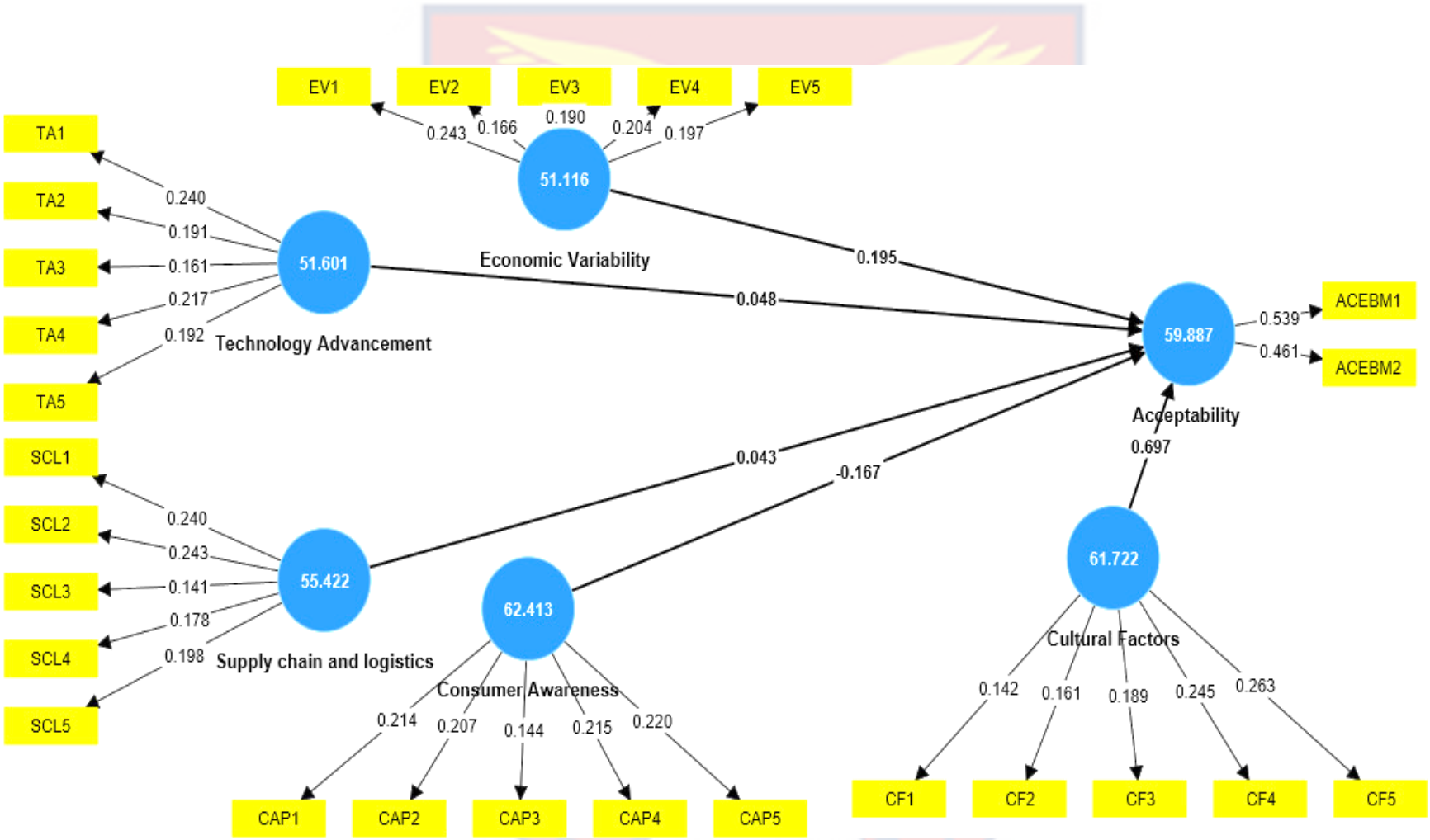

Figure 2: *Model*
Source: Field Survey (2024)

Table 9: Regression Output

	Original sample (O)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Consumer Awareness -> Acceptability	-0.167	0.071	2.366	0.018
Cultural Factors -> Acceptability	0.697	0.059	11.786	0.000
Economic Variability -> Acceptability	0.195	0.091	2.155	0.031
Supply chain and logistics -> Acceptability	0.043	0.096	0.447	0.655
Technology Advancement -> Acceptability	0.048	0.092	0.526	0.599

Source: Field Survey (2024)

From the Table 9, there was a negative and significant relationship between consumer awareness and application of circular economy business model [B=-0.167; t(140)=2.366; $p < 0.05$]. A unit increase consumer awareness would lead to a 0.167 decrease in application of circular economy business model. Increased awareness does not necessarily equate to a positive understanding of the circular economy. Consumers may be aware of circular economy concepts but misunderstand their benefits, leading to skepticism or resistance. As awareness increases, consumers might perceive the circular economy business model as more complex or difficult to implement. This perceived complexity can reduce application because it might seem too challenging or impractical. Awareness might make consumers more cognizant of the potential costs associated with adopting circular economy practices. If these costs are perceived as high, it can deter acceptability. Consumers might focus on the immediate costs and disruptions of shifting to a circular economy

model rather than the long-term benefits, leading to a negative impact on acceptability.

Increased awareness might highlight the significant changes required in consumption and production habits. This realization can lead to resistance, as people generally prefer sticking to familiar practices. Awareness might bring to light the need for changes in consumer habits, such as increased reuse, recycling, and sharing, which may be inconvenient or less desirable compared to current linear consumption patterns. There might be concerns about the quality and reliability of products produced under circular economy models. Consumers might believe that such products are inferior, affecting their acceptability. Increased awareness might also lead to scrutiny of whether businesses genuinely adhere to circular economy principles or are merely engaging in "greenwashing." This skepticism can reduce acceptability.

There was a positive and significant relationship between economic variability and application of circular economy business model [B=0.697; $t(140)=11.786$; $p < 0.05$]. A unit increase economic variability would lead to a 0.697 increase in application of circular economy business model. Economic variability often forces businesses to seek models that offer greater resilience and adaptability. The circular economy, with its emphasis on resource efficiency, waste reduction, and closed-loop systems, can provide stability and predictability in an otherwise volatile market. The circular economy promotes the reuse and recycling of materials, which can help businesses diversify their resource base. This diversification can buffer against supply chain disruptions and price volatility, making the model more attractive in variable economic conditions. When economic conditions are variable, businesses face pressures

to cut costs and improve efficiency. The circular economy can lead to significant cost savings through resource efficiency, waste reduction, and longer product life cycles, making it a more acceptable model during times of economic uncertainty. By reusing and recycling materials, businesses can reduce their dependence on virgin materials, which can be subject to price fluctuations. This reduction in material costs can enhance the appeal of the circular economy.

Economic variability can drive innovation as businesses look for new ways to maintain competitiveness. The circular economy encourages innovative business practices and sustainable product designs, which can provide a competitive edge in fluctuating markets. Economic variability can open new market opportunities for circular economy products and services. Consumers and businesses may be more open to alternative models that offer economic benefits and sustainability. In times of economic variability, businesses are keen to manage and mitigate risks. The circular economy can help by reducing dependency on volatile supply chains and fostering local sourcing and production, which are less susceptible to global economic fluctuations. The long-term sustainability focus of the circular economy can provide a more stable business environment, reducing the risks associated with economic variability.

There was a positive and significant relationship between supply chain and logistics and application of circular economy business model [B=0.195; $t(140)=2.155$; $p < 0.05$]. A unit increase supply chain and logistics would lead to a 0.195 increase in application of circular economy business model. Improved supply chain and logistics capabilities enable more efficient

tracking, transportation, and management of materials and products. This optimization is crucial for the circular economy, where the goal is to minimize waste and maximize the reuse and recycling of materials. Efficient logistics systems can streamline the processes involved in collecting, sorting, and redistributing used products and materials, making circular practices more feasible and cost-effective. A robust supply chain and logistics framework facilitates effective reverse logistics, which is essential for the circular economy. It ensures that used products can be collected, transported, and processed for refurbishment, recycling, or disposal. Efficient reverse logistics reduce the costs and time associated with moving goods back through the supply chain, increasing the overall application of the circular model by making it more economically viable.

Effective supply chain management enhances collaboration and coordination among various stakeholders, including suppliers, manufacturers, retailers, and recyclers. This integration is key to implementing a successful circular economy model. Enhanced logistics systems facilitate better information sharing and transparency, which are critical for coordinating circular activities such as tracking the lifecycle of products and managing inventories of recycled materials.

The study's findings are consistent with Markowski et al. (2020) and Hasan et al. (2021).

Potential benefits associated with the adoption of circular economy practices among small scale garment producers

The third objective of the study was to analysed the potential benefits associated with the adoption of circular economy practices among small scale

garment producers. Descriptive statistics were employed in analysing the objective. The results have been presented on Table 10.

Table 10: Potential benefits associated with the adoption of circular economic practices among small scale garment producers

	Mean	Std. Deviation
Adopting a Circular Economy model reduces material costs for my business.	4.80	1.718
Implementing Circular Economy practices lowers overall production costs.	4.77	1.649
The use of recycled materials in production leads to significant cost savings.	4.77	1.656
Circular Economy strategies help minimize waste disposal costs.	4.71	1.825
Reusing materials in the production process decreases operational expenses.	4.64	1.743
Adopting Circular Economy practices significantly reduces the environmental footprint of my business.	4.63	1.718
Circular Economy models help decrease pollution and waste generated by my business.	4.49	1.638
Implementing Circular Economy strategies contributes to the conservation of natural resources.	4.31	1.772
The use of sustainable materials aligns with my business's environmental goals.	4.25	1.583
Circular Economy practices enhance the overall sustainability of my business operations.	4.05	1.595

Source: Field Survey (2024)

The data presented in Table 10 highlights the potential benefits associated with the adoption of circular economy practices among small-scale garment producers. These benefits are measured by the mean scores and standard deviations, indicating how respondents perceive the impact of circular economy practices on various aspects of their business.

Material and Production Cost Reduction: High Mean Scores (4.80, 4.77): The highest mean scores indicate that respondents strongly believe adopting circular economy models and practices significantly reduce material costs and overall production costs. This is crucial for small-scale garment

producers, who often operate on tight budgets and can benefit greatly from cost savings. These cost reductions can make circular economy practices more attractive and acceptable, as they directly impact the financial bottom line, supporting the hypothesis that economic benefits drive the application of circular economy models.

Cost Savings from Recycled Materials: Mean Score (4.77): Similar to production and material cost reductions, using recycled materials is perceived to lead to significant cost savings. This reinforces the idea that circular economy practices can be economically beneficial. Highlighting these savings can encourage more small-scale producers to adopt circular practices, demonstrating tangible financial benefits.

Waste Minimization and Operational Expenses: Mean Scores (4.71, 4.64): Strategies that minimize waste disposal costs and reduce operational expenses through material reuse are also highly valued. This shows that circular economy practices are seen as efficient ways to manage resources and reduce unnecessary expenses. Waste minimization and operational efficiency are key factors in the appeal of circular economy models, especially in industries with significant waste management challenges like garment production.

Environmental and Sustainability Benefits: Mean Scores (4.63, 4.49): Respondents recognize that circular economy practices significantly reduce the environmental footprint and pollution. These scores, while slightly lower than cost-related benefits, still indicate strong support. While financial benefits are primary drivers, environmental benefits also play a significant role in the

application of circular economy models. This aligns with increasing consumer and regulatory pressures for sustainable practices.

Resource Conservation and Alignment with Environmental Goals: Mean Scores (4.31, 4.25): Conservation of natural resources and alignment with environmental goals are moderately high, indicating that garment producers value the broader ecological benefits of circular economy practices. Emphasizing how circular economy models contribute to long-term sustainability goals can enhance their appeal, especially among businesses committed to environmental stewardship.

Overall Sustainability Enhancement: Mean Score (4.05): Enhancing overall sustainability of business operations is perceived positively, though slightly lower than other benefits. This suggests a holistic view of the benefits of circular economy practices. Circular economy models are seen as comprehensive strategies that not only provide economic and environmental benefits but also enhance overall business sustainability, making them more acceptable.

The data from Table 10 underscores the multifaceted benefits of adopting circular economy practices for small-scale garment producers. The high mean scores across various benefits suggest that these garment producers recognize significant economic, environmental, and operational advantages. The standard deviations, though indicating some variability in responses, generally reflect a strong positive perception of these benefits. In relation to the research, these findings support the idea that both economic and environmental factors play critical roles in the application of circular economy models. By emphasizing cost savings, waste reduction, and sustainability,

small-scale garment producers can be encouraged to adopt circular practices, ultimately contributing to a more sustainable and efficient industry.

Potential challenges associated with the adoption of circular economic practices among small scale garment producers

The fourth objective of the study was to analyse the potential challenges associated with the adoption of circular economic practices among small-scale garment producers. Descriptive statistics were employed in analysing the objective. The results have been presented in Table 11.

Table 11: Potential challenges associated with the adoption of circular economic practices among small-scale garment producers

	Mean	Std. Deviation
The initial investment required for adopting a Circular Economy model is too high.	4.68	1.699
Limited access to funding makes it difficult to implement Circular Economy practices.	4.62	1.783
The costs associated with transitioning to a Circular Economy model outweigh the benefits.	4.62	1.777
Financial resources are insufficient to support the changes needed for Circular Economy adoption.	4.57	1.607
The return on investment for Circular Economy practices is uncertain.	4.53	1.602
Lack of access to appropriate technology hinders the adoption of Circular Economy practices.	4.16	1.423
Implementing Circular Economy models requires advanced technological expertise.	4.12	1.955
Technological infrastructure needed for Circular Economy is not readily available.	4.08	1.521
Adopting Circular Economy practices necessitates frequent updates and maintenance of technology.	4.06	1.888
Small-scale garment producers face technological challenges in integrating Circular Economy models.	4.04	1.981

Source: Field Survey (2024)

The data presented in Table 11 highlights the potential challenges associated with the adoption of circular economy practices among small-scale garment producers. These challenges are measured by the mean scores and

standard deviations, indicating how respondents perceive the difficulties in implementing circular economy practices.

High Initial Investment and Costs: Mean Scores (4.68, 4.62): The highest mean scores indicate that small-scale garment producers perceive the initial investment required for adopting circular economy models and the costs associated with the transition as significant barriers. These high upfront costs can be prohibitive for small businesses with limited financial resources. Financial challenges are a major obstacle to the adoption of circular economy practices. Addressing these concerns through financial support, subsidies, or low-interest loans could facilitate greater adoption among small-scale producers.

Limited Access to Funding: Mean Scores (4.62, 4.57): Limited access to funding and insufficient financial resources are major challenges. Without adequate funding, small businesses struggle to invest in the necessary infrastructure and technologies required for circular economy practices. Policy interventions and financial mechanisms that improve access to funding are critical to overcoming these barriers. Support from governments, financial institutions, and industry bodies could be crucial.

Uncertain Return on Investment (ROI): Mean Score (4.53): The uncertainty surrounding the return on investment for circular economy practices is a notable challenge. Small-scale garment producers may be hesitant to invest in circular Economy without clear evidence of financial returns. Providing case studies, pilot programs, and data on successful implementations can help reduce uncertainty and demonstrate the long-term benefits of circular economy practices.

Technological Barriers: Mean Scores (4.16, 4.12, 4.08, 4.06, 4.04): Technological challenges, including lack of access to appropriate technology, the need for advanced technological expertise, and insufficient technological infrastructure, are significant barriers. Additionally, the requirement for frequent updates and maintenance of technology adds to the complexity. Investing in technology transfer, training programs, and developing affordable technological solutions tailored to the needs of small-scale garment producers can help mitigate these barriers. Partnerships with tech companies and educational institutions could be beneficial.

Cumulative Financial and Technological Challenges: Overall Mean Scores: The relatively high mean scores across all challenges indicate that small-scale garment producers face cumulative financial and technological barriers when adopting circular economy models. These challenges are interconnected, with financial limitations exacerbating technological hurdles and vice versa. A holistic approach is needed to address these challenges, combining financial incentives, technological support, and capacity-building initiatives. This comprehensive strategy can create a more conducive environment for the adoption of circular economy practices.

The data from Table 11 underscores the significant financial and technological challenges small-scale garment producers faced in adopting circular economy practices. The high mean scores reflect a strong perception of these barriers, which can hinder the transition to more sustainable practices. In relation to the research, these findings highlight the need for targeted interventions to support small-scale garment producers. Addressing financial challenges through funding mechanisms, reducing investment uncertainty, and

overcoming technological barriers through support and innovation are crucial steps to facilitate the adoption of circular economy models. By focusing on these areas, policymakers and industry stakeholders can help small-scale garment producers transition to more sustainable and efficient business practices, ultimately contributing to a more sustainable industry.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

This study assessed the application of Circular Economy practices among small-scale garment producers in the Cape Coast Metropolis using a sequential exploratory mixed-methods design. The research was guided by three theoretical frameworks: the Diffusion of Innovation Theory, the Theory of Planned behaviour, and the Resource-Based View.

The specific objectives were to:

1. Assess the awareness and understanding of circular economy practices among small-scale garment producers.
2. Identify the factors influencing the application of circular practices.
3. Explore the potential benefits associated with adopting CE models.
4. Examine the potential challenges associated with implementing CE practices.

Data collection involved semi-structured interviews and focus group discussions with 27 purposively selected participants for the qualitative phase, and questionnaires administered to 140 randomly selected participants for the quantitative phase. Qualitative data were analyzed thematically, while quantitative data were analyzed using descriptive statistics and Structural Equation Modelling (SEM).

Key findings

Research Question One: Do small-scale garment producers understand the circular economy practices?

The question was answered based on the themes that came under it. Theme One was Familiarity and Understanding of Circular Economy Concepts. It was found that garment producers in Cape Coast exhibit partial comprehension of CE practices, with enthusiasm to learn more. This supports Ranta and Kyrö (2021) and Bocken et al. (2016), who emphasized the importance of grassroots understanding in effective CE adoption. Although the theoretical appreciation exists, practical implementation is still developing.

The theme Two was on Knowledge of the Term "Circular Economy" This theme assessed participants' awareness of the CE term and its associated strategies. Participants like B, D, F, and H demonstrated conceptual clarity mentioning closed-loop systems, recycling, and product longevity. Others, such as C and M, understood CE through community practices like reusing tools and minimizing waste. The them revealed that even informal or non-academic knowledge contributes to an intuitive grasp of CE ideas. However, formal understanding remains inconsistent, especially among producers with limited exposure to structured education.

Theme Three was on Sources of Knowledge Acquisition. The theme revealed that online content, peer learning, and community engagement serve as primary knowledge channels, especially in the absence of sustained institutional support. This emphasizes the need for blended learning approaches combining digital tools with local mentorship.

The theme was Organization of Educational Materials and Resources. This theme revealed that the disjointed rollout of CE education hindered its adoption,

especially among the small-scale sector. Participants called for government and association-based localized training programs with culturally relevant resources.

The fifth theme was Industry Training and Workshops. The theme revealed the absence of regular, well-funded training workshops emerged as a key barrier. While participants acknowledged the importance of such programs in enhancing their understanding, most claimed they had limited or no access. Some believed such trainings were limited to larger cities or more privileged groups within the sector. Secondly, it affirmed that lack of access to practical CE workshops directly correlates with low adoption of sustainable practices. This echoes Boström and Klintman (2017), who identified the absence of sector-wide capacity-building as a major barrier to CE uptake in SMEs.

Research Question Two: What are the factors influencing the application of circular practices among small-scale garment producers?

This research question sought to identify both enabling and inhibiting factors that affect the adoption of Circular Economy practices (CEPs) among small-scale garment producers in the Cape Coast Metropolis. Thematic analysis of participant interviews and focus group discussions revealed five major themes.

The sixth theme that came under this question was lack of awareness, understanding, and education. A dominant factor influencing the low application of CE practices was the limited awareness and understanding of circular economy practices. Participant H emphasized the need for CE training to be simplified and tailored to the industry's specific needs, while others stressed the absence of workshops, demonstrations, or tools for integrating circular approaches into everyday garment production. The theme revealed

that education and awareness are essential entry points for successful CEP implementation, especially among informal or semi-formal sector actors.

Theme seventh was Financial Constraints in Adopting Circular Economy practices. Participants consistently cited financial barriers as one of the most critical challenges. These included the high costs of sustainable raw materials, new equipment, and training, along with limited access to loans, grants, or subsidies. The narratives underscore the urgent need for targeted financial assistance, such as low-interest loans, capacity-building grants, and government-backed incentives, to enable producers to transition sustainably.

The eighth theme was motivations for adoption. The theme revealed that participant E emphasized social impact, noting that CE adoption could support community well-being and ethical business practices. Participant I described using discarded materials creatively (e.g., bottle caps as garment trimmings), demonstrating innovative local application. The theme also emphasized environmental concern, economic viability, and consumer trends as major motivational forces behind CE adoption.

The nineth theme was Limited Access to Industry Training and Workshops. This theme was strongly confirmed by the focus group discussions which noted that without accessible and recurring industry training, SMEs remain cut off from global sustainability efforts.

Furthermore, government and Institutional Support Deficits was the tenth theme. It was found that perceived absence of active institutional support, especially from the government and relevant stakeholders like NVTI, CTVET, GIZ, and local assemblies. Participants expressed that while CE practices are occasionally promoted during external campaigns or international

observances, there are no consistent policy frameworks, funding structures, or follow-up support mechanisms tailored to small-scale producers. Participant O and others argued that without proactive involvement by these institutions, the CE agenda risks becoming theoretical rather than actionable.

Research Question Three: What are the potential benefits associated with the adoption of circular economy practices among small-scale garment producers?

Respondents highlighted several benefits, including environmental impact reduction (4.63), pollution control (4.49), and the conservation of natural resources (4.31). Adoption of CE practice is seen as supportive of broader business environmental goals (4.25) and overall sustainability improvement (4.05), demonstrating a holistic understanding of the long-term benefits of circular practices.

Research Question Four: What are the potential challenges associated with the adoption of circular economy practices among small-scale garment producers?

Financial barriers were prominent, with high mean scores indicating challenges such as the need for high initial investment (4.68), limited access to funding (4.62), and uncertainty about return on investment (4.53). Technological barriers also emerged, including lack of access to appropriate technology (4.16), need for technical expertise (4.12), inadequate infrastructure (4.08), and challenges in keeping up with technological updates (4.06). These cumulative barriers underscore the complexity of transitioning to CE practices for small-scale producers.

Conclusion

The work was purported to examine small-scale garment producers' application of circular economy practices at their workshops. The following conclusions were drawn:

1. It was concluded that, while garment producers showed interest and enthusiasm, their understanding of CE practices remains limited and mostly informal. Most of the knowledge is drawn from community practices and online platforms, indicating a gap in structured and professional training. There is a need to institutionalize CE education at both the grassroots and technical levels.
2. It was also concluded that, the adoption of CE practices is influenced by both internal (motivation, knowledge) and external (finance, training, policy support) factors. Low awareness, inadequate access to training, and limited financial resources were consistently mentioned as barriers. Despite these challenges, producers demonstrated strong motivation, especially driven by social, environmental, and market-related benefits.
3. The third conclusion was that participants widely recognized the economic, environmental, and sustainability-related benefits of CE practices. These include reduced waste, pollution control, and cost savings. The alignment of these practices with global sustainability goals shows a clear path for scaling CE initiatives in the local fashion sector. The table revealed a nuanced relationship between consumer awareness and the application of circular economy practices. While increased consumer awareness is generally associated with positive

behaviours, such as sustainability, the negative relationship observed in this study suggests that awareness may highlight challenges or misconceptions that deter acceptability.

4. Again, the fourth conclusion was that, the high mean scores indicate strong agreement regarding the economic, operational, and environmental advantages of circular practices. These findings emphasize the potential for cost savings, waste reduction, and sustainability improvements through the adoption of circular economy strategies.
5. Last but not least, high costs, technological limitations, and inadequate institutional support continue to hinder adoption. Without deliberate efforts from policymakers, donors, and private stakeholders, the transition to CE among small-scale producers will remain slow and fragmented. The high mean scores reflect substantial challenges related to financial constraints, limited access to funding, uncertainty about returns on investment, and technological barriers.

On the other hand, while there are clear perceived benefits to adopting circular economy models in the garment industry, such as cost savings and environmental sustainability, the journey towards circularity is not without its challenges. Addressing these challenges requires a concerted effort from policymakers, industry stakeholders, and support organizations to provide the necessary resources, knowledge, and infrastructure to enable small-scale garment producers to embrace circular practices effectively. By doing so, the industry can move towards a more sustainable and resilient future.

Recommendations

Based on the findings of the study, the following recommendations were made:

The research revealed that awareness and understanding of circular economy practices were found to be limited among small-scale garment producers. Therefore, it is recommended that targeted educational programs be developed to address this gap. These should include both formal (workshops, vocational curricula) and informal (community outreach, peer mentorship) educational strategies. Local government, NGOs, and industry stakeholders should collaborate to create culturally relevant and language-accessible content. Additionally, platforms such as radio, WhatsApp groups, Facebook Live, and YouTube can be used to reach a broader audience with tailored messages. These interventions will enhance producers' ability to conceptualize and adopt CE practices in their daily operations.

The study revealed that financial constraints are a critical barrier to CE practices. To overcome this, governments, banks, and private organizations should develop specific financial products such as low-interest loans, grants, subsidies, and revolving funds designed for small-scale garment producers transitioning into circular practices. In parallel, financial literacy programs should be instituted to educate producers on accessing and managing these funds effectively. Providing financial incentives can significantly reduce the burden of initial investment costs and encourage long-term commitment to circular practices.

The study revealed that technological limitations also emerged as a key challenge in implementing CE strategies. To address this, partnerships should

be established between government agencies, technical universities, and innovation hubs to develop and supply affordable, user-friendly technologies suitable for small-scale garment production. Mobile training units and demonstration centers could be deployed to remote areas to facilitate hands-on learning. Additionally, the provision of refurbished sewing machines, textile recycling equipment, and eco-friendly materials will enhance the ability of producers to integrate CE practices into their work.

It appears in the study that institutional involvement in CE promotion is largely inconsistent and insufficient. National bodies such as NVTI, CTVET, and MESTI should take the lead in formulating policies that mainstream circular economy principles into vocational training, certification schemes, and local development plans. Policy incentives such as tax reliefs for eco-compliant producers, green procurement strategies by local governments, and inclusion of CE targets in district planning frameworks would create an enabling environment for widespread adoption. Strong institutional commitment ensures sustainability of interventions and builds public trust in circular initiatives.

To encourage sustained engagement and knowledge exchange, it is important to establish platforms where stakeholders such as garment producers, local associations (e.g., GNTDA), academic institutions, NGOs, and policymakers can interact. These platforms may take the form of regional forums, trade fairs, or online communities focused on best practices in circular garment production. Pilot programs should be initiated to serve as practical examples of successful CE implementation, allowing producers to learn through observation and replication. This shared approach fosters innovation,

community ownership, and collective responsibility toward sustainable production.

Suggestions for further studies

The work sought to examine small-scale garment producers' application of circular economy practices in Cape Coast Metropolis. This research was cross sectional and was also restricted to the small-scale garment producers. It is therefore suggested that, in the future, longitudinal study should be undertaken to assess the effect of financial literacy on retirement planning. Such a study will have the potential to reveal if the practices leading to retirement planning which is measured at one time will be the same or vary from the outcomes at a later point in time. This can help in the decision that management may take at each point in time.

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APPENDICES

APPENDIX A

UNIVERSITY OF CAPE COAST

COLLEGE OF EDUCATION STUDIES

FACULTY OF SCIENCE AND TECHNOLOGY

DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION

INTERVIEW GUIDE

This is an interview guide seeking your candid opinions as members of garment producers as well as other stakeholders in Ghana National Tailors and Dressmakers Association, Central Region Branch, Cape Coast, to help assess your awareness and understanding on application of circular economy practices. Your responses remain confidential and for academic purposes only.

Awareness and Understanding of Circular Economy practices:

1. Have you heard about the term "circular economy"?
   If you don't know about this term, what it means is that
   A circular economy is an economic system designed to minimize waste and make the most of resources. In a circular economy, products, materials, and resources are kept in use for as long as possible, and the generation of waste is minimized. The concept contrasts with the traditional linear economy, where products are made, used, and then discarded as waste.
2. What factors do you think may influence your awareness and understanding of circular economy practices in the context of your garment production?
3. From the explanation given about circular economy, can you mention some of the practices in the context of garment production that can be described as such?
   Fellow-up: which of them do you practice during production?
4. Can you share the key materials that have contributed to your understanding of circular economy principles as applied to the garment industry?"

5. How knowledgeable are you on circular economy practices in the garment sector?

Factors Influencing Acceptability:

1. What factors or challenges have deterred you from adopting circular economy practices in your garment production business?
2. Are there any specific challenges or barriers that you perceive in adopting circular economy practices? If there are. what are they?
3. How may the following external factors impact your willingness to adopt circular practices?
    - market demands……
    - customer preferences……
    - regulatory requirements
4. What may motivate you to consider the adoption of circular economy practices in your garment production business?
5. What factors or motivations influenced your decision to adopt circular economy practices in your garment production business?
6. Can you share the key benefits or advantages you have observed since incorporating circular economy principles into your garment production processes?

Potential Benefits and Challenges:

1. From your perspective, what potential benefits do you envisage in adopting circular economy practices in your garment production process?
2. Have you observed any positive outcomes or encountered difficulties in the adoption of circular practices within your garment production industry?
3. what challenges do you anticipate in implementing circular economy practices, and how do you plan to address them?
4. Can you identify the factors or challenges that influence your willingness to accept and integrate circular economy practices within your business operations?
5. **(Follow-up)** How do these factors impact your decision-making process?

6. Have you encountered any specific benefits or challenges associated with the adoption of circular economy practices in your business**? Please describe**.
7. How do you currently perceive the following factors associated with circular practices in your business?
    - economic advantages……
    - environmental gains……
    - social benefits……
8. What strategies have you considered or implemented to overcome the challenges you've encountered in adopting circular practices?

Likert-Type Scale Questionnaire:

(For each statement, participants are asked to rate their agreement on a scale of 1 to 5, where 1 = strongly disagree, and 5 = strongly agree.)

Awareness and understanding	**SD 1**	**D 2**	**N 3**	**A 4**	**SA 5**
A. I have heard of circular economy practices B. I have a good understanding of circular economy principles					
C. I am aware of specific circular practices relevant to the garment industry					
factors influencing acceptability					
D. Economic consideration significantly influences my decision to adopt circular practices					
E. Social acceptance of circular practice is an important factor in my willingness to adopt them					

Potential Benefits and Challenge					
F. I accept that adopting circular economy practices will result in cost savings for my garment production business.					
G. I perceive that implementing circular practice will enhance the sustainability of my garment production processes					
H. The technical challenges associated with circular practices are a major barrier for me					

APPENDIX B

UNIVERSITY OF CAPE COAST

COLLEGE OF EDUCATION STUDIES

FACULTY OF SCIENCES AND TECHNOLOGY

DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION

FOCUS GROUP DISCUSSION GUIDE

Facilitator's welcome, introduction, and instructions to participants

Welcome and thank you for volunteering to take part in this focus group. You have been asked to participate as your point of view is important. I realize you are busy and I appreciate your time.

Introduction: This focus group discussion is designed to assess your current thoughts and feelings about **SMALL-SCALE GARMENT PRODUCER'S APPLICATION OF CIRCULAR ECONOMY PRACTICES IN CAPE COAST METROPOLIS.** The focus group discussion will take no more than two hours. At this point I wish to seek your permission to record the proceedings for recollection, you may object if it is your wish.

Anonymity: Despite being recorded, I would like to assure you that the discussion will be anonymous. The tapes will be kept safely in a locked facility until they are transcribed word for word, then they will be destroyed. The transcribed notes of the focus group will contain no information that would allow individual subjects to be linked to specific statements. You should try to answer and comment as accurately and truthfully as possible. I and the other focus group participants would appreciate it if you would refrain from discussing the comments of other group members outside the focus group. If there are any questions or discussions that you do not wish to answer or participate in, you do not have to do so; however please try to answer and be as involved as possible.

Ground rules

- The most important rule is that only one person speaks at a time. There may be a temptation to jump in when someone is talking but please wait until they have finished.

- There are no right or wrong answers
- You do not have to speak in any particular order
- When you do have something to say, please do so. There are many of you in the group and it is important that I obtain the views of each of you
- You do not have to agree with the views of other people in the group.
- If you want to ask any questions or you need clarification about this exercise or the rules you may do so.
- May we start if you are clear with everything and willing to participate?

Warm-up

- First, I'd like everyone to introduce themselves. Can you tell me your name?

Introductory question

I am just going to give you a couple of minutes to think about your experience as fashion designer in the garment production industry. Is anyone happy to share his or her experience?

Guiding Questions for Small-Scale Garment Producers:

1. How did you first become aware of circular economy practices in the garment industry?
2. How do you currently organize your garment production processes, and are you familiar with circular economy practices?

3. **Regarding funding or resources for your garment production activities**

   a. Who provides funding or resources for your garment production activities?
   b. Can you share insights into the sources or entities that contribute to financing your garment production?

   Regarding the consideration of adopting circular practices in your financing approach

   a. Do you consider adopting circular practices in your financing approach?"
   b. "What factors or considerations influence your decision or stance on integrating circular economy principles into your financing strategy for garment production?

4. How was the funding of garment production organized during the colonial and post-colonial eras, and have these historical factors influenced your current funding decisions?
5. What factors, in your opinion, influence the acceptance or resistance of small-scale garment producers toward circular economy practices?
6. How do you ensure the quality of garment production in terms of sustainability, and what measures do you take to adhere to any relevant regulations or industry standards?
7. How have past government policies or development plans affected the relationship between garment producers and government initiatives related to circular economy practices?
8. What strategies, if any, have you adopted to improve the relationship between small-scale garment producers and government initiatives promoting circular economy practices?
9. How credible do you perceive the partnership or collaboration between the government and small-scale garment producers in the context of circular economy initiatives?
10. Are there specific policies or support mechanisms you think the government could implement to enhance the relationship between small-scale garment producers and circular economy initiatives?
11. In your opinion, what positive changes could the adoption of circular economy practices bring to small-scale garment producers and the garment industry in general?
12. Conversely, what negative impacts or challenges might arise for small-scale garment producers in adopting circular economy practices?

Concluding question

- Of all the things we've discussed today, what would you say are the most important issues you would like to comment on this checklist?

Conclusion

- Thank you for participating. This has been a very insightful discussion
- Your opinions will be a valuable asset to the study
- I hope you have found the discussion interesting
- If there is anything you are unhappy with or wish to complain about, please speak to me later about it.
- I would like to remind you that any comments featuring in this report will be anonymous.
- Before you leave, please hand in your completed personal details questionnaire that was given at the beginning of the meeting.

APPENDIX C

UNIVERSITY OF CAPE COAST

COLLEGE OF EDUCATION STUDIES

FACULTY OF SCIENCES AND TECHNOLOGY

DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION

QUESTIONNAIRE

SECTION I – DEMOGRAPHIC CHARACTERISTICS

1. Gender Male [ ] Female [ ]

2. Age (years) 21 – 30 [ ] 31-40 [ ] 41-50 [ ] 51-60 [ ]

3. Highest level of education

SHS/SSS [ ] Diploma [ ] First Degree [ ] Postgraduate []

4. Length of service (in years)

Less than 5 [ ] 6 - 10 [ ] 11 - 15 [ ] 16 - 20 [ ] Above 20 [ ]

SECTION II – FACTORS INFLUENCING APPLICATION OF CIRCULAR ECONOMY PRACTICE

On a scale of 1 to 5, please rate the extent to which the following describes your perception. Where 1-Never 5-Always

No		1	2	3	4	5
	Economic Variability					
1	The economic benefits of adopting a Circular Economy model outweigh the initial investment costs.					
2	Fluctuations in the economy significantly impact the viability of a Circular Economy practices.					
3	A stable economy is essential for the successful implementation of Circular Economy practices.					
4	The cost savings from using recycled materials make the Circular Economy model attractive.					
5	Economic incentives from the government would encourage businesses to adopt a Circular Economy practice.					
	Technology Advancement					
1	The current level of technology supports the efficient implementation of a Circular					

	Economy practices.					
2	Technological advancements are crucial for the success of Circular Economy practices.					
3	Investment in new technologies is necessary to fully realize the benefits of a Circular Economy.					
4	Lack of access to advanced technology is a barrier to adopting a Circular Economy practice.					
5	Continuous innovation in technology enhances the feasibility of the Circular Economy.					
	Supply Chain and Logistics					
1	A well-coordinated supply chain is essential for the success of a Circular Economy practices.					
2	Logistical challenges hinder the adoption of Circular Economy practices.					
3	Effective supply chain management can enhance the benefits of a Circular Economy.					
4	The complexity of logistics in a Circular Economy is a significant barrier to its implementation.					
5	Collaboration among supply chain partners is crucial for the Circular Economy practices to work.					
	Consumer Awareness and preferences					
1	Consumers are aware of the benefits of products made through Circular Economy practices.					
2	Consumer preferences for sustainable products drive the adoption of a Circular Economy practices.					
3	Lack of consumer awareness is a major barrier to the acceptance of Circular Economy products.					
4	Consumers are willing to pay a premium for products that adhere to Circular Economy principles.					
5	Marketing efforts can effectively increase consumer acceptance of Circular					

	Economy products.					
	Cultural Factors					
1	Cultural attitudes towards sustainability influence the acceptance of a Circular Economy practices.					
2	In some cultures, there is a strong preference for new rather than recycled products.					
3	Cultural values play a significant role in the adoption of Circular Economy practices.					
4	Educational initiatives can shift cultural perceptions towards accepting the Circular Economy.					
5	Cultural resistance is a major challenge for the implementation of a Circular Economy practices.					

SECTION III –application of Circular Economy Business Model

On a scale of 1 to 5, please rate the extent to which the following describes your perception. Where 1-Never 5-Always

No		1	2	3	4	5
1	The Circular Economy business model is widely accepted within the industry.					
2	There is significant skepticism about the feasibility of the Circular Economy among businesses.					
3	The benefits of the Circular Economy business model are well-understood by stakeholders.					
4	The Circular Economy model is seen as a viable solution for long-term sustainability.					
5	There is a strong industry trend towards adopting Circular Economy practices.					

SECTION IV – POTENTIAL BENEFITS

On a scale of 1 to 5, please rate the extent to which the following describes your perception. Where 1-Never 5-Always

No		1	2	3	4	5
1	Adopting a Circular Economy practices reduces material costs for my business.					
2	Implementing Circular Economy practices lowers overall production costs.					
3	The use of recycled materials in production leads to significant cost savings.					
4	Circular Economy strategies help minimize waste disposal costs.					
5	Reusing materials in the production process decreases operational expenses.					
6	Adopting Circular Economy practices significantly reduces the environmental footprint of my business.					
7	Circular Economy models help decrease pollution and waste generated by my business.					
8	Implementing Circular Economy strategies contributes to the conservation of natural resources.					
9	The use of sustainable materials aligns with my business's environmental goals.					
10	Circular Economy practices enhance the overall sustainability of my business operations.					

SECTION V – POTENTIAL CHALLENGES

On a scale of 1 to 5, please rate the extent to which the following describes your perception. Where 1-Never 5-Always

No		1	2	3	4	5
1	The initial investment required for adopting a Circular Economy practice is too high.					
2	Limited access to funding makes it difficult to implement Circular Economy practices.					
3	The costs associated with transitioning to a Circular Economy model outweigh the benefits.					
4	Financial resources are insufficient to support the changes needed for Circular Economy adoption.					
5	The return on investment for Circular Economy practices is uncertain.					
6	Lack of access to appropriate technology hinders the adoption of Circular Economy practices.					
7	Implementing Circular Economy models requires advanced technological expertise.					
8	Technological infrastructure needed for Circular Economy is not readily available.					
9	Adopting Circular Economy practices necessitates frequent updates and maintenance of technology.					
10	Small-scale garment producers face technological challenges in integrating Circular Economy practices.					

THANK YOU VERY MUCH

Department of Vocational and Technical Education,
Faculty of Science and Tech. Education,
University of Cape Coast,
29th October, 2023.

The Chairperson
Institutional Review Board
University of Cape Coast

Dear Sir,

IRB CLEARANCE REQUEST: UMAR ABUBAKARI

I am the supervisor for the above stated student who is pursuing MPhil at the Department of VOTEC of this University. He is writing on the topic **"SMALL SCALE GARMENT PRODUCERS APPLICATION OF CIRCULAR ECONOMY PRACTICES"** for his thesis. He has successfully defended his proposal and seeks clearance to enable him proceed to collect data. I have the pleasure of introducing him to your outfit for clearance and would be grateful if you could give him the necessary assistance.

Thank you in advance.

Sincerely yours,

Irene Ampong
(Senior Lecturer)