UNIVERSITY OF CAPE COAST

SUPPLIER DEVELOPMENT AND OPERATIONAL PERFORMANCE OF FOOD AND BEVERAGE FIRMS IN GHANA: THE ROLE OF BUYER-SUPPLIER COMMITMENT

JOSEPH ACQUAH

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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: Joseph Acquah

Supervisors' Declaration

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

Supervisor's Signature: …… Date: ……

Name: Dr Andrews Yalley

ABSTRACT

Today, a lot of Ghanaian food and beverage firms have recognised how important supplier development is to creating and sustaining their competitive advantage. This study aimed at examining the effect of supplier development on operational performance of food and beverage firms in Ghana through the mediating role of buyer-supplier commitment. Positivist philosophy and correlational research design was used for the study. The target population for the study was 152 food and beverage firms located in Greater Accra, Ghana, who have registered with Food and Beverage Association Ghana (FABAG, 2022). Also, the study employed a census sampling technique to collect data from 152 respondents (Procurement officers) using structured questionnaires. PLS-SEM technique was used to analyse the data. The findings from the study revealed that supplier financial support, supplier training and early supplier involvement in new product development as a construct of supplier development all had a significant positive effect on operational performance of food and beverage firms in Ghana. Further, buyer-supplier commitment significantly and positively mediated the relationships between supplier development and operational performance of Ghanaian food and beverage firms. The study therefore recommended that in order for management of the food and beverage firms in Ghana to improve their operational performance, they should develop their suppliers by providing them financial support, training and involving them at the early stage of production as well as establishing buyer-supplier commitment with suppliers.

KEY WORDS

Supplier Development

Supplier Financial Support

Supplier Training

Early Supplier Involvement

Buyer-Supplier Commitment

Operational Performance

Ghanaian Food and Beverage Firms

Social Exchange Theory

Human Capital Theory

Commitment-Trust Theory

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DEDICATION

To my family

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LIST OF ACRONYMS

SD	Supplier Development
SFS	Supplier Financial Support
ST	Supplier Training
ESI	Early Supplier Involvement
OP	Operational Performance
RDT	Resource Dependence Theory
LOC	Lower Order Construct
HOC	Higher Order Construct
F & B	Food and Beverage
FABAG	Food and Beverage Association Ghana
PLS	Partial Least Squares
SEM	Structural Equation Modelling

CHAPTER ONE

INTRODUCTION

Many manufacturing firms including those in the food and beverage industry have not paid much attention to supplier development for the past decades. Arguably, the poor performance of the food and beverage sector could be as a result of their inability to develop their suppliers. Supplier development contributes to an improvement in manufacturing firms' performance, particularly those in Ghana's food and beverage industry. The social exchange theory suggests that firms should adopt supplier development practices including supplier financial support, supplier training and early supplier involvement in new product development in an exchange for improving performance. This study, therefore, seeks to examine the effect of supplier development practices on operational performance of food and beverage firms in Ghana through the mediating role of buyer-supplier commitment The background of the study, statement of the problem, purpose, research objectives, hypotheses, significance, limitations, delimitations, definition of key terms, and organisation of the study will be extensively discussed in this chapter.

Background to the Study

Until recently, when competition became too great for firms to handle, many organisations did not take the performance of their suppliers seriously. As new and more competitive organisations arise with new and enticing contractual terms of engagement, the number of reliable suppliers has substantially decreased over time (Stainly & Wisner, 2016). Lack of commitment between supplier and

buyer, lack of training, supplier financial support and early involvement of suppliers in new product development, are all factors that contribute to poor or inconsistent supply (Newman, 2018). The result is a decrease in firm performance in relation to low quality product, a long lead time, higher inventory, reduced ability to meet consumer needs, loss of market share, inflexibility to change, and lower earnings. Customers are unsatisfied as a result, and the firm's market reputation suffers. Customers may shift to more competitive organisations as a result of low product quality and a long lead time (Petersen et al., 2015).

In presenting an overview of the contribution of food and beverage manufacturing sector to Ghana's economy and the world at large, the sector plays a special role in boosting economic prospects because it is essential to both life and health (Krishnaswamy, 2017). Also, the food and beverage industry has evolved into a significant engine of nations' worldwide competitiveness, serving other industries as well as the critical socioeconomic demands of thriving economies around the world. Statistics from numerous nations throughout the world have proved the food and beverage industry's significant contribution to international trade and economic growth. The global market for food and beverage was expected to increase from $5,817.4 billion in 2021 to $6,383.49 billion in 2022, according to the Food and Beverage Industry Global Report (2022).

In terms of structure and economic contributions of manufacturing sector performance in Ghana, the food-processing sector, which includes food and beverage firms, continue to be the largest sector within the manufacturing

industry (Quartey & Darkwah, 2015). According to government pronouncements, food and beverage (F&B) processors will benefit from government attempts to boost domestic manufacturing, with more than half of applications for the One District, One Factory program coming from within the industry. This was done to assist Ghana's food import bill by $2.4 billion in 2017, as well as boost the decentralization program, create jobs, and increase the value of the country's agricultural output.

The Food and Beverage manufacturing sector in Ghana contributes to job creation in the Ghanaian economy by employing about 28.46% of the Ghanaian population in 2021. Most large-scale food and beverage firms in Ghana is concentrated in the Greater Accra region, with 84 percent of the sector's top firms based in the capital's industrial district or neighboring Tema (Asokoinsight, 2021). There are currently 152 food and beverage firms in the Greater Accra region of Ghana who have registered with the Food and beverage Association of Ghana (FABAG, 2022).

Today, a lot of Ghanaian food and beverage firms have recognized how important supplier development is to creating and sustaining their competitive advantage. Research has tried to concentrate on supplier development practices and investigate how these practices affect operational performance, particularly in the food and beverage industry (Humphreys, 2017). According to Amimo (2013), rising demand for the products and services of food and beverage firms requires an expansion in their manufacturing capacity, which results in increased operational issues.

In addition, food and beverage firms suffer product quality issues, product lead-time issues, seasonal raw material shortages and high production costs. Some of these issues can be addressed by enhancing supplier development. Enhanced operational efficiency, improvement in supplier performance, quality improvement of the product, delivery performance, and cost reduction are all benefits of supplier development, according to Nagati and Rebolledo (2013). Improvement and development of suppliers is an important managerial function which leads to significant earnings for the procurement organisation according to Praxmarer-Carus, Sucky, and Durst (2013). Supplier development practices also lead to stronger relationships between buyers and their suppliers, resulting in more efficient and successful business operations (Njeru, 2013).

The goal of supplier development is to help current and potential suppliers generate and provide high-quality inputs to their potential customers. Since no organisation is able to meet all of its supply requirements from internal sources, suppliers assist businesses in meeting their current and future requirements (Fu, Zhu & Sarkis, 2012). In majority of the time, it emphasises on large firms assisting smaller suppliers in the form of providing resources where these suppliers have shown willingness to meet the demands of their customers. Therefore, it entails assessing the numerous weaknesses and strengths of a supplier who has agreed to provide the organisation with goods or services and assisting the supplier in overcoming these flaws so that they can provide the organisation in a more efficient way (Hong & Kwon, 2012).

According to Miocevic and Crnjak (2012), supplier development is any action taken by a purchasing firm to raise the performance of its suppliers. Blome, Hollos, and Paulraj (2014) noted that a buying firm's activities such as supplier financial support, supplier training, early supplier involvement, and other related ones may be included in supplier development. In the past, suppliers' contributions to the buyer's operational performance have not been given much attention. This is attributed to the clear fact that the relationship between the buyer and supplier organisation have been at a distance and frequently adversarial, with each firm in the supply chain attempting to achieve cost reduction, profitability, and expansion at the expense of the others (Dza, Fisher and Gapp 2013). However, according to researchers like Roberta, Christopher, and Lago Silva (2014), successful buyers understand the importance of collaborating more closely with their suppliers for enhancing the quality of their products, reducing lead times, managing demand and achieving success in the face of intense industry competition and an increase in material scarcity on a global scale.

Gonzalez and Quesada (2018) pointed out that supplier development is now the most influential management process of obtaining quality of product and satisfaction of customers. To attain this goal, businesses should focus primarily on their ability to grow and strengthen their own capabilities in strategic areas such as supplier development. Any company's success now depends not just on how well it manages its relationships with customers, but also on how well it manages its supply chain along with their suppliers. Morgan and Hunt (2015) argued that it is critical to establish, develop, and sustain long-term relationships with suppliers

that are mutually beneficial. The need to manage the supply chain as part of a broader company strategy, and in particular to create and leverage common connections with supply chain partners, has been recognized by the business community during the last decade.

Lukhoba and Muturi (2015) examined the effects of three specific supplier development practices: supplier financial support, supplier training, and early supplier involvement on operational performance. These three practices were found to improve operational performance in terms of product quality and lead time. However, from relevant literature, supplier development for the purpose of this study was measured using supplier financial support, supplier training and early supplier involvement in new product development (Lukhoba & Muturi, 2015).

Hwang et al. (2014) defined operational performance as a firm's effectiveness and efficiency as assessed against conventional or mandated indicators. With the world economy rapidly increasing and the worldwide market diminishing, there have been a significant increase in demand on businesses to find new methods to create and deliver value to their consumers through supplier development. Building relationships with suppliers and developing them have become increasingly recognized as a means of increasing product quality, improving product lead time and lowering costs in the supply chain. According to supply chain studies (Marin-Garcia et al., 2018; Easterby-Smith et al., 2021), empowering suppliers in areas such as supplier financial support, supplier technical support, early supplier involvement, supplier training, supplier audit,

and supplier certification is expected to have a strategic impact on operational performance, particularly in the areas of customer satisfaction, competitive advantage, cost efficiency, operational efficiency, and customer service delivery.

In a similar context, Amarjit et al. (2016) defined a company's operational performance as a measure of how well it utilizes assets from its business functions to earn income over time. As a result, this metric is compared to a particular average industry norm of similar businesses in the same field. Ahmad, et al. (2019) clearly stated that supplier development is aimed at increasing the operational performance of businesses by providing them with a competitive advantage over their competitors. According to Foerstl, Azadegan, Leppelt and Hartmann (2015), a supplier development focusing on the antecedents' trust and commitment is necessary for any firm to achieve effective operational performance. However, for the purposes of this study, buyer-supplier commitment was operationalised as a mediating variable.

To better comprehend the relationships between supplier development and operational performance, various theories have been proposed, amongs them are the social exchange theory, resource dependence theory, human capital theory and commitment-trust theory. The study's justification stems from the need to enhance the operational performance of food and beverage firms in Ghana (Frimpong et al., 2021). Supplier development programs have the potential to improve the quality, reliability, and responsiveness of suppliers, leading to better operational performance of the buying firm in terms of its product quality and lead time (Tongur et al., 2020). The role of buyer-supplier commitment in facilitating this

relationship is also critical as it creates trust and mutual understanding between buyers and suppliers, leading to more significant benefits for both parties (Kim et al., 2019).

This study is important because it will provide insights into the supplier development practices that Ghanaian food and beverage firms can use to improve their operational performance leading to improved product quality and lead time (Sefa et al., 2018). Also, by understanding the dimensions that promote commitment between buyers and suppliers, food and beverage firms in Ghana can develop better long-term relationships with their suppliers, leading to improved operational performance. The findings will also be valuable to policymakers, industry practitioners, and researchers interested in enhancing the competitiveness of the food and beverage industry in Ghana (Chang et al., 2020).

This research findings can benefit the food and beverage firms in Ghana as well as other policymakers through developing better policies to support the industry and promote economic growth (Adomako et al., 2020). Also, by understanding the dimensions that promote commitment between buyers and suppliers, the food and beverage firms can develop better relationships with their suppliers, leading to increased business opportunities and more stable income streams (Anku-Tsede et al., 2021). In addition, consumers can have greater confidence in the products they purchase and consume when there is improved product quality and lead time. This can lead to improved health outcomes and a better overall quality of life (Agyekum-Mensah et al., 2020).

It is within this background of issues that the food and beverage firms in Ghana is striving to grow and improve its performance in the last decade. Despite the importance of supplier development and its relationship to operational performance, it is noted that there is a limited literature or research on the topic specifically in Ghana. This study therefore seeks to examine the effect of supplier development on operational performance of food and beverage firms in Ghana with the mediating role of buyer-supplier commitment.

Statement of the Problem

The food and beverage industry in Ghana has been acknowledged as an important sector of the economy due to its role in providing safe and high-quality food products for human consumption, employment creation, income generation and its contributions to the country's overall economic growth (Quartey & Darkwah, 2015). The sector requires special attention due to several factors including compliance with regulations of food safety, labeling, and packaging, efficient supply chain management, responsiveness to consumer preferences and competitiveness (Buczkowski et al., 2019).

However, food and beverage firms in Ghana are facing challenges related to product quality and lead time, which have adversely affected their operational performance (Amponsah et al., 2018). According to a report by the Food and Drugs Board Authority (FDA), there has been an increase in the number of foods recalls due to quality issues in recent years (FDA, 2022). This indicates that food and beverage firms in Ghana are facing challenges in maintaining the desired product quality standards. Poor product quality can lead to customer

dissatisfaction, reduced sales, and reputational damage for food and beverage firms (Kotler et al., 2018).

In addition to product quality issues, food and beverage firms in Ghana have also been struggling with lead time challenges. According to a report by the National Restaurant Association (NRA), food and beverage firms in Ghana have been experiencing delays in product delivery, which has resulted in a negative impact on their operational performance (NRA, 2022). Delayed product delivery can result in production disruptions, increased inventory costs, and missed sales opportunities for food and beverage firms (Jian et al., 2018).

Srivastava et al. (2019) stated that to address these challenges, food and beverage firms should adopt supplier development such as supplier financial support, supplier training and early supplier involvement as a means of improving their operational performance. Also, Narayanan and Ramanathan (2018) claimed that supplier development involves working closely with suppliers to improve product quality and lead time. Research has shown that supplier development practices have positive impact on various operational performance indicators such as delivery reliability and product quality (Biyase & Singh, 2021; Zhang, Wu, & Zhao, 2019).

Although literature has established the existence of a relationship between supplier development and operational performance in the food and beverage industry, there are some contradictions. Some studies have reported positive outcomes (Yegon et al., 2015; Wachiuri, 2015; Ameyaw et al., 2021; Mahmood et al., 2021), others have reported insignificant results (Tate et al., 2012; Arrieta et

al., 2020). Therefore, there is a need for further research to investigate the effect of supplier development on the operational performance of food and beverage firms. The social exchange theory, resource dependence theory, human capital theory and commitment-trust theory all provide theoretical bases for understanding the links between supplier development and operational performance in food and beverage firms in Ghana, through the role of buyer-supplier commitment.

Over the year's some studies conducted on the effect of supplier development on firm performance have been done in other countries. For example, (Yegon et.al., 2015; Wachiuri, 2015; Waluke, 2018; Kivite 2015; Ndanusa, & Daniel, 2020; Lukhoba, & Muturi, 2015; Mwesigwa, & Nondi, 2018; Njeru, 2013; Waraporn, 2012). Thus, findings from these studies may influence the final result of this research in the Ghanaian context.

The studies conducted in Ghana seem to have focused on other industries rather than the food and beverage industry. Studies like (Kiarie, 2017; Al-Abdallah, Abdallah & Hamdan, 2014; Nyarku, & Oduro, 2020;) focused on the entire manufacturing industry, hospitals (Oduro et.al., 2015) and airlines (Kosgei & Gitau 2016). However, the food and beverage industry has fallen short in this regard and a lot more has to be researched there on this topic. Moreover, these studies looked at supplier development as a construct of Supplier relationship management on firm performance in Ghana.

In addition, Makafui, David and Kwame- Ackah, (2020) studied supplier development in the achievement of cooperate goal in the manufacturing industry

in Ghana, a case study of Uniliiver, Ghana. Also, Bansah and Ackah (2017) looked at the effect of supplier development on Corporate Success, a study of Accra Brewery Limited, Ghana while other studies focused on measuring supplier performance. None of these studies paid attention to the fundamentals matters that underline the operational performance in terms of product quality and product lead time of the buying firm in the supply chain.

Moreover, these studies among others failed to look into the impact of supplier training, supplier financial support and early supplier involvement in new product development as a construct of supplier development on operational performance in the Ghanaian context. Furthermore, research has proven that supplier development does not always have a direct or immediate impact on performance; rather, the relationship has an indirect impact through other mediating variables such as commitment and trust (Waraporn, 2012). Among the few studies conducted in Ghana, none of them have looked at it from the mediating role of the buyer-supplier commitment.

Thus, it can be seen that studies on the effect of supplier development on operational performance in the food and beverage firms in Ghana is limited, therefore, the need to be probed into. This study would help to clarify the relationship that exists between the study's variables. In addition, this research is important because it will help managers of food and beverage companies in Ghana to know the supplier development practices to adopt to improve their firm's operational performance. Again, management of these firms and policy-makers may miss opportunities to develop supplier development practices that

will improve their operational performance in the Ghanaian context when the relationship between these variables is not studied. This study would contribute to bridging the gap in the literature by examining the effect of supplier development on operational performance of food and beverage firms in Ghana with the mediating role of buyer-supplier commitment.

Purpose of the Study

Overall, the study seeks to investigate how supplier development as an integrative construct of supplier financial support, supplier training and early supplier involvement in new product development influence operational performance of food and beverage firms in Ghana with the mediating role of buyer-supplier commitment.

Research Objectives

Generally, the purpose of the study is primarily to examine the effect of supplier development on operational performance of food and beverage firms in Ghana through the mediating role of buyer-supplier commitment.

Specifically, the study seeks to:

1. determine the effect of supplier financial support on operational performance of food and beverage firms in Ghana.
2. analyse the effect of supplier training on operational performance of food and beverage firms in Ghana.
3. examine the effect of early supplier involvement in new product development on operational performance of food and beverage firms in Ghana.

4. investigate the mediating role of buyer-supplier commitment on the relationship between supplier development and operational performance of food and beverage firms in Ghana.

Research Hypothesis

In order to address the study objectives, the following research hypothesis were formulated.

H_1: There is a significant positive relationship between supplier financial support and operational performance of food and beverage firms in Ghana.

H_2: There is a significant positive relationship between supplier training and operational performance of food and beverage firms in Ghana.

H_3: There is a significant positive relationship between early supplier involvement in new product development and operational performance of food and beverage firms in Ghana.

H_4: Buyer-Supplier commitment mediates the relationship between supplier development and operational performance of food and beverage firms in Ghana.

Significance of the Study

The findings of the study will help in the creation of policies that will improve the efficiency of organisations specifically firms in the food and beverage industry in Ghana. Policymakers and researchers will be interested in the findings because there is limited information on supplier development, buyer-

supplier commitment and operational performance in Ghana's food and beverage firms. This research would help to clarify the relationship that exists between these variables. In addition, this research will show managers of food and beverage firms in Ghana how they may use the supplier development practices to improve their firm's operational performance.

Furthermore, the findings of this study will contribute to academic discussions about not just practicing supplier development, but also ensuring commitment from both the supplier and the food and beverage firms to apply these practices in order to achieve operational performance. It will also be tremendously important to other procurement officers or practitioners and stakeholders in a variety of ways. The findings and conclusions presented in this study will give food and beverage industry players a more accurate scientific metric and perspective for characterizing and evaluating overall supplier development and how it relates to operational performance.

Moreover, future supply chain management researchers will use the findings of this study as a starting point for further research in the same subject with a broader scope or in various contexts. Other non-manufacturing firms may consider following the recommendations after providing evidence that supplier development improves operational performance and thus growth, thereby benefiting from the study.

Delimitation of the Study

The study is focused on supplier development and its influence on operational performance with the mediating role of buyer-supplier commitment in

the food and beverage firms in Ghana. Although various dimensions of supplier development have been identified in the literature, introducing all concepts or dimensions is not feasible in this study. Thus, the concept of supplier development has been looked at from the social exchange theory perspective. For better understanding, this study operationalised the concept of supplier development based on the following three constructs as explained by the social exchange theory as follows: supplier financial support, supplier training and early supplier involvement in new product development.

The study was restricted to food and beverage firms in the Greater Accra region of Ghana who have registered with the Food and beverage Association of Ghana (FABAG, 2021) and focused on their procurement officers in these regions only. They are therefore typical of the food and beverage firms in Ghana and their staff are concentrated in the Greater Accra region. As such, important inferences to the food and beverage industry in Ghana can be made to the outcome of the study.

Limitations of the Study

The current study was confronted with a number of limitations. Firstly, the generalizability of the study's findings to the entire country was affected since the study focused on food and beverage firms located in the Greater Accra metropolis. In addition, this research was restricted to only food and beverage firms in Ghana and hence the findings cannot be used to generalize the whole manufacturing sector as well as other sectors in the country. Also, the study's results may not accurately represent the entire industry as a whole. The study was

also primarily based on three independent variables of supplier development including supplier financial support, supplier training and early supplier involvement in new product development, although there are other factors that could also contribute to supplier development. Despite these limitations, the research will add to knowledge in the area of future studies on the influence of supplier development on operational performance through the mediating role of buyer-supplier commitment among food and beverage firms in Ghana.

Operational Definition of terms

Supplier Development

According to Yawar and Seuring (2020), supplier development is defined as any attempt made by a purchasing organisation to improve their supplier's performance and capabilities.

Supplier Financial Support

Supplier financial support refers to the efforts made by the purchasing company to improve its supplier through human and capital resources, including direct investments in tools and equipment as well as technical assistance at the supplier's location.

Supplier Training

Supplier training programs are buyer-designed programs that focus on expanding and strengthening supplier technical skill in key areas such as quality, manufacturing processes and management best practices in order to increase firm productivity.

Early Supplier Involvement

According to Chang et al. (2016), early supplier involvement can be considered as a way to integrate suppliers' skills into the buyer's supply chain and operations, allowing the buyer to benefit from the suppliers' technological experience in manufacturing and design.

Operational Performance

According to Maestrini et al. (2017), operational performance is defined as a "collection of measurements used to quantify the efficiency and effectiveness of supply chain processes and interactions, involving several organisational functions and numerous businesses and enabling supply chain coordination,".

Food and Beverage Firms

Food and beverage firms refers to all firms engaged in the processing of food and drinks for sale and consumption.

Organisation of the Study

The study involves five chapters. The background of the study, problem statement, purpose of the study, research objectives and questions, significance of the study, delimitations, limitations, definition of terms, and organisation of the study are all covered in chapter one. Reviewing existing literature in relation to the topic being researched are also covered in chapter two of the study. Additionally, studies done by other researchers are reviewed. It is further sub divided into theoretical, conceptual, and empirical literature review. The methodology is presented in Chapter three. This section discusses the research design, study area, population, sampling procedure, data collection instruments,

data collection procedures, data processing and analysis as well as the chapter summary. The study's findings will be presented and discussed in Chapter four. Chapter five summarizes, conclude and make recommendations to stakeholders in the food and beverage industry and the whole business environment as a whole.

CHAPTER TWO

LITERATURE REVIEW

Introduction

The aim of this study is to examine the effect of supplier development on operational performance through the mediating role of buyer-supplier commitment in the food and beverage firms in Ghana. This structural relationship has been supported by wide range of theories. As such, the chapter focuses on the theoretical, conceptual, empirical and conceptual framework of supplier development, buyer-supplier commitment and operational performance of the buying firm.

Theoretical Review

Theories are important academic building blocks used to gather and explain relationship between individuals, groups and entities. Their importance extends to the organisation of thoughts and ideas about the world; improvement in predictions and expectations about various phenomena as well as achievement of better understanding of the world view (Corley & Gioia, 2013). Several theories applied in supplier development literature has traditionally been approached from diverse theoretical backgrounds, reflecting the evolution of supplier development. This study is anchored on the social exchange theory and other relevant theories explained below:

Social Exchange Theory

George Homans proposed the social exchange theory in 1974. Social exchange theory is a social psychological and sociological viewpoint that views

social change and stability as a series of negotiated trades between parties. According to social exchange theory, all relationships are created through subjective cost-benefit analysis and alternative comparison. The theory includes economic, psychological, and sociological roots. The elements of a person's relationship life that have a negative value to them are referred to as costs. Examples include the effort required to maintain a relationship and a partner's weaknesses. Positively valued parts of a relationship are referred to as rewards.

According to the theory, people assess the overall value of a relationship by deducting its expenses from the benefits it gives. It is a positive relationship if worth is a positive number. Negative numbers, on the other hand, show a negative relationship. The value of a relationship has an impact on its outcome, or whether people will stay in a relationship or end it. Positive relationships are more likely to last, whilst bad ones are more likely to end. The promotion of both parties' self-interest is the driving factor behind interpersonal relationships. Self-interest is not always a terrible thing, and it can be used to improve relationships. Interpersonal exchanges are assumed to be similar to economic exchanges, in which people are satisfied when they get a reasonable return on their investments.

The pinnacle roles of trust, commitment, collaboration, satisfaction, and relational norms that evolve through time and tend to rule the relationship rather than relying on formal contracts are also fundamentals of social exchange theory (Scholten et al., 2016). The notion is well-suited to the one-of-a-kind relationship built by the customer through supplier development for mutually beneficial commercial exchanges. In the context of supplier development, this theory

implies that buyers may provide supplier financial support, supplier training and early supplier involvement in order to receive benefits such as improved operational performance such as product quality and lead time (Janssen et al., 2018). Also, this theory has been applied to explain supplier development and their outcomes, including supplier financial support, supplier training, and early supplier involvement (Gao, Huo, & Liu, 2020).

Human Capital Theory

This is one theory that has a lot of potential for demonstrating how supplier training affects supplier development. Human capital, according to Adam Smith (1973), is an individual's abilities, skill (physical, intellectual, and psychological), and individual's judgement. According to human capital theory, training is one of the investment options from which an individual can gain in the future (Law, 2016). Because of its ability to provide utility to the buyer as well as input in the future production of products and services with accompanying advantages to both the individual and society, training is considered both a consumer and a capital good, justifying massive governmental expenditure on training (Olaniyan & Okemakinde, 2018).

Each person's human capital stock contains intrinsic abilities that can be enhanced through training before to entering the workforce and during employment through on-the-job learning or training, experience, and an emphasis on skill development (Olaniyan & Okemakinde, 2018). Individuals or groups with higher levels of knowledge, skills, capabilities, and competencies can generate better performance outcomes than those with lower levels, according to the

human capital theory (Ploy hart & Moliterno, 2014). As a result, this theory provides a broadly acceptable framework for evaluating a variety of economic, business and social concerns ranging from educational returns to training (Law, 2016).

Based on the economics of education, this theory fits into the assumption of gains from supplier development obtained from supplier training. Knowledge, skills, competencies and capabilities are acquired, developed and retained as a result of training from a human capital perspective. This may help the trainee's performance (Ployhart et al., 2014). This theory aided the research by explaining how supplier training affects the operational performance of Ghanaian food and beverage firms (Becker, 2018). In the context of supplier development, this theory implies that suppliers may provide training and other forms of support to improve the skills and knowledge of their employees, leading to improved operational performance in terms of product quality and lead time (Tehseen et al., 2019). This theory has been applied to explain the positive relationship between supplier training and buyer operational performance (Ghobakhloo, Hong, & Sabouri, 2020).

Resource Dependence Theory

Pfeffer and Salancikin (1978) proposed Resource Dependence Theory (RDT), which is the study of how an organisation's external resources influence its performance. The acquisition of external resources is a fundamental aspect of any company's strategic and tactical management. The Resource Dependence Theory has consequences for buying organisations' operational performance,

particularly in terms of integrating into their crucial and reliable partners, suppliers. As a result, this theory supports the concept of supplier development. According to RDT, actors who lack necessary resources would strive to form relationships with (i.e., become reliant on) others in order to gain from them.

For external resources, buyers will rely on suppliers, and suppliers will rely on buyers for valuable markets. Firms also try to change their dependency relationships by reducing their own reliance or improving the reliance of other organisations on them. Organisations are considered as coalitions in this paradigm, with their structure and patterns of behavior alerting them to obtain and sustain essential external resources. Obtaining the external resources required by an organisation is accomplished through reducing the organisation's reliance on others and or improving others' reliance on it, i.e., adjusting the organisation's power over other organisations.

According to resource dependence theory, a business relationship is a social trade of key resources characterized by mutual dependency between the exchange parties. As a result, an organisation's ability to acquire key resources from the outside environment is critical to its survival and growth (Teijlingen & Hundley, 2012). However, an organisation-to-organisation relationship is not free. Ex-ante mutual dependence between exchange partners due to essential resources is the focus of resource dependence theory. This theory acknowledges the interdependence of exchange partners as well as the significance of protecting valuable resources from environmental and behavioral risk (Davis & Cobb, 2010).

Because of the dispersion of knowledge and technological resources driven by organisational specialization, Handfield et al., (2019) agreed with the cooperative approach arguing that firms are no longer able to generate big product or service innovations alone. Furthermore, Handfield et al., (2019) stated that the growing requirement for improved operational effectiveness has compelled more organisations to form partnerships, resulting in increased reliance on each other's resources and competencies.

Wilson (2016), argues that as the markets get more sophisticated, it becomes harder for firms to have all the resources they need to compete successfully, and that exchange results in relational interdependency. According to Sako (2012), resource development is seen as occurring between organisations rather than just within them, and an organisation's performance and internal efficiency are seen as being dependent on its ability to establish resources through relationships rather than exploiting resources in isolation from other organisations Romero (2019), however, cautions where it is rational and commercially feasible, organisations should collaborate to gain these benefits. According to resource dependence theory, a firm's unique positioning offers potential market value, which it can capitalize on by developing a competitive advantage based on resources that are distinct to that firm (Scannell, 2018).

Through investments in supplier development, firms establish connections with exchange partners (i.e., customers and suppliers) in order to gain a competitive advantage in the market and generate shared benefits, such as improved product quality and shorter lead time (Pfeffer & Salancik, 2019). In this

context, supplier financial support and training may be seen as ways for suppliers to increase their power and control over organizations, while early supplier involvement may be seen as a way for organizations to reduce their dependence on suppliers by developing their own capabilities to improve their operational performance (Lai et al., 2020). Also, this theory suggests that the level of dependence on suppliers influences the buyer's behavior towards the supplier, including their provision of financial support, training, and early involvement (Cao, Qian, & Takeuchi, 2018).

Commitment-Trust Theory

Morgan and Hunt's (1994) theory of commitment-trust is a widely-accepted theory for examining the influence of trust and commitment on performance in order to acquire a proper contextual and organisational knowledge of this study. According to this idea, the presence of these characteristics is critical for developing results that foster competence, increase production, and improve operational performance (Morgan & Hunt, 1994). Partha (2012) discovered that trust and commitment are essential components for enhancing the longevity of relationships in order to achieve operational performance. The commitment-trust theory states that the presence of both commitment and trust is necessary in relationships, allowing organisations to manage relationship investments while focusing on the economic benefit of long-term relationships (Palakshappa & Gordon 2014).

According to a small group of researchers, the commitment-trust phenomena is a global underlying component for corporate relationships

(MacMillan, Money & Downing 2013). This theory proposes that "commitment and trust function as mediators between five antecedents, which are relationship termination costs, benefits, shared values, communication, and opportunistic behavior," according to Partha (2012). "Acquiescence, propensity to leave, cooperation, functional conflict, and decision-making ambiguity" are among the five outcomes (Wanga et al. 2016).

Through focusing on the commitment-trust theory of association presentation proposed by Morgan and Hunt, this study intends to apply the theory on food and beverage firms by showing how commitment from both the buyer and supplier strengthens the effect of supplier development on operational performance (Morgan & Hunt, 2019). In this context, supplier financial support, training and early supplier involvement may be seen as ways for suppliers to demonstrate their commitment and build trust with organizations, leading to improved operational performance over time (Li et al., 2021). Also, this theory has been applied to explain the positive relationship between supplier financial support, supplier training, early supplier involvement and operational performance through commitment (Zhou, Zhang, & Li, 2021).

Conceptual Review

Supplier Development

Supplier development is defined as the process of improving the capabilities and performance of suppliers to meet the requirements of the buying firm (Hendricks & Singhal, 2018). Previous researchers have operationalized supplier development through activities such as technical support, supplier audit,

supplier certification, financial support and supplier training (Liu et al., 2020; Nair et al., 2019). Also, supplier development is the act of assisting a supplier in improving their product, performance, or overall capabilities (Yawar &Seuring, 2020). According to Charpin, Powell and Roth (2021), supplier development is the collaborative expansion of suppliers' technical delivery and financial capabilities to help in their long-term continual improvement.

Organisations have implemented supplier development as a result of their over-reliance on a few competent suppliers (Dastyar, Rippel & Freitag, 2020). Suppliers are critical to an organisation's competitive edge (Bai & Satir, 2020). They must not only provide high-quality products to the purchasing organisation, but also timely deliveries that add to the product's value (Gu, Zhou, Cao & Adams, 2021). Supplier development involves a wide range of actions. These activities may include "supplier financial support, supplier training, early supplier involvement, supplier evaluation, feedback on supplier performance, raising performance expectations, supplier recognition, placement of engineering and other buyer personnel at the suppliers' premises, and direct capital investments by the buying firm in the supplier's firm," according to Benton Jr, Prahinski, and Fan (2020).

According to Yegon et al. (2015), supplier development practices must be in support of the purchasing and supply management strategy, which, in turn, supports the organisational strategy. Moreover, there are some direct expenditures in supplier development that are more specific, advanced, time and resource intensive, and difficult for the buyer to accomplish. Despite the fact that academia

explores a variety of dimensions in the area of supplier development, the vast bulk of research concentrate on only a few of them. In the current study, the literature on supplier development were divided into two categories based on scholars' perspectives on supplier development: limited perspective and broad perspective (Popoola, 2019). Supplier development, as defined by Shahbaz et al. (2019), refers to the expansion of the supply base through the formation of new sources of supply (Quynh and Huy, 2018).

In a nutshell, the purchasing staff's job is to grow or extend the supplier base in order to meet supply requirements. Supplier assessment is used for two goals in the narrow sense: to determine whether a supplier is qualified to deliver items that meet the customer's quality level; and to establish competition among suppliers, particularly in terms of pricing. The papers grouped into the narrow viewpoint, which were essentially the initial wave of supplier development research, were mostly quality management studies (Okon, 2018; Chang et al., 2016; Afnde, et al., 2015).

The present study takes a comprehensive view of supplier development, which is defined as efforts conducted by customers in order to increase supplier capabilities and or performance in order to meet the customer firm's short and or long-term supply demands (Al-Doori, 2019; Okon, 2018; Seo, et al., 2015; Mose, 2015; Amue and Ozuru, 2014). Supplier development, on the other hand, may be viewed as an externally available resource that can assist a supplier obtain a competitive advantage, according to the dynamic capability perspective, the relational view, and the investment model. As a result, the supplier's participation

in supplier development is not only meant to meet the buying firm's short- and or long-term supply needs, but also to increase the supplier's competitive advantage or performance.

Supplier development should result in increased total added value from the supplier in terms of product or service quality, business processes and performance, and improvements in lead times and delivery to the buying firm's overall performance (Basu, et al., 2017). According to Anand and Grover (2015), supplier development is usually done with existing suppliers who can be improved and agree to be improved. Supplier development can be divided into three groups: currently being developed, on hold as a potential for development, or not seen to be worth the investment in development.

Direct involvement as a practice of supplier development, according to Sundram et al. (2016), consists of a set of practices such as formal supplier evaluation, certification, recognition, informal supplier evaluation, supplier site visits, training, and buyer sites and facilities visits, as well as verbal or written demand for performance improvement. This collection of techniques that make up direct engagement demonstrates the multifaceted nature of supplier development. Supplier development practices, according to Job (2015), include supplier financial support, supplier training and early supplier involvement.

Studying supplier development is important because it can lead to improved operational performance such as product quality, delivery times, as well as stronger buyer-supplier relationships (Choi et al., 2018). For supplier development, the current operationalization is based on previous studies that have

identified key dimensions such as supplier financial support, supplier training and early supplier involvement in new product development (Lukhoba & Muturi, 2015). The main reason for the choice of these constructs is because these firms are likely to exhibit and elaborate supplier development philosophies and make use of such programs. Moreover, these constructs can be viewed as the most relevant which may influence the performance of suppliers and improve operational performance of Ghanaian food and beverage firms.

Supplier Financial Support

Supplier financial support refers to the provision of financial assistance to suppliers by buying firms (Sundarakani et al., 2020). Previous studies have operationalized supplier financial support through the provision of loans, cash advances, and factoring (Kumar et al., 2018; Ye et al., 2019). When a supplier receives feedback from a buyer on how to improve, the buyer must send recommendations or staff to the supplier's site (Krause, 2019). Financial supplier appraisal, according to CIPS (2007), should be focused on decreasing financial risk and giving information that may be utilized to help firms make reasonable decisions on supplier sources or tender evaluation.

Secondary data on suppliers and markets Public financial statements, networking with existing clients of the supplier, and credits rating organisations can all provide useful information for evaluating supplier financial performance. Assessing the supplier’s turnover over a three-year period; the supplier’s profitability (net profit) for three years; the value of the firms’ capital assets and the associated returns (ROA and ROE); the magnitude of borrowings; and the

possibility of a merger or takeover that could affect the firm's ability to supply are all important factors to consider when evaluating the financial performance (CIPS, 2007).

Waraporn (2012) in the study of the impact of supplier financial support on firm performance, looked into the function of buyer-supplier commitment in improving performance in Thailand. According to the findings, the buying organisation would apply supplier development practices by focusing on buyer-supplier relationship commitment in order to increase performance. As a result, the researchers recommended that managers place a high priority on creating unique relationships with suppliers. The purchasing firm expects to cultivate long-term relationships with important suppliers that include information sharing and perks such as joint problem resolution.

Ochieng (2014) investigates the influence of supplier incentives in organisational performance in terms of product quality, delivery and order cycle time, cost and technology. Fifty (50) respondents were chosen using a simple random selection procedure. Multiple regressions and correlation analysis were used for the data analysis. The findings suggest that information exchange, supplier comprehension of goals, supplier participation, and buyer collaboration all had a positive impact on procurement. Moreover, buyer coordinator presence, information exchange, and supplier knowledge of goals were found to be more important than supplier engagement.

According to Wanchiuri, Waiganjo, and Oballah (2015), supplier development practices include supplier training, awards, financial support and

firm involvement. Studying supplier financial support is important because it can help ensure a reliable supply chain, prevent supplier bankruptcy, and promote overall financial stability for both buyers and suppliers (Ribeiro et al., 2020). For supplier financial support, the current operationalization is based on previous studies that have identified key dimensions such as loans, equity investments, and grants (Lukhoba & Muturi, 2015; Yan et al., 2019; Zhu et al., 2018).

Supplier Training

Supplier training refers to the process of providing suppliers with the necessary knowledge and skills to improve their performance (Hendricks & Singhal, 2018). Previous researchers have operationalized supplier training through programs such as skills development, training on quality management, and lean manufacturing (Wang et al., 2020; Zhang et al., 2018). Buyer-supported training refers to supplier development program that receive backing from customers. According to the literature, buyers support their suppliers in a variety of ways, with some buyers providing more support than others. Some buyers are more concerned with short-term gains, while others consider supplier development to be a long-term investment.

As a result, depending on the buyers, suppliers have access to various sorts of supplier development programs. This means that research concentrating on the perspectives of suppliers are the best way to determine the types of training that would be most beneficial to them. Buyer-supported training programs could grow as a result of identifying the necessary forms of training. This is because purchasers would be able to choose the type of training that would be appropriate

for specific groups of suppliers. The appropriate kind of training may subsequently lead to an improvement in supplier performance, which would drive more buyer-supported training. Buyers can send their workers or teams to train suppliers, or they can ask a group of suppliers with the same problem to train in their own company (Ambrose, 2018).

O'Toole and Donaldson (2012) reported a study on the Patterns of Supplier training in the Malaysian automotive industry. Supplier development programs, they discovered, support the development of a supplier's capabilities, usually with the help of a customer. Supplier development is also influenced by the interest of the supplier and how they probe themselves in order to improve their capabilities. Despite the fact that local suppliers receive assistance from their buyers, this assistance is insufficient to develop supplier capabilities. As a result, examining the environment that delivers buyer-support training could aid in identifying aspects that suppliers themselves believe are vital for their capability development. It has been stated that buyer support for supplier training has been lacking.

Therefore, it's important to figure out what kinds of training suppliers want. Buyers have a good understanding of the training that a supplier could require, but as technology advances, the buyer no longer has a complete understanding of all of the technology that is required or forthcoming. As a result, it's critical for suppliers who want to improve their capabilities to have access to the training they need, which may be given by their buyers. Suppliers who have

accesss to buyer-supported training may find that their training requirements change over time as their capabilities develop (Chen, Lin & Huang, 2016).

Supplier training focuses on increasing efficiency and implementing effective processes that are dependable and capable of exceeding expectations of customers. To achieve such long-term operational results, an operations plan is designed to assist the organisation in ensuring that the firm's main operational features are addressed, such as cost reduction, product development and production speed, production system adaptability, and product quality assurance (Wiley, 2016). As businesses compete in a market where pricing is determined by market forces, the majority of firms aim to devise new ways to persuade people to acquire their products. This will necessitate strategies such as cutting product costs, shortening lead times, enhancing product quality, demonstrating genuine concern for safety and environmental protection, and so on.

The buyer creates supplier training programs aimed at boosting and upgrading supplier technical skill in important areas such as quality, production procedures, and management best practices in order to boost the firm's productivity. An important method of supplier development is communication between the buyer and the supplier. According to Saunders et al. (2015), buyer-supplier information sharing, buyer-supplier performance feedback and buyer investment in inter-organisational information technology are all major drivers of buyer-supplier communication openness. The goal of supplier training and assessment is to improve a potential supplier’s ability to regulate quality (delivery, quantity, price, and all other factors to be embedded in a contract). This

type of assessment is done at the pre-contract phase of supplier sourcing. This exercise allows suppliers to assess their capabilities in relation to the expectations of the buying organisation and, as a result, identify areas where they should invest in order to meet those expectations.

Mukhwana (2016) looked at how supplier training affects performance in Kenya's telecommunications industry. According to the research, supply chain management practices do have an impact on organisational performance. This study, however, was broad in scope, referring to supplier training management methods rather than specific elements of supply chain management that influence performance. The study was also particularly focused on food and beverage firms, making it unable to generalize its findings to other industries. Kaumu (2013), in a study of the relationship between supplier training and business performance among major manufacturing firms in Nairobi, Kenya, found that supplier training ties helped large manufacturing firms improve their performance. Although the study found that supplier relationships increased performance, it focused on relationships in general rather than supplier development concepts.

Manufacturing organisations ensure that they perform effectively and assist their suppliers in performing well and achieving their goals by keeping excellent ties with them. Studying supplier training is important because it can lead to better quality products and services, faster delivery times, and increased innovation from suppliers (Li et al., 2019). For supplier training, the current operationalization is based on previous studies that have identified key

dimensions such as training content, delivery method, and frequency of training (Lukhoba & Muturi, 2015; Liu et al., 2018; Wang et al., 2020; Zhu et al., 2018).

Early Supplier Involvement (ESI) in New Product Development

Early supplier involvement (ESI) refers to the involvement of suppliers in the product development process at an early stage (Nair et al., 2019). Previous studies have operationalized ESI through the involvement of suppliers in activities such as design and prototyping (Liu et al., 2020; Sundarakani et al., 2020). According to Chang et al. (2016), early supplier involvement can be considered as a way to integrate suppliers' capabilities into the customer's supply chain and operations, allowing the customer to benefit from the suppliers' technological experience in design and manufacturing.

ESI is a relative term because there are many levels of supplier participation, ranging from low to high. At its most basic level, ESI can simply consist of delivering information on equipment and capabilities to the customer's design team for integration. The supplier can bear full responsibility for a part or sub-assembly from concept through manufacturing at the greatest degree of ESI (Huang and Wang, 2017). ESI provides forward supplier resources and knowledge to help speed up the research and development (R&D) process and share risk. ESI occurs when new products, existing product changes, and continuous improvement are all part of a product development endeavor.

By involving suppliers in new product development decisions and continuous improvement initiatives, manufacturers can share information and increase learning, allowing for better solutions to complex, cross-organisation

problems that affect performance (Yegon, Kosgei & Lagat, 2015). According to Dowlatshahi (2017), if an organisation or a supplier waits until a design specification or a bill of materials is ready, it will be too late to benefit from a supplier's experience and expertise without a time- and money-consuming re-design.

As businesses concentrate on their core competencies, they become more reliant on their suppliers to be competitive. According to Mikkola and Larsen (2013), outside suppliers, can do various activities at a lower cost and with higher value added than a fully integrated organisation can due to greater complexity, higher specialization and new technical capabilities. Supplier contributions to cost reduction, eliminating inconsistency in the manufacturing processes, minimizing high cost- material items, sharing technical expertise and processes within each other, enabling continuous quality improvement, sharing technology capabilities, and increasing responsiveness of buying companies can all have a significant impact on a manufacturer's performance.

According to a buyer's power base, suppliers are responsible for 30% of quality issues and 80% of product lead-time issues. Studying early supplier involvement is important because it can lead to faster time to market and better overall product quality (Choi et al., 2020). For early supplier involvement, the current operationalization is based on previous studies that have identified key dimensions such as the timing and extent of supplier involvement in the new product development process (Lukhoba & Muturi, 2015; Chen et al., 2021; Handfield et al., 2019; Wu & Zhang, 2019).

Buyer-Supplier Commitment

Buyer-supplier commitment refers to the level of dedication and loyalty of both the buyer and the supplier towards each other (Nair et al., 2019). Previous researchers have operationalized buyer-supplier commitment through factors such as trust, communication, and relationship quality (Ye et al., 2019; Wang et al., 2020). The term "buyer-supplier commitment" refers to a long-term agreement between the buying firm and the supplier to use their capital incomes to develop and improve joint benefits (Tungjitjarurn, Suthiwartnarueput & Pornchaiwiseskul, 2012). Commitment is critical in developing a relationship between a buying firm and a supplier; in fact, commitment allows the partners to maintain a consistent and long-term relationship in order to reap long-term benefits (Rahmoun & Debabi, 2012).

Commitment in the relationship helps both providers and customers gain mutual respect, so reinforcing the social interaction and encouraging both sides to participate (Birasnav, Mittal & Loughlin, 2015). The commitment between the buyer and the supplier helps to improve the supplier's capabilities and the information flow from the buyer to the supplier (Wagner, Coley & Lindemann, 2019). Furthermore, it enhances supplier quality and behavior so that they can concentrate on the quality of the products they supply to their consumers (Imran, Sis, Cinar & Cetin, 2016). Additionally, commitment is important in any relationship because it entails a long-term commitment to the partnership, as well as the acceptance of momentary losses in order to attain long-term rewards (Serem & Bor, 2015).

According to Serem and Bor (2015), the presence of commitment in a buyer-supplier relationship reinforces the relationship's constancy. Carr and Kaynak (2017) support this statement by stating that the greater the supplier's commitment to a specific buyer, the greater the relationship's constancy. Studying buyer-supplier commitment is important because it can lead to more innovative and cost-effective products, faster time to market, and better overall product quality (Choi et al., 2020). For buyer-supplier commitment, the current operationalization is based on previous studies that have identified key dimensions such as trust, communication, and willingness to invest in the relationship (Njeru 2013; Waraporn, 2012; Rahmoun & Debabi 2012; Cui et al., 2018; Li & Zheng, 2020).

Operational Performance

Operational performance refers to the efficiency and effectiveness of the buying firm's operations (Sundarakani et al., 2020). Previous studies have operationalized operational performance through measures such as cycle time, delivery performance, and quality (Zhang et al., 2018; Kumar et al., 2018). In a similar way, Hwang et al. (2014) defined operational performance as a firm's effectiveness and efficiency as assessed against standard or mandated indicators. Furthermore, Amarjit et al. (2016) defined operational performance as a measure of how well a company uses its assets from its core operations to earn revenue over a certain time period. As a result, this metric is compared to a particular industry average norm of similar businesses in the same field.

Additionally, Azim et al. (2019) define operational performance as the measurable components of an organisation's process results, including reliability, production cycle time, and inventory turns. Business performance indicators like market share and customer satisfaction are influenced by operational success. Supplier development was measured in terms of organisational performance, with profit, cost, return on investment, and sale as dimensions (Florian and Constangioara, 2014; Mbah et al., 2019). It may be concluded that supplier development performance has been assessed using a variety of methods, including operational, organisational, firm, and financial measures.

Studying operational performance is important because it can help organizations identify areas for improvement in terms of product quality and lead time, optimize their resources, reduce costs, and increase customer satisfaction (Lee & Min, 2018). For operational performance, the current operationalization is based on previous studies that have identified key dimensions such as product quality and product lead-time (Azim et al. 2019; Olise & Ojiaku, 2018). This study will focus on the product quality and product lead-time as the buyer's operational performance measures since these measures are relevant in the operations of the food and beverage firms.

Product Quality

Simply said, product quality is a characteristic that is a further combination of numerous features for meeting consumer expectations and keeping industry standards, ensuring that the product does not include any defects. It also considers an organisation's ability to reduce input waste and

maximize resource utilization in order to provide customers with high-quality, low-cost goods and services. It's a valuable metric for managing the available resources. Azim et al., (2019) defined it as a service sector's ability to deliver products or services to customers in the most cost-effective way feasible while maintaining a high level of product, service, and support quality.

Lead Time

Customer services delivery or lead time, according to Olise and Ojiaku (2018), refers to the efficient, effective, and timely fulfillment of customer orders. It entails exceeding consumers' expectations in terms of order fulfillment by providing shorter lead times, consistent and on-time delivery, complete orders, faster responsiveness to customer requirements, and the capacity to meet customers' unique and specific requests (Nwulu & Nwokah, 2019).

Empirical Review

This chapter presents review of empirical studies in relation to supplier development and its constructs (supplier financial support, supplier training, early supplier involvement) and buyer operational performance. The other section of the review focuses on the mediating role of commitment on the relationship between supplier development and buyer's operational performance. Assessing the relationships between supplier development, buyer-supplier commitment, and operational performance is crucial for food and beverage firms in Ghana because it helps to improve their operational performance.

Again, by developing their suppliers and building a strong commitment with them, these firms can enhance their operational performance through impoved product quality and lead time. There is limited empirical literature on supplier development and operational performance in the food and beverage manufacturing industry globally and particularly in Ghana. A number of related empirical studies on supplier development reviewed show significant positive relationship between supplier development and performance. Among them are summarised below;

Supplier Financial Support and Operational Performance

Yegon et al. (2015) conducted research on the effect of supplier development on buyer performance through a survey of sugar milling companies in Kenya's western region. According to the study, supplier financial support had positive effect on the operational performance of buyers. As a result, they advised that in order for businesses to have a competitive edge over their competitors, they should constantly work to integrate the operations of the buying organisation with the resources, activities, and performances of their critical suppliers through supplier development, which entails giving them financial support, in order to achieve superior overall performance in terms of improved product quality and shorter lead time.

Mahmood et al. (2021) studied the impact of supplier financing on the operational performance of food and beverage firms in Pakistan. The study collected data from 130 food and beverage firms in Pakistan and used regression analysis to analyze the data. The results showed that supplier financing has a

significant positive effect on product quality and lead time performance in the food and beverage industry in Pakistan. The study concludes that supplier financing is an effective strategy for improving operational performance in the food and beverage industry in Pakistan. This study provides empirical evidence of the positive impact of supplier financing on operational performance in the food and beverage industry in Pakistan.

Ameyaw et al. (2021) did a reserach on financial Support and operational performance: Empirical Evidence from the Food Processing Industry in Ghana. The study used a quantitative research design and a survey questionnaire to collect data from 181 food processing firms in Ghana. The study found a positive and significant relationship between financial support and operational performance in terms of product quality and lead time. The study provides empirical evidence on the positive impact of financial support on operational performance in the food processing industry in Ghana. The findings of the study suggest that financial support can improve product quality and lead time, which are critical factors for achieving operational performance.

Zhang et al. (2021) conducted research on the effect of Supplier Financial Support on supply chain integration and operational performance in the food and beverage industry. The study collected data from 162 food and beverage firms in China and used hierarchical regression analysis to analyze the data. The results showed that supplier financial support has a significant positive effect on operational performance in the food and beverage industry. The study concludes

that supplier financial support is an effective strategy for improving operational performance in the food and beverage industry.

From the review, it can be argued that supplier financial support has a significant positive effect on operational performance. More specifically, and guided by the social exchange theory, supplier financial support is important for enhancing operational performance. Thus, the hypotheses set for the study is justified.

H_1: There is a significant positive relationship between supplier financial support and operational performance of food and beverage firms in Ghana.

Supplier Training and Operational Performance

Wachiuri (2015) explored the role of supplier development on the organisational performance of Kenya's manufacturing industries in a case study of East Africa Breweries Limited. The purpose of the case study was to see how buyer-supplier interactions affected organisational performance for East African breweries in Kenya. According to the findings, the company should support training programs for their suppliers in order to improve their performance. Furthermore, in the supplier development program, improved communication should be implemented. Firms should review and provide feedback to their suppliers more frequently in terms of firm involvement. This allows suppliers to identify their strengths and shortcomings, as well as change their operations to fit the needs of the manufacturing companies.

Ejaz et al. (2022) examined supplier training and its impact on product quality and lead time in the food and beverage industry: A study of Pakistani firms. The study used a survey questionnaire to collect data from 149 food and beverage firms in Pakistan. The data were analyzed using partial least squares structural equation modeling. The results showed that supplier training has a positive impact on product quality and lead time in the food and beverage industry. This study contributes to the literature by providing evidence of the positive impact of supplier training on operational performance in the food and beverage industry in Pakistan. The findings can be used by managers and practitioners to develop effective supplier training programs that improve product quality and lead time performance.

Ashraf et al. (2021) conducted a study on the impact of supplier training on product quality and lead time performance: Evidence from the food and beverage industry. The study used a survey questionnaire to collect data from 206 food and beverage firms in Pakistan. The data were analyzed using structural equation modeling. The results showed that supplier training has a significant positive impact on product quality and lead time performance in the food and beverage industry. This study provides evidence of the positive impact of supplier training on operational performance in the food and beverage industry. The findings can be used by managers and practitioners to develop effective supplier training programs that improve product quality and lead time performance.

Kamau (2013) did a study on the relationship between buyer-supplier relationships and business performance among major manufacturing firms in

Nairobi, found that supplier training ties helped large manufacturing firms improve their performance. Although the study found that supplier relationships increased performance, it focused on relationships in general rather than supplier development strategies. Manufacturing organisations ensure that they perform effectively and assist their suppliers in performing well and achieving their goals by keeping excellent ties with them. More research into alternative supplier development practices is needed to see how they affect performance.

From the review, it can be argued that supplier training has a significant positive effect on operational performance. More specifically, and guided by the social exchange theory, supplier training is important for enhancing operational performance. Thus, the hypotheses set for the study is justified.

H_2: There is a significant positive relationship between supplier training and operational performance of food and beverage firms in Ghana.

Early Supplier Involvement and Operational Performance

Lukhoba and Muturi (2015) investigated the impact of supplier development on performance in Kisumu County food manufacturing enterprises. The study focuses on the specific goals of assessing four ways of supplier development in the food manufacturing industries: early supplier involvement, financial support and supplier training. Secondary and primary sources were used to gather information. In order to address the study questions, primary data was obtained through questionnaires, which were used to acquire quantitative data. The data was analyzed using descriptive statistics. Tables and pie charts were used to show the information. The results of the study revealed that early supplier

involvement, financial support and supplier training all had a positive significant effect on firm performance.

Deng et al. (2021) examined the effect of early supplier involvement on product quality and lead lime performance: Empirical evidence from the food and beverage industry. The study found a positive and significant relationship between ESI and product quality performance. This means that the more involved a supplier is in the early stages of product development, the higher the quality of the final product. Similarly, the study found a positive and significant relationship between ESI and lead time performance, indicating that involving suppliers early in the process can lead to shorter lead times. The study concludes that early supplier involvement has a positive effect on product quality and lead time performance in the food and beverage industry. Therefore, firms in this industry should prioritize ESI as a strategy to enhance their operational performance.

Chen et al. (2021) studied early supplier involvement and its effect on product quality and lead time performance: Evidence from the food and beverage industry. The study collected data from 225 food and beverage firms in China using a structured questionnaire. The collected data was analyzed using structural equation modeling (SEM). The results indicated that early supplier involvement has a positive effect on both product quality and lead time performance. The study concludes that early supplier involvement is a critical strategy for enhancing operational performance in the food and beverage industry. The study recommends that firms should consider involving suppliers early in the product development process to improve product quality and lead time performance.

From the review, it can be argued that early supplier involvement has a significant positive effect on operational performance. More specifically, and guided by the social exchange theory, early supplier involvement is important for enhancing operational performance. Thus, the hypotheses set for the study is justified.

H_3: There is a significant positive relationship between early supplier involvement in new product development and operational performance of food and beverage firms in Ghana.

Supplier Development, Operational Performance and Buyer-Supplier Commitment

Waraporn (2012) in the study of the effect of supplier development on firm performance, looked into the function of buyer-supplier commitment in improving firm performance in Thailand. According to the findings, the buying business would apply supplier development practices by focusing on buyer-supplier relationship commitment in order to increase performance. As a result, the authors recommended that managers place a high priority on creating unique relationships with suppliers. The purchasing firm expects to cultivate long-term relationships with important suppliers that include information sharing and perks such as joint problem resolution.

Njeru (2013), in a case study of Kenya Power looked into the factors that drive supplier development in Kenyan public enterprises. According to the findings, KPLC's management saw supplier development as a technique of increasing efficiency. According to the researcher, buyer-suppler commitment is

necessary for an effective supplier development program to improve performance. To reduce the time, it takes to build a supplier, Enterprise Resource Planning (ERP) tools should be used. However, the study's focus on buyer-supplier commitment as the sole strategy for supplier development was too restricted. It also concentrated on public entities, focusing on KPLC as a case study, leaving little room to generalize about the impact of supplier development on other organisations, notably in the private sector.

Akhtar et al. (2020) examined Supplier development practices and operational performance: the mediating role of commitment. The study found that supplier development positively influences operational performance of firms through the mediating role of commitment. The study concludes that supplier development is an effective practice for enhancing operational performance in the food and beverage industry. Additionally, the study recommends that firms should focus on building and maintaining buyer-supplier commitment to improve the effectiveness of supplier development programs.

From the review, it can be argued that buyer-supplier commitment has a significant positive effect on the relationship between supplier development and operational performance of the buying firm. More specifically, and guided by the commitment -trust theory, buyer-supplier commitment is important for enhancing the relationship between supplier development and operational performance. Thus, the following hypotheses set for the study is justified.

H_4: Buyer-Supplier commitment mediates the relationship between supplier development and operational performance of food and

beverage firms in Ghana.

Conceptual Framework

The study framework was drawn from the conceptual and theoretical review, principally, the social exchange theory and the Resource Dependence theory. The theories provided articulate and broad definition of the supplier development constructs (supplier financial support, supplier training and early supplier involvement in new product development), buyer-supplier commitment and buyer operational performance (product quality and product lead-time) represented in the study's conceptual framework. The framework has three Key constructs: Supplier Development (SD), Buyer-Supplier Commitment and Buyer's Operational Performance connected in a particular relationship.

The understanding from the literature is that supplier development will result in operational performance with buyer-supplier commitment playing a mediating role. From the literature, supplier development as a construct is operationalised to have three main constructs namely supplier financial support, supplier training and early supplier involvement (Lukhoba & Muturi, 2015). Operational performance was measured using two parameters namely: Product quality and product lead time (Azim et al. 2019; Olise & Ojiaku, 2018). Buyer-supplier commitment was employed as the mediator in this study.

Taking into consideration the social exchange theory human capital theory, resource dependence theory and commitment trust theory, this study considered the relationship between ssupplier development (supplier financial support, supplier training and early supplier involvement in new product

development) and operational performance in the firms studied through the mediatng role of buyer-supplier commitment. Further, the framework, based on the review is hypothesizing that supplier development can significantly improve operational performance. This performance can further be improved with buyer-supplier commitment playing a mediating role.

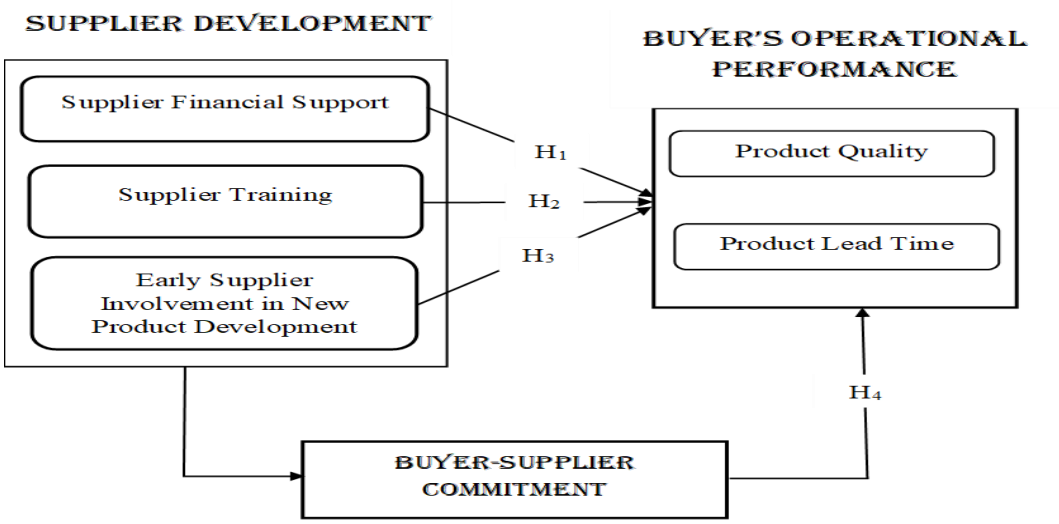

Figure 1: Conceptual Framework of supplier development, buyer-supplier commitment and operational performance

Source: Authors Own Construct, Acquah (2022)

Chapter Summary

This chapter of the study discussed the conceptual dimensions of the study. It discussed the concept of supplier development largely from the perspective of the social exchange theory. The notion of the social exchange theory is well-suited to the one-of-a-kind relationship built by the customer through supplier development for mutually beneficial commercial exchanges. In exchange for improved product quality and reduced lead time, the buyer

empowers the supplier through financial support, supplier training and early supplier involvement in new product development. Hence, it considered operational performance from product quality and product lead-time perspectives. The chapter ended with the study's conceptual framework, where all key constructs have been modelled into a diagrammatic presentation (Figure 1) to guide the study.

CHAPTER THREE

RESEARCH METHODS

Introduction

Methodology is a systematic way to solve a problem. It is a science of studying how research is to be carried out (Anabila, 2019). Essentially, the procedures by which researchers go about their work of describing, explaining and predicting phenomena are called research methodology (Rajasekar, Philominathan & Chinnathambi, 2013). This chapter presents the research methods that were employed in conducting the study. It covers the research design, population, sampling and sample size procedure. In addition, data collection, data collection methods, research instrument design, data collection procedures, data processing and analysis and ethical considerations employed in the research were also presented in the following sections.

Research Paradigm

This study adopted the positivism research paradigm, which enables the researcher to understand the topic in the context of descriptive and causal. The positivist philosophy was fashioned similar to the way the natural science give explanation to a phenomenon in the objective world, but here to predict the behaviour of social phenomenon, thereby, gaining the ability to shape and advance social life. According to Boateng (2014), the positivists use very precise measurements to empirically test outcomes in concrete settings that are predicted by the principle. The positivist philosophy, argues that there is reality that is objective, tangible and single (Boateng, 2014; Schlegel, 2015). Also, it is

associated to quantitative research approach where knowledge is derived through the cause-and-effect reasoning. Knowledge is also acquired by observations and measures of variables. Sometimes, the positivist view requires the testing of theories that are continually refined (Boateng, 2014).

The positivists use deductive inquiry to establish a more generalised principle to allow the researcher use logical reasoning to specify how that idea works in both concrete and practical circumstances. The positivist stance is that, the research is independent of what is being researched and knowledge is revealed and confirmed through direct measurements of reality. With quantitative approaches, the positivists are interested in using large samples, isolation of categories isolated before the study and their focus is on explanation and prediction. The positivist philosophy is however, critiqued. It simplifies the real world into experimental situation that is hard to apply in reality. It is also unrealistic to detach researchers from their social contexts. (Boateng, 2014; Schlegel, 2015).

The positivist paradigm is suitable for the current study because it allows for the use of statistical techniques to analyze quantitative data and test hypotheses, which can provide valuable insights into the relationships between variables (Bryman, 2018). Also, by adopting a positivist approach, the study can generate empirical evidence to support or refute the proposed hypotheses and contribute to the advancement of theory in the field. Further, it involves an examination of the relationships and how the relationships influence outcomes (Leedy & Ormrod, 2013).

The research examines the effect of supplier development on operational performance of Ghanaian food and beverage firms through the mediating role of buyer-supplier commitment. It involves examining relationships between constructs of supplier development (supplier financial support, supplier training and early supplier involvement in new product development) and operational performance of Ghanaian food and beverage firms. From the positivist perspective, quantitative research approach is deemed appropriate for the study to allow for objectivity, generalisation and replicability (Eyisi, 2016).

Research Approach

The quantitative research approach was used for this study because Saunders et al. (2012) argued that the positivism research paradigm uses the quantitative research approach. According to Creswell (2014), the quantitative research approach requires assessing the state of phenomena and the relationships among variables in order to test objective theories. Also, data are measured quantitatively since the testing of relationships among variables necessitates the use of statistical procedures (Creswell, 2014). Generally, quantitative researchers generate hypotheses (assumptions).

It also develops models based on the set of hypotheses, incorporate bias-prevention measures, account for alternative explanations and lastly generalize, present and discuss the findings (Creswell, 2014). The use of quantitative research approach is appropriate for the study because it allows the researcher to measure and quantify relationships between the variables under study, test hypotheses and predictions, collect large amounts of data efficiently using surveys or other

standardized data collection methods and generalize the findings to a larger population (Bryman, 2018).

Research Design

The procedural framework or blueprint by which a study or research is carried out is referred to as the research design (Anabila, 2019). Any research or study must have an appropriate and relevant procedural framework of data collection in order to draw meaningful conclusions. According to literature, the choice of a study design influences the future research activities in terms of what data should be collected and how it should be obtained (Anabila, 2019). Drawing from the positivism and quantitative research approach, the correlational research design is the most appropriate to guide this study (Zikmund & Babin, 2016).

The correlational research design is a type of non-interventional research design that entails the systematic study of the kind of association between variables rather than direct cause-and-effect relationships (Creswell, 2012). This design is usually cross-sectional and is used to study if changes in one or more variables are associated to the changes in another. This type of quantitative non-interventional approach places emphasis on getting an understanding of the relationship by subjecting the data to statistical tests such as correlation without controlling for any variable (Creswell, 2012; Saunders, Lewis & Thornhill, 2015). This study seeks to determine the relationships that exist between two or more variables (supplier development, buyer-supplier commitment and operational performance).

Stangor (2011) noted that, the correlational research design is intended to test research hypotheses in situations where it is not advantageous to experimentally manipulate the independent variable (operational performance) of interest. Also, it makes use of variables that are continuously scaled because such scales can be correlated with another continuously scaled variable. The correlational methods allow for analysis of relationships, multiple regression and path analyses to assess patterns of relationships among the variables (Stangor, 2011). The correlational research design is appropriate for the current study because it enables the researcher to achieve the research objectives by examining the relationship between supplier development and operational performance of food and beverage firms in Ghana (Owusu & Asiedu, 2020).

This design also allows for statistical techniques such as regression analysis to enable the researcher to determine the effect of the relationship between the variables without manipulating them (Amponsah et al., 2021). Moreover, the correlational research design is appropriate for this study which is aimed at examining the effect of supplier development constructs and buyer-supplier commitment on operational performance of Ghanaian food and beverage firms. The research required analysis of relationships between supplier financial support, supplier training and early supplier involvement in new product development as well as buyer-supplier commitment, and operational performance.

Study Area

The study area is Greater Accra, Ghana. The Greater Accra region was chosen for this study because it is the home to most large-scale food and beverage

activity, with 84% of the sector's top companies headquartered in the capital's industrial area (Asokoinsight, 2021).

Population

A research population is any complete group of entities like people, organisations, institutions, that share some common features in agreement with the purpose of a research under investigation and about which researchers want to draw conclusions (Leedy & Ormrod, 2013). The participants for this study are food and beverage firms located in Accra. There are currently 152 firms operating in the food and beverage industry in Accra according to Food and beverage Association of Ghana (FABAG, 2022). These food and beverage firms located in Accra were chosen for the study because it is the home to most large-scale food and beverage activity of the sector's top companies headquartered in the capital's industrial area (Asokoinsight, 2021). Moreover, these firms are likely to exhibit and elaborate supplier development philosophies and make use of such programs.

Sampling and Sample Size

According to Mugenda & Mugenda (2010), sampling is the act, process, or technique of selecting a suitable sample or a representative part of a population for the purpose of ascertaining the population's parameters or characteristics. The selection of a part of an aggregate or totality on the basis of which a judgment or conclusion about the aggregate or totality is made is also known as sampling. The study employed a census sampling technique. This technique seeks to ensure that all the target respondents in the population are involved in the study (Saunders, Lewis & Thornhill, 2012). Moreover, census sampling technique is suitable for

this study because it allows the researcher to collect data from the entire population, provides a comprehensive understanding of the population, eliminates bias, and is useful since the population for the study is small and accessible (Graziano & Raulin, 2019).

Therefore, the study employed a sample size of 152 respondents. For each of the 152 sampled firms, the head of the procurement unit was selected to complete the questionnaire, or any other individual in charge of procurement who may not necessarily hold the position of a procurement officer, irrespective of their management levels. The heads of procurement unit were determined to be the most appropriate respondents because they are most familiar with their organisation's supplier development practices and performance outcomes.

Data Collection Instrument

Structured questionnaire was used as the data collection instrument to gather field data for the study. Again, in order to acquire the data needed to answer the research questions, closed ended questions were used. Moreover, structured questionnaire was deemed appropriate since it enables for the collection of data from the sample in a timely and efficient manner. The use of a structured questionnaire allows descriptive and inferential statistical analysis to be performed (Cooper & Schindler, 2014). According to Cooper and Schindler (2014), the structured questionnaire is appropriate because it allows for descriptive and inferential analysis.

Also, the use of the structured questionnaire was deemed appropriate taking into account the research philosophical foundation, design and study's

research approach adopted. The questionnaire was developed based on constructs derived from the conceptual framework for the study. It has four sections (A to D) with 33 closed-ended items. Respondents were required to tick where appropriate to express their opinion.

The first section (Section A) of the questionnaire focused on the socio-demographic characteristics of the respondents. The questions were related to gender, age, level of education, how long the person has been with the organisation and the number of years the organisation has been operating.

Section B of the questionnaire addressed the supplier development practices (supplier financial support, supplier training and early supplier involvement in new product development) in the food and beverage firms in Ghana. These factors were derived from the Social Exchange Theory guiding the study. Supplier financial support had 6 items, supplier training had 6 items and early supplier involvement in new product development also had 5 items.

Section C sought for responses on the mediating role of buyer-supplier commitment. Buyer-supplier commitment had 5 questions bothering on the maximum commitment showed by both the buying firm and the supplier.

Moreover, Section D sought responses on operational performance consisted of six (6) questions on product quality and product lead-time.

The study employed a five-point Likert scale measurement ranging from 'Strongly disagree through to 'Strongly agree. The Likert scale used points such as: 1= Strongly disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly agree.

The scaling format adopted in this study sought to find out how supplier development is undertaken in the food and beverage firms and opinions of respondents on operational performance in terms of product quality and lead-time. This allowed the respondents to express the extent to which they agree to each statement on the research instrument. Similar scales have been used in literature (Simon & Goes, 2013) in the study of supplier development. The structured questionnaire can be referred to in Appendix A.

Measurement of Variables

The variables for the study were carefully selected from the literature. The chosen literature was helpful in designing the research instrument for the study. The various constructs, their definitions, scale items, and Cronbach alpha (reliability) are shown in the table below. The table indicates that all the questions employed in this study have been tested to be reliable and valid.

Table 1: Measurement of Variables

Variables	Measurement Items	Source
Supplier Development	Supplier Financial Support Supplier Training Early supplier involvement in new product development	(Lukhoba & Muturi, 2015; Ambrose, 2018; Chang et al. 2016; Huang & Wang, 2017; Yegon, Kosgei & Lagat, 2015; Yan et al., 2019; Zhu et al., 2018; Chen, Lin & Huang, 2016; Handfield et al., 2019; Wu & Zhang, 2019)
Buyer-Supplier Commitment	Buyer-Supplier Commitment	(Njeru 2013; Waraporn, 2012; Rahmoun & Debabi, 2012; Birasnav, Mittal & Loughlin, 2015; Serem & Bor, 2015; Cui et al., 2018; Li & Zheng, 2020; Wang et al., 2020)
Operational Performance	Product Quality Product Lead time	(Azim et al., 2019; Olise & Ojiaku, 2018; Amarjit et al., 2016)

Data Collection Procedures

Given the security and sensitivity nature of the food and beverage sector, printed consent forms were delivered to all the sampled firms by the investigator personally to participants upon request, of which participants were obliged to append their signatures or thumbprint as evidence of voluntary participation. These consent forms were distributed to respondents for a period of two weeks.

Before the commencement of data collection, the researcher requested for introductory letter from the Department of Marketing and Supply Chain. Also, the Institutional Review Board (UCCIRB) provided the researcher an ethical clearance letter to enable the researcher gain legal permission to solicit for information to answer the precise research questions. The structured questionnaire targeted at the heads of the procurement unit or persons in charge of procurement in the 152 food and beverage firms. The structured questionnaire was distributed personally by the researcher to responders upon request by the firms. The suitability and cost-effectiveness of these methods were factors in their selection.

Questionnaire administration was used to obtain primary data for a 30-day period. During this process, the drop-and-pick method of data gathering was used. Because the food and beverage firms are dispersed throughout the Greater Accra metropolitan area, this was thought to be the most appropriate method for the study. Following the distribution of the questionnaire, all participants were contacted through phone and email at least once to remind them of the importance of completing the questionnaire on time, despite their busy schedules.

Data Processing and Analysis

As quantitative research, the researcher employed Microsoft Excel for data entry and partial least squares structural equation model (PLS-SEM) version 3.3 for the analysis of the data. All the 152 valid questionnaires data were keyed into Microsoft Excel software which was later extracted into the PLS-SEM version 3.3 for structural equation modelling and general analysis of the data.

Descriptive and inferential statistics were used to analyse the quantitative data. The descriptive statistics including frequencies and percentages were used to analyse the background characteristics. This was made up of demographic (e.g. gender, age,) and work-related characteristics (e.g., work experience, number of years the company has been in existence). With the help of Smart PLS 3 software, the Structural Equation Model was developed to analyse data obtained on objectives one through to four. This employed the use of inferential statistics including discriminant and convergent validity, correlation and regression to ascertain the relationship between supplier development, buyer-supplier commitment and operational performance.

There are two popular methods for estimating SEM with latent variables (Bagozzi & Yi, 2012). The first approach is factor-based covariance fitting exemplified by software such as LISREL, EQS, and AMOS (Bagozzi & Yi, 2012; Hair et al., 2010). The second is the component-based PLS approach (Hair et al., 2010). PLS is widely used by a growing number of researchers, and is selected for this study for several reasons. First of all, the component-based approach applied in PLS precludes two serious problems: inadmissible solutions and factor indeterminacy (Fornell & Bookstein, 1982). The PLS estimates the latent variables as exact linear combinations of the observed measures. It thus avoids indeterminacy problems and provides an exact definition of component scores (Chin, 2010).

Secondly, the PLS approach allows the examination of indirect relationships among factors (Ringle, Wende & Becker, 2015). The indirect

analysis is better achieved by the use of the PLS technique than by multiple regression analysis or other techniques (Hamid, Sami & Sidek, 2017). Furthermore, PLS allows simultaneous testing of an entire model instead of a simple examination of the relationship between two variables (Hair et al., 2010), which provides the researcher with a comprehensive means of assessing and modifying a given theory. The PLS technique does not require a normality assumption for estimating model parameters, observation independences, or variable metrics, because a series of ordinary least squares analyses of the iterative algorithm is applied in this approach (Jannoo, Auchoybur, & Lazim, 2014).

The PLS algorithm, encompassing canonical correlation, redundancy analysis, multiple regression, multivariate analysis of variance, and principal components, eliminates the multi-collinearity problem: the correlations between observed variables which impact the degree to which any variable's effect can be predicted or explained by the other variables in the analysis (Wold, 1985). In addition, it has minimal requirements for sample size (Hair et al., 2010). The issue of sample size for adequate estimation has been the focus of an extensive debate in the structural equation literature. There are a number of recommendations for developing an efficient method of determining sample size in the application of SEM. Hair et al. (2010) suggest that the minimum sample size for the number of parameters to be estimated in a model is a ratio of at least 10:1.

Hair, Sarstedt, Ringle, and Mena (2011) indicate that a sample size of less than 100 was commonly found in previous studies using SEM. Kline (1998) suggests a minimum ratio of sample size to number of parameters of 5:1 for the complexity of the path model. While there is as yet no absolute standard sample size for SEM, Hair et al. (2011) proposes as a rule of thumb that a minimum sample size for PLS should be ten times the largest number of structural paths directed at a particular construct in the structural model. In this study, the dependent variable, with the largest number of independent variables impacting it is performance.

Performance is influenced by ten independent variables: beliefs, expectations, values, social roles, skills, practice, self-efficacy, culture, political and personal experiences. Therefore, the minimum sample size required for this study is 100 (10 * 10). Finally, PLS could be used not only for theory confirmation but also for application and prediction. It identifies where relationships might or might not exist and suggests propositions for later testing (Chin, 2010). Given the advantages of PLS over LISREL, AMOS, multiple regression, path analysis and other techniques, it was chosen for testing the hypotheses in this research.

Validity and Reliability

Validity and reliability are critical components that must be evaluated before testing a research instrument. Reliability and validity assessments are essential diagnostics for research primarily relying on questionnaires. Reliability investigates the consistency of items on the questionnaires. According to Bless

and Higson-Smith (2013), instrument reliability relates to the instrument's consistency. When an instrument can constantly produce precise and consistent measurements of a constant value, it is said to have high reliability. According to Hair et al. (2018), a reliability degree of 0.7 or above on the internal reliability scale is considered high quality. The scale items and the construct's reliability are presented in Table1.

The focus of measurement validity, according to McDaniel and Gates (1996), is to check and confirm that a concept's measured truly reflects the concept that it is indicating. The level of validity is done by scrutiny by experts and scale pre-testing and must have an instrument measured by composite and rho A (Saunder and Lewis, 2012.) To ensure the validity of the construct, the composite and rho A must be greater than 0.7 (Hair et al., 2018). For a scale to be valid, it must have a least cut-off point of 0.7 (Taber, 2018). Also, the assigned supervisor's expert judgement and experts in the field of supplier development helped in ensuring the content validity of the instrument employed.

Ethical Consideration

For this study to be successful, it is essential that ethical considerations be taken into account. As part of the research ethical framework, the following measures were implemented: Before the commencement of data collection, the researcher requested for introductory letter from the Department of Marketing Supply Chain. Also, the Institutional Review Board (UCCIRB) provided the researcher with an ethical clearance letter to enable the researcher gain legal permission to solicit for information to answer the precise research questions.

Furthermore, the study was conducted with the consent of the participants. All of these steps were taken in an effort to make sure that all respondents understand what is being requested of them. For this reason, respondents were made aware of the study's overall nature and goal. Aside from that, respondents were guaranteed that their identities would not be divulged in any way during the research process. Prior to all these, the researcher was certain that the final outcomes of this study are free of plagiarism, academic fraud, and misunderstanding of results.

Chapter Summary

This chapter provided the basis for considering the research from a positivist philosophical point of view and discussed the corresponding research methods that support the view. The study adopted the quantitative research approach with correlational research design as appropriate for the research. The study justified the use of the census sampling technique and this sampling technique was used to sample 152 food and beverage firms, regions and respondents respectively. Questionnaire was used to collect data from these 152 food and beverage firms. The chapter discussed the choice of structural equation model as the most appropriate analytical and statistical tools for the study. The results and discussion of the study for objectives 1, 2, 3, and 4 are presented in the next chapter.

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

This chapter presents in detail the result from the analysis of the data. The chapter presents findings and discussion on supplier development and operational performance of food and beverage firms in Ghana. Supplier development was measured and analysed using supplier financial support, supplier training and early supplier involvement as an integrative construct (see Appendix). The study's research objectives were analysed using the Partial Least Square (PLS), a structural equation modelling technique. However, for ease of presentation and better understanding, the research has been presented separately in line with the four objectives of the study. Objective 1 determines the effect of supplier financial support on operational performance. Objective 2 analyses the effect of supplier training on operational performance. While objective 3 examines the effect of early supplier involvement in new product development on operational performance. Finally, objective 4 investigates the mediating role of buyer-supplier commitment on the relationship between supplier development and operational performance. Objectives 1, 2 and 3 were analysed using Lower Order Constructs whiles objectives 4 was analysed using higher order construct. The results of the measurement model and structural model are presented and discussed.

Background Information on Respondents

This section provides background information on a cross section of procurement officers or managers in the food and beverage firms who participated in the research. It presents the result of the demographics including work-related characteristics of the respondents. The demographic characteristics in this research included sex, age and educational level of respondents. In this research, the work-related characteristics considered were the number of years respondents have worked with the organisation and the number of years the organisation has been operating.

Table 2: Demographic Characteristics of Respondents

Background Information	Frequency	Percentage
Sex		
Male	119	78.3
Female	33	21.7
Total	**152**	**100.0**
Age Range (Years)		
26– 34	33	21.7
35 – 44	89	58.6
45 and above	30	19.7
Total	**152**	**100.0**
Educational level		
PhD	21	13.8
Master's Degree	98	64.5
First Degree	26	17.1
Diploma	7	4.6
Total	**152**	**100.0**

Source: Field Survey, (2022)

From the results on the demographic characteristics of the respondents, it was found that, majority of the respondents in the food and beverage firms studied were males. Out of a total of one hundred and fifty-two (152) respondents, 119 representing 78.3% were males while 33(21.7%) were females (Table 2). With regard to the ages, about 33 (21.7%) of the respondents were in the age range of 26- 34 years. Also, 89 (58.6%) of the respondents were between the ages of 35 - 44 years. Finally, 30 of the respondents (19.7%) were 45 years and above. This means that, majority of the respondents are between 35 years and 44 years and as such fall within the active working periods.

Also, with regard to educational level, the majority (95.4%) of the procurement officers in the food and beverage firms who participated in the study graduated with university degrees (Table 2). This was made up of 21 (13.8%) PhD holders, 98 (64.5%) masters holders and 26 (17.1%) holding first degree certificates in their respective fields of specialisations. About 7 respondents representing 4.6% were holders of Higher National Diploma Certificates.

Work-Related Characteristics of Respondents

Results of the work-related characteristics of the respondents of the study presented information on the number of years worked with the organisation and the number of years the organisation has been in existence or operation. The result is presented in the table below.

Table 3: Work-Related Characteristics of Respondents

Background Information	frequency	Percentage
Number of Years Worked		
Up to 5 years	6	4.0
Up to 10 years	28	18.4
Up to 15 years	63	41.4
Above 15 years	55	36.2
Total	**152**	**100.0**
Years of Firm Existence		
Up to 10 years	14	9.2
Up to 15 years	17	11.2
Above 15 years	121	79.6
Total	**152**	**100.0**

Source: Field Survey, (2022)

From Table 3 above, the results show that, 6(4%) of the procurement officers in the food and beverage firms studied have worked up to 5 years. Also, 28(18.4%) of the respondents have worked up to 10 years. Moreover, 63(41.4%) representing majority of the respondents have worked up to 15 years, and thus have a lot of experience on the job in their respective firms. Lastly, 55 of the respondents representing (36.2%) have worked above 15 years in their respective firms.

Furthermore, with regard to the number of years the organisation has been in existence or operation, the results from Table 3 shows that, 14(9.2%) of the food and beverage firms studied have been in existence or operation for up to 10

years. Also, 17(11.2%) of these firms studied have been in existence or operation for up to 15 years. Finally, 121 of the respondents representing 79.6% of the total food and beverage firms studied have been in existence or operation above 15 years.

Description of Supplier Development Practices

This section describes the various practices adopted by the firms studied when developing their suppliers. These practices specifically included Supplier Financial Support (SFS), Supplier Training (ST) and Early Supplier Involvement (ESI). The study described the variables by assessing the quality of the indicators measuring each of the practices (constructs) understudy. This was done to identify whether the indicators are relevant for describing their specific supplier development practices within the context of the firms' studied. The section, therefore, reported the mean score, standard deviation, skewness and kurtosis statistics of each construct's indicators.

Table 4: Description of Supplier Development Practices

Indicator	Mean	Standard Deviation	Kurtosis	Skewness
SFS1	4.296	0.785	2.012	-1.238
SFS2	4.217	0.743	2.5	-1.154
SFS3	4.237	0.75	3.332	-1.272
SFS4	4.197	0.803	2.975	-1.375
SFS5	4.151	0.75	2.348	-1.108
SFS6	4.204	0.746	3.614	-1.312
Overall Average	**4.217**	**0.763**	**2.797**	**-1.243**

Score				
ST2	4.211	0.922	2.727	-1.551
ST3	4.316	0.738	3.719	-1.375
ST4	4.263	0.817	2.21	-1.253
ST5	4.461	0.85	5.261	-2.084
ST6	4.467	0.81	5.239	-2.027
Overall Average				
Score	**4.344**	**0.827**	**3.831**	**-1.658**
ESI1	4.342	0.844	2.677	-1.517
ESI2	4.171	0.972	1.255	-1.263
ESI3	4.27	0.888	1.633	-1.299
ESI4	4.211	0.936	2.944	-1.599
Overall Average Score	**4.249**	**0.91**	**2.127**	**-1.420**

Source: Field Survey (2022)

With regard to supplier financial support from the results of Table 4 above, the overall average mean score of 4.217 with a standard deviation score of 0.763 reveal that all the indicators truly measure supplier financial support within the firm's studied. This means that all the firms use the indicators (SFS1 to SFS6) as good criteria for describing supplier financial support. Also, the kurtosis and skewness statistics overall average score of supplier financial support are 2.797 and -1.243 respectively.

Moreover, concerning supplier training, the overall average mean score of 4.344 with a standard deviation score of 0.827 reveal that all the indicators truly measure supplier training within the firm's studied. This means that all the firms use the indicators (ST2 to ST6) as good criteria for describing supplier training. Also, the kurtosis and skewness statistics overall average score of supplier training are 3.831 and -1.658 respectively.

Furthermore, with regard to early supplier involvement from the results of Table 4, the overall average mean score of 4.249 with a standard deviation score of 0.91 reveal that all the indicators truly measure early supplier involvement within the firm's studied. This means that all the firms use the indicators (ESI1 to ESI4) as good criteria for describing early supplier involvement. Also, the kurtosis and skewness statistics overall average score of early supplier involvement are 2.127 and -1.420 respectively.

PLS SEM ASSESSMENT

The study's research objectives were analysed using the Partial Least Square (PLS), a structural equation modelling technique. The lower order constructs focused on determining the relationship between supplier financial support, supplier training, early supplier involvement and operational performance using the Partial Least Square Structural Equation Model (PLS-SEM). Several statistical tests have to be done as already explained in the chapter three. The tests involve (1) reliability of the constructs to determine how consistent they measured what they are expected to measure; (2) discriminant and convergent validity of the constructs to test how distinct nature of the constructs

from each other and the level of correlation of multiple indicators respectively; (3) factor or outer loadings to determine which indicators adequately measure the constructs; (4) path co-efficient to verify the relationship between the constructs; (5) effect size to examine the extent of change in the relationship among the constructs; and (6) co-efficient of determination to test or explain the change or variance of the latent variable relative to its total variance (Hair et al., 2018; Henseler et al, 2016; Ringle et al., 2011). These tests are grouped under the two main models of the PLS-SEM, the measurement and structural models.

Model Specification for Lower Order Constructs (LOC)

This section specified the model's structure for lower order constructs by indicating the study's exogenous and endogenous variables and their associated indicators. The study's model was structured with three exogenous variables, one endogenous variable and one mediating variable. The structural model is presented in figure 2 below:

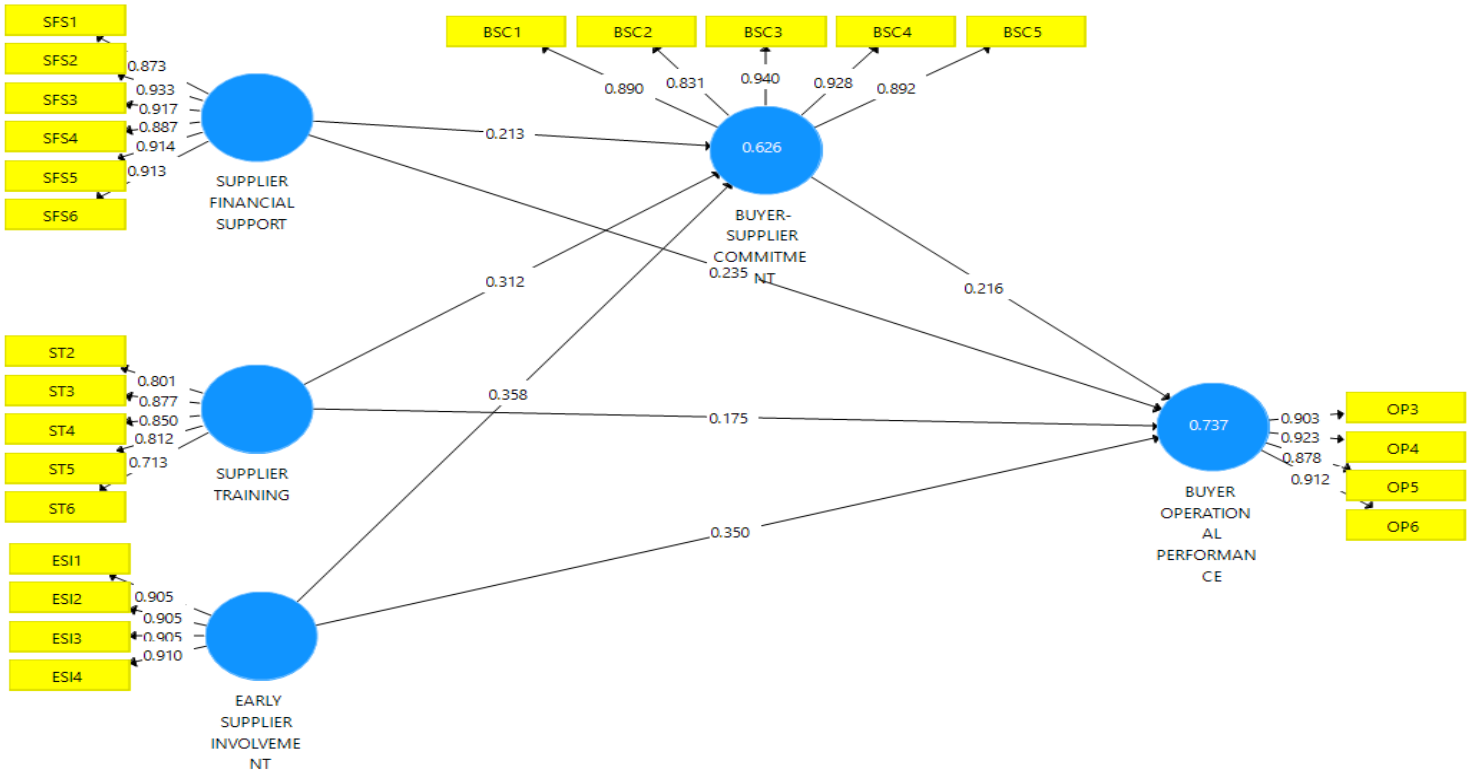

Figure 2: Outer and inner model results of Lower order constructs

Source: Authors own construct (2022)

From the structural model (figure 2) above, the exogenous variable consisting of supplier financial support had six indicators namely (SFS1, SFS2, SFS3, SFS4, SFS4, SFS5 and SFS6), Supplier training had five indicators represented by (ST2, ST3, ST4, ST5, and ST6) and early supplier involvement had four indicators consisting of (ES1, ES2, ES3 and ES4). Again, the mediating variable was represented by buyer-supplier commitment which had five indicators namely (BSC1, BSC2, BSC3, BSC4 and BSC5). Finally, the endogenous variable was represented by operational performance which had four indicators consisting of (OP3, OP4, OP5 and OP6)

Moreover, the latent variables were used to draw the path hypothesis in the model. These path hypotheses predict positive relationship between the exogenous variables and the endogenous variable. Specifically, the path hypothesis anticipated the following relationship: SFS and OP; ST and OP; ESI and OP. Also, buyer-supplier commitment was measured as a mediator in all relationships.

Measurement Model Assessment of Lower Order Constructs (LOC)

The measurement model (reflective) takes into consideration the outer loadings, reliability and validity tests. The results of the model qualities comprising internal consistency reliability (indicator reliability (IR), construct reliability), convergent reliability (Average Variance Extracted) and multicollinearity (Inner VIF values) were presented.

Outer Loadings

The model's structure was further assessed by evaluating the item loadings (indicators) of each construct. This was done to assess the quality of the indicators (item loadings) measuring each construct within the context of the study. The rule of thumb is that, an item or indicator with a loading of ≥ 0.70 is a quality measure of its construct (Hair et al., 2018). On the other hand, an item or indicator with loading < 0.70 is not a quality measure of its construct and thus removed from the model. The outer loadings for each construct are presented in the table 5 below.

Table 5: Outer Loadings of Constructs

ITEMS	Supplier Financial Support	Supplier Training	Early Supplier Involvement	Buyer -Supplier Commitment	Operational Performance
SFS1	0.873				
SFS2	0.933				
SFS3	0.917				
SFS4	0.887				
SFS5	0.914				
SFS6	0.913				
ST2		0.801			
ST3		0.877			
ST4		0.850			
ST5		0.812			
ST6		0.713			
ESI1			0.905		

ESI2	0.905		
ESI3	0.905		
ESI4	0.910		
BSC1		0.890	
BSC2		0.831	
BSC3		0.940	
BSC4		0.928	
BSC5		0.892	
OP3			0.903
OP4			0.923
OP5			0.878
OP6			0.912

Source: Field Survey (2022)

From the table above (Table 5), supplier financial support had six indicators and all the six (6) indicators were significant in measuring the constructs. The values recorded for the indicators were within the acceptable range of 0.873- 0.933 having values above 0.7 (Chen & Tsai, 2007; Henseler et al., 2016). However, all the indicators were significant and no indicator was removed from the model.

Also, concerning supplier training, 5 out of 6 indicators were significant in measuring the construct. The values recorded for the 5 indicators were in the range of 0.713 to 0.877, which is above the minimum cut-off point of 0.7 (Chen & Tsai, 2007; Henseler et al., 2016). The indicator that was not significant and

had to be eliminated was ST1.

With regard to early supplier involvement, 4 out of 5 indicators were significant in measuring the construct. The values recorded for the 4 indicators were in the range of 0.905 to 0.910, which is above the minimum cut-off point of 0.7 (Chen & Tsai, 2007; Henseler et al., 2016). The indicator that was not significant and had to be eliminated was ES5.

Also, buyer-supplier commitment had five indicators and all the five (5) indicators were significant in measuring the constructs. The values recorded for the indicators were within the acceptable range of 0.831- 0.940 having values above 0.7 (Chen & Tsai, 2007; Henseler et al., 2016). However, all the indicators were significant and no indicator was removed from the model.

For operational performance, 4 out of 6 items were able to significantly measure the constructs and the values ranged between 0.878 and 0.923. The 4 items met the cut-off point of above 0.7 and therefore strongly and significantly explained operational performance of the organisation (Chen & Tsai, 2007; Henseler et al., 2016). Finally, the study's research hypotheses were tested based on the final model in Figure 2.

Table 6: Construct Reliability and Validity of Lower Order Constructs (LOC)

Constructs	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)	Inner VIF Values
Supplier Financial Support	0.957	0.958	0.965	0.822	1.845
Supplier Training	0.870	0.879	0.906	0.660	2.833
Early Supplier Involvement	0.928	0.928	0.948	0.822	2.704
Buyer -Supplier Commitment	0.939	0.939	0.954	0.804	2.675
Operational Performance	0.926	0.927	0.947	0.818	

IR (CA and rho_A)- Indicator reliability; CR-Construct reliability; AVE-Convergent Validity

Internal Reliability

The indicator and construct reliability of the study is presented in table 6 above. Indicator reliability (IR) shows the portion of variance of an indicator that can be described by its underlying latent variable (Hair et al., 2018). The rule of thumb for internal consistency is that the threshold value of any given indicator should be > 0.7 (Hamid, Sami & Sidek, 2017; Hair, Hult, Ringle & Sarstedt, 2018; Ringle, Wende & Becker 2015). Also, indicator reliability is effective tool for assessing uni-dimensionality of a set of scale items. This was achieved using the Cronbach's Alpha and rho_A results.

From Table 6, the indicator reliability result of each latent variable based on the Cronbach alpha showed the following: For supplier financial support, the

Cronbach alpha was 0.957, supplier training was 0.870, early supplier involvement was 0.928, buyer-supplier commitment was 0.939 and finally operational performance had a Cronbach alpha value of 0.926. These values exceeded the minimum cut-off point of 0.7 which is considered as reliable based on literature (Hamid, Sami & Sidek, 2017; Hair, Hult, Ringle & Sarstedt, 2018; Ringle, Wende & Becker 2015).

Also, other studies have suggested the use of rho_A for assessing indicator reliability (Chin, 2010; Hair et al., 2018; Henseler, Hubona & Ray, 2016). This is because, rho_A is a much more accurate measure for the indicator reliability. The rho_A value should be > 0.7 according to (Chin, 2010). From the table, the results for rho_A also show that all the constructs were reliable. For supplier financial support, the rho_A was 0.958, supplier training was 0.879, early supplier involvement was 0.928, buyer-supplier commitment was 0.939 and finally the rho_A value for operational performance was 0.927. The values exceeded the minimum cut-off point of 0.70, required to consider the constructs reliable (Chin, 2010).

Moreover, Table 6 presented the result of the construct reliability of the study. According to Ringle et al., (2012), construct reliability (CR) assesses the extent to which a specific construct is adequately measured by its indicators put together. This means that, construct reliability requires all the indicators assigned to a given construct to have a strong mutual correlation. The composite reliability was used to obtain the result of the construct reliability as it is appropriate for assessing how well assigned indicators measure a construct (Bagozzi & Yi, 1998).

The rule of thumb is that composite reliability value should be 0.7 or higher (Bagozzi & Yi, 1998; Ringle et al., 2012).

From table 6, the results for composite reliability also show that all the constructs were reliable. For supplier financial support, the composite reliability was 0.965, supplier training was 0.906, early supplier involvement was 0.948, buyer-supplier commitment was 0.954 and finally the composite reliability value for operational performance was 0.947. The values exceeded the minimum cut-off point of 0.70, required to consider the constructs reliable (Bagozzi & Yi, 1998; Ringle et al., 2012). This means that all the assigned indicators had strong mutual relationships with their respective constructs.

Convergent Validity

Table 6 further presented the result of the convergent validity (CV) of the study. The convergent validity (CV) is commonly measured by the Average Variance Extracted (AVE) in PLS-SEM models (Hair et al., 2011, 2012). According to Hair et al. (2018), AVE explains how an indicator's variance is captured by the construct relative to the total amount of variance and the variances as a result of measurement error. The study tested Convergent validity by examining the AVEs of all the variables in the SEM model. In literature, AVE values of 0.5 or better are considered valid (Hair et al., 2018; Hamid, Sami & Sidek, 2017). From Table 6, the results of the Average Variance Extracted (AVE) values also show that all the constructs were valid.

For the supplier financial support, the AVE was 0.822, supplier training was 0.660, early supplier involvement was 0.822, buyer-supplier commitment

was 0.804 and finally the AVE value for operational performance was 0.818. The values exceeded the minimum cut-off point of 0.50, required to consider the constructs valid (Hair et al., 2018; Hamid, Sami & Sidek, 2017). As such, there are grounds to affirm that the constructs share more variance with their indicators than with other constructs of the model. In other words, the constructs actually converge to describe the change in their respective indicators.

Multicollinearity among the constructs

From Table 6, multicollinearity among variables were checked using the variable inflation factor (VIF) values. According to Hair et al. (2014), multicollinearity is assessed to ensure that the path coefficients are free from bias while minimising the significant levels of collinearity among the predictor constructs. Pallant and Manuel (2007) stressed that VIF values > 10 indicated multicollinearity among the independent variables. Hair et al. (2014) suggested that the VIF values of each construct should be less than the cut of point of 5.0. From the table, the results of the inner VIF values for the variables were as follows. For the supplier financial support, the VIF value was 1.845, supplier training was 2.833, early supplier involvement was 2.704 and finally the VIF value for buyer-supplier commitment was 2.675. The values are less than the minimum cut-off point of 5.0, required to show the absence of multicollinearity between the exogenous variables (Hair et al., 2014).

Discriminant Validity

The study further assessed the quality of the model by testing for discriminant validity as suggested by Hair et al., (2018). The discriminant validity was tested using Fornell Larcker (1981) criterion and more recently the Heterotrait-Monotrait (HTMT) ratio. Fornell Larcker (1981), for instance, explained that discriminant validity ensures that the study's latent variables are independent from one another. Discriminant validity can be used to assess the structural model for collinearity issues (Hair et al., 2018). According to Hair, Sarstedt, Ringle and Gudergan (2018), discriminantly valid constructs do not typically have significant levels of collinearity.

The rule of thumb for discriminant validity using Fornell Larcker' s (1981) criterion is that the factorial loadings in their respective constructs should be larger than all the other correlation values among the latent variables (Fornell & Larcker, 1981; Chin, 2010). The result was presented in Table 7 below.

Table 7: Fornell Larcker Criterion for Checking Discriminant Validity

Constructs	Buyer- Supplier Commitment	Early Supplier Involvement	Financial Support	Operational Performance	Supplier Training
Buyer -Supplier Commitment	**0.897**				
Early Supplier Involvement	0.734	**0.906**			
Supplier Financial Support	0.640	0.626	**0.907**		
Operational Performance	0.750	0.791	0.705	**0.904**	

Supplier Training	0.728	0.777	0.648	0.756	**0.812**

Note: Diagonal elements in bold= square root of AVE; Off- diagonal elements = correlation between constructs

Source: Fornell Larcker (1981)

The discriminant validity result in Table 7 shows that all the factorial loadings in their respective constructs are higher than all the other correlation values among the latent variables. The implication is that each latent variable is truly different from the other. This means that there is uniqueness in the measurements of the constructs. Therefore, the rule of thumb proposed by Fornell Larcker (1981) was met. Also, discriminant validity was tested using the Heterotrait-Monotrait (HTMT) ratio. This is a relatively new measure for evaluating discriminant validity in variance-based structural equation modelling (Rigdon 2014; Sarstedt, Ringle, Smith, Reams & Hair, 2014).

Sarstedt et al. (2014) suggested that HTMT ratio has become a generally acceptable criterion for assessing relationships among latent variables. They recommended the use of HTMT ratio for assessing discriminant validity instead the previously used Fornell Larcker criterion and cross loadings. This is because, the HTMT shows superior performance by having the ability to detect a lack of discriminant validity in common research scenario as compared to the Fornell Larcker criterion and cross loadings. Table 8, presented the result of the HTMT ratio.

Table 8: Heterotrait-Monotrait (HTMT) Ratio

Constructs	Buyer Supplier Commitment	Early Supplier Involvement	Financial Support	Operational Performance	Supplier Training
Buyer Supplier Commitment					
Early Supplier Involvement	0.784				
Supplier Financial Support	0.672	0.665			
Operational Performance	0.803	0.853	0.748		
Supplier Training	0.800	0.867	0.714	0.842	

Source: Field survey (2022)

Using the Heterotrait-Monotrait (HTMT) ratio as a measure of discriminant validity, the results from Table 8 above show that all the values for each of the constructs were below 0.9 making all the constructs valid. In a reflective model, HTMT ratio below 0.9 is considered valid (Henseler et al., 2016; Ringle et al., 2015). This indicates that each construct is truly distinct from the other.

It is worth noting that all the tests, the outer loadings, the Cronbach alpha, composite reliability, AVE and HTMT meet the acceptable levels of measurement. The results confirmed that there is good internal consistency, and convergent and discriminant validity of the measurement model. The original measurement model was trimmed to exclude items that were not significant in the

measurement of the construct (Figure 2). Having achieved reliable and valid constructs, the research provided grounds to undertake the other tests for the structural model.

Structural Model of Lower Order Constructs (LOC)

Under the structural model, results of the path co-efficient, effect size and co-efficient of determination were presented. For the supplier financial support, six (6) indicators (SFS1-SFS6) were used. Supplier training as construct, has five (5) question items (ST2-ST6); Early supplier involvement has four (4) items (ESI1 to ESI4) and buyer-supplier commitment has five (5) items (BSC1 to BSC5; See Appendix A). Operational performance was measured using four (4) indicators (OP3-OP6). All the items (indicators) were loaded into the structural model and tested at a p-value of 0.05 (Hair et al., 2018).

Significance of Path Co-efficient

After assessing the measurement model to ensure it meet the PLS-SEM criterion, the study continued with testing the four (4) research hypothesis. The hypothesis specifically focused on examining the effects of supplier financial support (SFS), supplier training (ST), early supplier involvement (ESI) on operational performance of food and beverage firms in Ghana. The fourth hypothesis which looks at the mediating role of buyer-supplier commitment on the relationship between supplier development and operational performance will be tested using higher or second order construct. The hypotheses were tested by assessing the direction and strength using the path coefficient (Beta) and level of significance with t-statistics obtained through bootstrapping as suggested by Hair

et al., (2018). Results of the hypothesis tested using PLS-SEM were presented in Table 9.

Table 9: Results of Structural Equation Model and Hypothesis Testing of LOC

Structural Path	Beta	T Statistics	P Values	Decision Rule
Supplier Financial Support -> Operational Performance	0.235	3.034	0.003*	H1 (Supported)
Supplier Training -> Operational Performance	0.175	2.132	0.034*	H2 (Supported)
Early Supplier Involvement -> Operational Performance	0.350	3.474	0.001*	H3 (Supported)
Buyer Supplier Commitment -> Operational Performance	0.216	2.219	0.027*	

***= P< 0.05**

Source: Field Survey (2022)

The study's research hypotheses were tested based on the values of the t-stats as prescribed by Hair et al., (2018). They suggested that t-stat values above 1.96 corresponds to the p-values<0.05 and vice versa. Thus, the decision rule is that, the null hypothesis (H_0) is rejected (supported) when the t-stats is > 1.96 while one fails to reject (does not support) the H_0 when the t-stat is <1.96.

The result of buyer-supplier commitment, as a mediating variable was reported in this study. Buyer-supplier commitment was found to have a significant positive effect on operational performance of food and beverage firms understudy. This is because, the result of the t-stat of buyer-supplier commitment was 2.219> 1.96 and the p value was 0.027which is less than 0.05 (Beta= 0.216;

p=0.027<0.05). Further ana lysis was done because it was not part of the study's research hypothesis.

Effect of Supplier Financial Support on Operational Performance of Food and Beverage Firms in Ghana

Research objective one focused on the effect of supplier financial support on operational performance. From table 9, the result revealed that supplier financial support (SFS) has a significant positive effect on operational performance (Beta= 0.235; t=3.034; p=0.003<0.05). This is because, the t-stat of the model was 3.034 which is greater than 1.96 and the p value was 0.003 which is less than 0.05. As such, the direction of the result was in line with the hypothesis thus the null hypothesis was rejected. Hence the hypothesis that "There is a significant positive relationship between supplier financial support and operational performance of food and beverage firms in Ghana" was supported. From the Beta, the study found a positive relationship between the exogenous and endogenous variables. This means that a unit increase in supplier financial support by 23.5% will lead to a unit increase in operational performance by the same margin (23.5%). This means that supplier financial support plays a role in ensuring effective supplier development; invariably leading to an increase in the operational performance of food and beverage firms in Ghana.

Also, the study's result has been supported by the social exchange theory. The theory is well-suited to the one-of-a-kind relationship built by the customer through supplier development for mutually beneficial commercial exchanges. In exchange for improved product quality and reduced lead time, the buyer

empowers the supplier through financial support. As this is an exchange relationship in which both parties expect some benefit from the relationship, the idea can be used to explain features of financial support.

Furthermore, the study's findings supported earlier research by Wachiuri et al. (2015), who investigated the role of supplier development on organisational performance in Kenya's manufacturing industry using the case of east Africa Breweries Limited. The study discovered that financial support had a significant and positive effect on EABL performance. According to the study, EABL should work closely with financial institutions to address supplier's financial challenges and adequately fund the training programs they offer to their suppliers. Furthermore, Yegon et al. (2015) conducted research on the effect of supplier development on buyer performance through a survey of sugar milling companies in Kenya's western region. According to the study, supplier financial support had positive effect on the performance of buyers. As a result, they advised that in order for businesses to have a competitive edge over their competitors, they should constantly work to integrate the operations of the buying organisation with the resources, activities, and performances of their critical suppliers through supplier development, which entails giving them financial support, in order to achieve superior overall performance in terms of improved product quality and shorter lead time.

Effect of Supplier Training on Operational Performance of Food and Beverage Firms in Ghana

Research objective two focused on the effect of supplier training on operational performance. From Table 9, the result revealed that supplier training (ST) has a significant positive effect on operational performance (Beta= 0.175; t=2.132; p=0.034<0.05). This is because the t-stats of 2.132 was >1.96 and the p value was 0.034 which is less than 0.05. As such, the direction of the result was in line with the alternate hypothesis thus the null hypothesis was rejected. Hence, the hypothesis that "There is a significant positive relationship between supplier training and operational performance of food and beverage firms in Ghana" was supported.

From the Beta, the study found a positive relationship between the exogenous and endogenous variables. The result of the study was an indication that an increase in supplier training by 17.5% will lead to a unit increase in operational performance of the firms studied by the same margin (17.5%). This means that the operational performance of food and beverage firms in Ghana improves or increases when they implement supplier training as a construct of supplier development. This might therefore result in an increase in product quality and a reduction in lead time.

Also, the study's finding was supported by the human capital theory. This is one theory that has a lot of potential for demonstrating how supplier training as a construct of supplier development affect performances. As a result, this theory provides a broadly acceptable framework for evaluating a variety of economic,

business, and social concerns ranging from educational returns to training (Law, 2016). Based on the economics of education, this theory fits into the assumption of gains from supplier development obtained from supplier training. Knowledge, skills, competencies, and capabilities are acquired, developed, and retained as a result of training from a human capital perspective. This may help the trainee's performance (Ployhart et al., 2014). The theory aided the research by explaining how supplier training affects operational performance of food and beverage firms in Ghana.

Additionally, the results are consistent with earlier research by Wachiuri (2015), who examined the role of supplier development on organisational performance in Kenya's manufacturing industries in a case study of East Africa Breweries Limited. The research found that supplier training significantly and positively impacted EABL performance. According to the study, in order to improve performance, the organisation should offer or conduct training programs for its suppliers. Furthermore, Kadir et al. (2011) did a case study in the Malaysian automotive industry on the patterns of supplier training. Supplier training had positive effect on the performance of the buying firm according to the study. Here, they discovered that supplier development programs particularly supplier training aid in the expansion of a supplier's capabilities, frequently with a buyer's help and this will improve the operational performance of the buyer in terms of improved product quality and shorter lead time.

Effect of Early Supplier Involvement in New Product Development on Operational Performance of Food and Beverage Firms in Ghana

In analysing the third research objective on the effect of early supplier involvement in new product development on operational performance of food and beverage firms in Ghana, the study hypothesized that, "Early Supplier Involvement has a significant positive relationship with operational performance. From Table 9, the result revealed that early supplier involvement (ESI) has a significant positive effect on operational performance. The path co-efficient between early supplier involvement (ESI) and operational performance (Beta=0.350) was significant at 0.05 significant level with a t-stat of 3.474>1.96 and ($p=0.001<0.05$). The null hypothesis, was therefore, rejected indicating that a unit increase in early supplier involvement by 35% will cause a unit increase in operational performance by 35%. This implies that involving suppliers at the early stage of production could help food and beverage firms to enhance or increase operational performances. Hence, the hypothesis that "There is a significant positive relationship between early supplier involvement and operational performance of food and beverage firms in Ghana" was supported.

It could be established that, involving suppliers at the early stage of production enable them to have in-depth knowledge about the essential materials needed to produce quality products expected of the firms' customers. According to the social exchange theory, the theory is well-suited to the one-of-a-kind relationship built by the customer through supplier development for mutually beneficial commercial exchanges. In exchange for improved product quality and

reduced lead time the buying firm involves the supplier at the early stage of production. As this is an exchange relationship in which both parties expect some benefit from the relationship, the idea can be used to explain features of early supplier involvement. Also, product quality and lead time is improved as a result of supplier development through reduced defects resulting from early supplier involvement in the design process.

The results also showed that the buying firm performs better when suppliers are involved in some production-related choices. The results are consistent with the literature review on supplier involvement by Feng and Wang (2013), Melandar, Roselline, and Lakemond (2014). Additionally positive and significant results were reported regarding early supplier involvement on performance. This suggests that performance is positively and significantly improved with when suppliers are involved at the early stage of production through supplier development. The result supports the findings of Al-Abdallah, et al. (2014), Kosgei and Gitau (2016), and Mumelo, Selfano, and Onditi (2017), who found that supplier development practices had a significant and positive effect on performance. Also, Orina and Kimencu (2018) discovered that early supplier involvement can have numerous effects on the product quality. First, involving suppliers early on could give the buying company knowledge about early manufacturing possibilities and improves the product quality and saving time and money by avoiding redesigns later on. Furthermore, the results are consistent with earlier research by Wachiuri (2015), who examined the role of supplier development on organisational performance in Kenya's manufacturing

industries in a case study of East Africa Breweries Limited. The research found that early supplier involvement had a significant and positive effect on EABL performance. The study suggested that firms should review and provide feedback to their suppliers more frequently by involving them in the early stages of production. As a result, the suppliers have the chance to identify their shortcomings and flaws and adjust their business operations to match the demands of the manufacturing companies. The study also noted that, product quality and lead time is improved as a result of supplier development through reduced defects resulting from early supplier involvement in the design process.

Table 10: Specific Indirect Effect of Lower Order Constructs (LOC)

Structural Path	Beta	T Statistics	P Values
Supplier Financial Support -> Buyer-Supplier commitment ->Operational Performance	0.046	1.310	0.191*
Supplier Training ->Buyer-Supplier commitment ->Operational Performance	0.067	2.009	0.045*
Early Supplier Involvement ->Buyer-Supplier commitment ->Operational Performance	0.077	1.486	0.138*

Significant at 0.05 level

Source: Field survey, (2022)

The mediation analysis results indicate that buyer-supplier commitment is a statistically insignificant mediator in the predictive relationship between supplier financial support and operational performance among food and beverage firms in Ghana (β = 0.046; *t* = 1.310; p = 0.191: p>0.05; Table 7). It revealed that buyer-supplier commitment does not mediates the relationship between supplier financial support and operational performance among food and beverage firms in Ghana.

The findings with regard to the mediation results (Table 10) revealed that, buyer-supplier commitment is a statistically significant positive mediator in the predictive relationship between supplier training and operational performance among food and beverage firms in Ghana. With a beta of 0.067, *t*-statistics of 2.009 and (p = 0.045; p<0.05), buyer-supplier commitment significantly mediates the relationship between supplier training and operational performance among food and beverage firms in Ghana.

Finally, from Table 10, the mediation analysis results indicate that buyer-supplier commitment is a statistically insignificant mediator in the predictive relationship between early supplier involvement and operational performance among food and beverage firms in Ghana (β = 0.077; *t* = 1.486; p = 0.138: p>0.05). It revealed that buyer-supplier commitment does not mediates the relationship between early supplier involvement and operational performance among food and beverage firms in Ghana.

Explanation of target endogenous variable variance of Lower Order Constructs

The PLS-SEM estimation for the predictive accuracy of the model using the coefficient of determination (R^2) was reported in this section. Also, other relevant estimations including effect size (f^2) and predictive relevance (Q^2) using the Stone-Giesser's test criterion were reported. The results were presented in Table 11.

Table 11: Coefficient of Determination (R^2) of Lower Order Construct

Latent Variable	R^2	R^2 Adjusted
Buyer -Supplier Commitment	0.626	0.619
Operational Performance	0.737	0.729

Source: Field survey (2022)

The section discussed predictive accuracy of the model in relation to the R^2 results. Hair et al. (2018) explained that (R^2) shows the combined effect of the exogenous variables on the endogenous variable (OP). Also, (R^2) explains the variation in the dependent variable which is caused by the independent variables (Cohen, 1998; Chuan, & Penyelidikan, 2006). Using the Thalheimer and Cook (2002) and Henseler et al., (2016) criterion, exogenous variables in the inner path with (R^2) results of > 0.67, 0.67<p> 0.29 and <0.29 imply that the model is substantial. Moderate and weak, respectively.

From Table 11, it was found that supplier financial support, supplier training and early supplier involvement accounted for a moderate positive variance in buyer-supplier commitment with an R^2 = 0.626. It was deduced that

the three exogenous variables comprising of supplier financial support (SFS), supplier training (ST) and early supplier involvement (ESI) moderately explains 62.6 % of the variation in buyer-supplier commitment.

Also, the study sought to assess the co-efficient of determination (R^2 value) to examine the strength of the relationship between the construct's supplier financial support, supplier training, early supplier involvement and operational performance. From the results, it was found that supplier financial support, supplier training and early supplier involvement accounted for a strong or substantial positive variance in operational performance of food and beverage firms in Ghana with an $R^2 = 0.737$. It was deduced that the three (3) exogenous variables comprising of supplier financial support (SFS), supplier training (ST) and early supplier involvement (ESI) strongly or substantially explains 73.7% of the variation in operational performance. Simply put, the supplier development practices cause 73.7% of change in the operational performance of the food and beverage firms in Ghana. It could, therefore, be argued that these firms should pay much attention to supplier development practices as they account for 73.7% of change in operational performance.

Table 12: Effect Size (f^2) of Lower Order Constructs

Constructs	Operational Performance
Supplier Financial Support	0.106
Supplier Training	0.038
Early Supplier Involvement	0.152
Buyer Supplier Commitment	0.066

Source: Field survey (2022)

The effect size (f^2) of each variable was assessed using Cohen's (1988) impact indicator criterion where values 0.35 (large), 0.15 (medium) and 0.02 (small) respectively. Table 12 revealed that, supplier financial support (SFS) with f^2 of 0.106 implies that it has a small effect on operational performance. On the other hand, supplier training was also found to have a small effect on operational performance in the model with an f^2 value of 0.038. Early supplier involvement had an f^2 value of 0.152 which implies that it has a medium effect on operational performance. Finally, buyer-supplier commitment had an (f^2) of 0.066 which implies that it has a small effect on operational performance.

Among these practices, early supplier involvement (ESI) had a relatively higher effect on operational performance in terms of product quality and lead time followed by supplier financial support (SFS) and supplier training (ST) respectively. Among the different supplier development practices, supplier training had the smallest effect on operational performance of the firms under study.

Table 13: Predictive Relevance (Q^2)

Latent variable	SSO	SSE	Q^2 (=1-SSE/SSO)
Buyer-Supplier Commitment	760.000	385.995	**0.492**
Operational Performance	608.000	249.434	**0.590**

Source: Field survey (2022)

According to Hair et al. (2018), predictive relevance (Q^2) is assessed by omitting part of the data matrix, estimating the model and predicting the omitted

part using the estimates. Henseler et al. (2016) suggested that 0.02 <_ Q^2 < 0.15 (weak effect), 0.15 <_ Q^2 < 0.35 (moderate effect) and Q^2 > 0.35 (strong effect). Rigdon (2014) and Sarstedt et al. (2014) argued that although comparing the (Q^2) value to zero indicates that the endogenous variable can be predicted, it does not indicate the quality of the prediction.

From Table 13, the result revealed that buyer-supplier commitment had a Q^2 value of 0.492 indicating that all the exogenous construct were able to strongly predict the mediating variable of buyer-supplier commitment in the model. On the other hand, the result showed that operational performance had a Q^2 value of 0.590 indicating that all the exogenous construct were able to strongly predict the endogenous variable (operational performance) in the model. All these (Q^2) values were Q^2 > 0.35, thus indicating strong predictive relevance.

Model Specification for Higher Order Constructs (HOC)

This section specified the model's structure for higher order constructs by indicating the study's exogenous and endogenous variables and their associated indicators. The study's model was structured with supplier development, operational performance and one mediating variable of buyer-supplier commitment. The structural model is presented in figure 3 below:

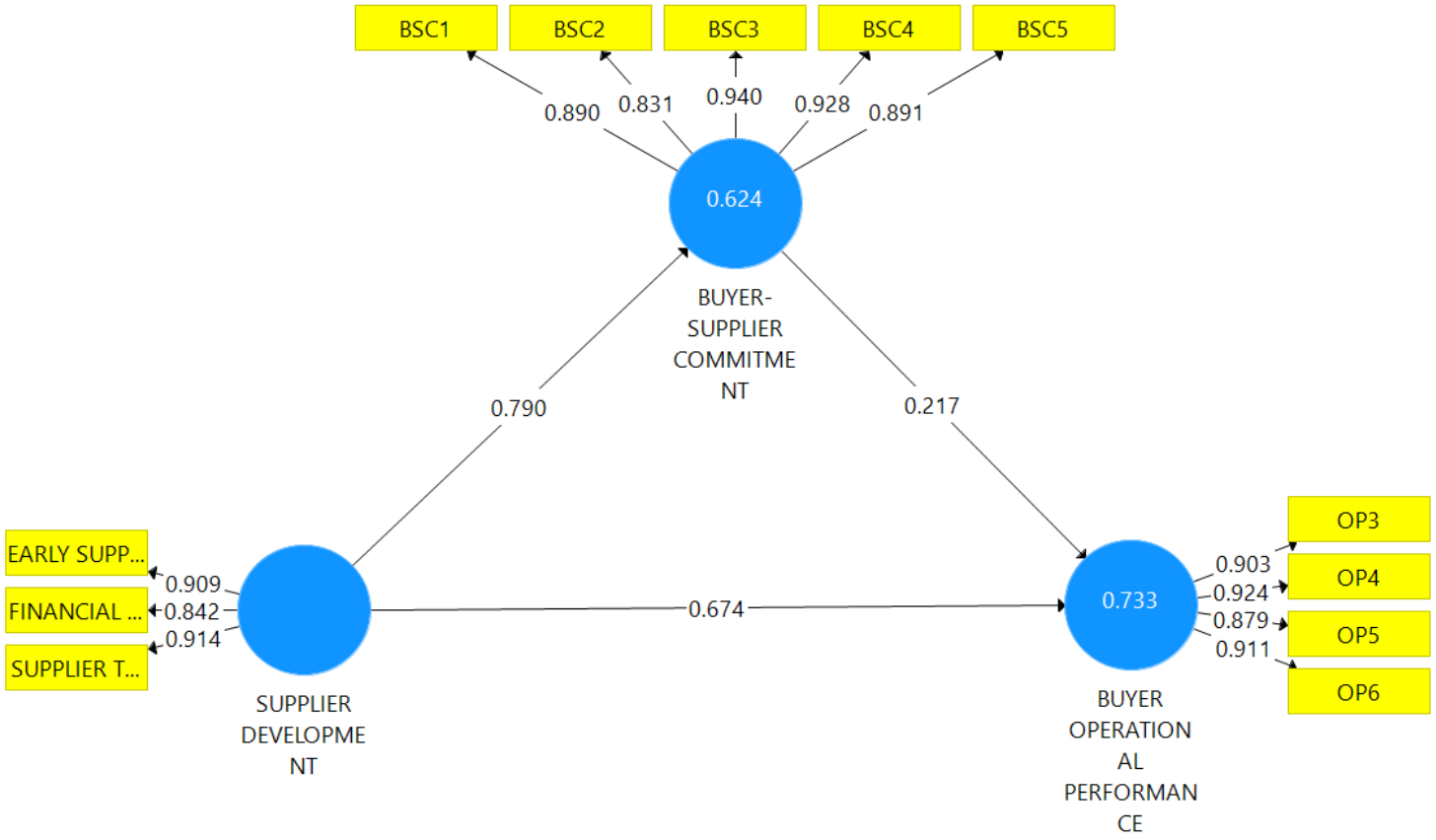

Figure 3: Outer and inner model results of higher order constructs (HOC)

Source: Authors own construct (2022)

Measurement model of Higher Order Construct (HOC)

Supplier development (SD) was the higher order construct in the study based on three (3) lower order constructs namely: Supplier financial support (SFS), Supplier training (ST) and Early supplier involvement (ESI). In order to establish the higher order construct validity, outer weights, outer loadings and VIF were assessed. The outer weights were found significant (Hair et al., 2018). The rule of thumb is that, an item or indicator with a loading of ≥ 0.70 is a quality measure of its construct (Hair et al., 2018). Therefore, all the outer loadings were found to meet the cut-off point of greater than or equal to 0.7 for each of the lower order constructs (Hair et al., 2018). Finally, VIF values were assessed to check collinearity issues. However, all the VIF values were less than the recommended value of less than 0.5 (Hair et al., 2018). Since all criterion are met, the Higher order construct was established.

Table 14: Outer Loadings, Outer Weights and VIF of Higher Order Construct (HOC)

HOC	LOC	Outer Loadings	Outer weights	VIF
Supplier Development	Supplier Financial Support	0.842	0.347	1.845
	Supplier Training	0.914	0.383	2.833
	Early Supplier Involvement	0.909	0.394	2.704

Source: Field Survey (2022)

The model's structure for higher order construct was further assessed by evaluating the item loadings (indicators). This was done to assess the quality of the indicators (item loadings) of the various constructs measuring supplier development within the context of the study. The rule of thumb is that, an item or indicator with a loading of ≥ 0.70 is a quality measure of its construct (Hair et al., 2018).

From Table 14, supplier financial support, supplier training and early supplier involvement were able to significantly measure the variable supplier development and the values ranged between 0.842 and 0.914. Supplier financial support had an item loading of 0.842, supplier training had a value of 0.914 and finally early supplier involvement had an item loading of 0.909. The three (3) constructs of supplier development met the cut-off point of above 0.7 and therefore strongly and significantly explained supplier development. The item loadings of buyer-supplier commitment and operational performance have already been discussed in the previous analysis.

According to Hair et al. (2018), outer weights are the results of multiple regression with the latent variable scores as the dependent variable and the formative indicators as the independent variables. Also, "Outer weights are the primary criterion to assess each indicator's relative importance in formative measurement models". The values of the outer weights can be obtained using bootstrapping technique and can therefore be used to determine each indicator's relative contribution to the construct, or its relative importance to forming the construct. When an indicator's outer weight is non-significant but its outer

loading is high (i.e., above 0.50), the indicator should be interpreted as absolutely important (Hair et al., 2018). In this situation all the constructs were retained since it is able to meet the acceptable criterion, that is all the constructs of supplier development had an outer loading of greater than 0.5.

Also, Hair et al. (2018) suggested that the VIF values of each construct should be less than the cut of point of 5.0. From the table, the results of the VIF values for the variables were as follows. For supplier financial support, the VIF value was 1.845, supplier training was 2.833, and finally the VIF value for early supplier involvement was 2.704. The values are less than the minimum cut-off point of 5.0, required to show the absence of multicollinearity between the exogenous variables (Hair et al., 2014).

Table 15: Reliability and Validity of HOC

Variables	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted
Supplier Development_	0.867	0.872	0.919	0.790
Buyer -Supplier Commitment	0.939	0.939	0.954	0.804
Operational Performance	0.926	0.927	0.947	0.818

IR (CA and rho A)- Indicator reliability; CR-Construct reliability; AVE-Convergent Validity

Source: Field Survey (2022)

For supplier development (Table 15), the Cronbach alpha was 0.867, buyer-supplier commitment was 0.939 and finally operational performance had a Cronbach alpha value of 0.926. These values exceeded the minimum cut-off point of 0.7 which is considered as reliable based on literature (Hamid, Sami & Sidek, 2017; Hair, Hult, Ringle & Sarstedt, 2018; Ringle, Wende & Becker 2015). From Table 15, the results for rho_A also shows that all the constructs were reliable. For the supplier development, the rho_A value was 0.872, buyer-supplier commitment was 0.939 and finally the rho_A value for operational performance was 0.927. The values exceeded the minimum cut-off point of 0.70, required to consider the constructs reliable (Chin, 2010).

Also, from the table, the results for composite reliability also show that all the constructs were reliable. For the supplier development, the composite reliability was 0.919, buyer-supplier commitment was 0.954 and finally the composite reliability value for operational performance was 0.947. The values exceeded the minimum cut-off point of 0.70, required to consider the constructs reliable (Bagozzi & Yi, 1998; Ringle et al., (2012). Furthermore, the results for the convergent validity measured with the Average Variance Extracted (AVE) values also prove that all the constructs were valid. The AVE value for supplier development is 0.790, buyer-supplier commitment is 0.804 and that of operational performance is 0.818. The values for the three variables exceeded the 0.5 required threshold for AVEs (Hair et al., 2018; Hamid, Sami & Sidek, 2017).

The cronbach alpha, composite reliability and AVE met the acceptable levels to confirmed good internal consistency, and convergent validity of the

measurement model. Having attained reliability and validity of the constructs (supplier development, buyer-supplier commitment and operational performance) the grounds is created for the testing of the structural model.

Structural Model for Higher Order Constructs (HOC)

The next step in structural equation modelling is assessment of the hypothesised relationship to substantiate the proposed hypothesis. Under the structural model, results of the path co-efficient, effect size and co-efficient of determination were presented.

Table 16: Results of Structural Equation Model and Hypothesis Testing of HOC

Structural Path	Beta	T Statistics	P Values	Decision Rule
Supplier Development -> Buyer-Supplier commitment ->Operational Performance	0.172	2.191	0.029*	H4(Supported)
Supplier Development -> Operational Performance	0.674	7.375	0.000*	
Supplier Development-> Buyer-Supplier commitment	0.790	15.942	0.000*	
Buyer Supplier Commitment-> Operational Performance	0.217	2.328	0.020*	

***= P< 0.05**

Source: Field Survey (2022)

The Mediating Role of Buyer- Supplier Commitment on the Relationship Between Supplier Development and Operational Performance of Food and Beverage Firms in Ghana

In terms of the fourth research objective on the mediation role of buyer-supplier commitment on the relationship between supplier development and operational performance of food and beverage firms in Ghana, the study hypothesized that, "Buyer-supplier commitment has a significant positive impact on the relationship between supplier development and operational performance". From Table 16, The path co-efficient results indicate that, supplier development accounted for a positive contribution to causing a variance in buyer-supplier commitment ($\beta = 0.790$; $t = 15.942$; $p = 0.000$; This implies that, an increase in supplier development will result in 0.790 (79%) variance in buyer-supplier commitment among food and beverage firms in Ghana.

Also, with the introduction of buyer-supplier commitment in the structural model, the path co-efficient results of supplier development to operational performance became positive and significant in predicting operational performance ($\beta = 0.172$; $t = 2.191$; $p = 0.029$). This is because, the t-stat of the model was 2.191which is greater than 1.96 and the p value was 0.029 which is less than 0.05. As such, the direction of the result was in line with the hypothesis thus the null hypothesis was rejected. Hence the hypothesis that "Buyer-supplier commitment mediates the relationship between supplier development and operational performance of food and beverage firms in Ghana" was supported. The implication is that by the inclusion of buyer-supplier commitment in the

model, a unit increase in supplier development will result in 0.172 (17.2%) positive change or increase in operational performance for food and beverage firms in Ghana.

Moreover, from Table 16, the results indicate that, buyer-supplier commitment made a statistically significant positive contribution (as a result of supplier financial support, supplier training and early supplier involvement) in bringing about a positive variance in operational performance (β = 0.217; t= 2.328; p = 0.020). Thus, when buyer-supplier commitment is improved it would result in 0.217 (21.7%) improvement in operational performance of food and beverage firms in Ghana.

Also, the study's finding was supported by the Commitment-Trust theory. Morgan and Hunt's (1994) theory of commitment-trust is a widely-accepted theory for examining the influence of trust and commitment on performance in order to acquire a proper contextual and organisational knowledge of this study. Partha (2012) discovered that commitment is an essential component for enhancing the longevity of relationships in order to achieve operational performance. This theory proposes that commitment function as a mediator according to Partha (2012). Therefore, through focusing on the commitment-trust theory of association presentation proposed by Morgan and Hunt, the theory was applied on food and beverage firms by showing how commitment strengthens the effect of supplier development on operational performance.

The finding is in line with a previous study by Waraporn (2012), who examined the impact of supplier development on performance investigating the

role of buyer-supplier commitment. The findings revealed that buyer-suppler commitment had a significant and positive effect on the relationship between supplier development and operational performance of the buying firm. According to the study, the buying firm would implement supplier development practices by emphasising the commitment of the buyer-supplier relationship to performance enhancement. Also, Li et al. (2015) in their research of supplier development efforts on buyer's competitive advantage discovered that buyer-supplier commitment appears to be the most important factor in enhancing a buyer's operational effectiveness. In this study, buyer-suppler commitment had a significant and positive effect on the relationship between supplier development and operational performance of the buying firm.

Explanation of Variable Variance of Higher Order Constructs

The PLS-SEM estimation for the predictive accuracy of the model using the coefficient of determination (R^2) was reported in this section. Also, other relevant estimations including effect size (f^2) and predictive relevance (Q^2) using the Stone-Giesser's test criterion were reported. The results were presented in Table 17.

Table 17: Coefficient of Determination (R^2) of Higher Order Constructs

Latent Variable	R^2	R^2 Adjusted
Buyer -Supplier Commitment	0.624	0.622
Operational Performance	0.733	0.730

Source: Field survey (2022)

The extent of variance in buyer-supplier commitment which is attributed to changes in the predictor supplier development (supplier financial support, supplier training and early supplier involvement) was assessed using R-squared (R^2). Using the Thalheimer and Cook (2002) and Henseler et al., (2016) criterion, exogenous variables in the inner path with (R^2) results of > 0.67, 0.67<p> 0.29 and <0.29 imply that the model is substantial. Moderate and weak, respectively. Results from Table 17 found that, supplier development (supplier financial support, supplier training and early supplier involvement) accounted for a moderate positive variance in buyer-supplier commitment among food and beverage firms in Ghana (R^2 = 0.624). Thus, 62.4% positive variance in buyer-supplier commitment is explained by changes in supplier development constructs (supplier financial support, supplier training and early supplier involvement). It thus suggests that, there are other factors in the targeted firms that could affect (37.6% in the variance) buyer-supplier commitment apart from the supplier development practices.

The results also show that supplier development (supplier financial support, supplier training and early supplier involvement) with buyer-supplier commitment accounted for a strong or substantial positive variance in operational performance among food and beverage firms in Ghana (R^2 = 0.733). This implies that, (73.3%) positive variation in operational performance is attributable to changes in supplier development and buyer-supplier commitment. It thus suggests that other factors exist in the targeted firms not captured in the model that affect

organisational performance (26.7% variation) apart from supplier development and buyer-supplier commitment.

Table 18: Effect Size of Higher Order Constructs

Variable	Buyer- Supplier Commitment	Operational performance
Supplier Development	1.660	0.641
Buyer- Supplier Commitment		0.066

Strong = 0.35; Moderate = 0.15; Weak = 0.02

Source: Field survey (2022)

The effect size (f^2) of supplier development, buyer-supplier commitment and operational performance as analysed show that supplier development has a strong effect (f^2 = 1.660) on buyer-supplier commitment among food and beverage firms in Ghana (Table 18). The results also show that supplier development has a strong direct effect (f^2 = 0.641) on operational performance of the food and beverage firms. Buyer-supplier commitment also has a small or weak effect (f^2 = 0.066) on operational performance all based on the limits described by Cohen (1988). Cohen (1988) indicated that, effect sizes above 0.02, 0.15 and 0.35 can be considered as small, medium and large respectively.

Chapter Summary

This chapter presented the results and discussion of the study's research objectives using PLS- SEM. Generally, the results for both lower and higher order constructs revealed that the internal consistency and validity for all the constructs measured are greater than 0.70 and therefore reliable and acceptable

(Hamid, Sami & Sidek, 2017; Hair, Hult, Ringle & Sarstedt, 2018; Ringle, Wende & Becker 2015). The AVEs of all the constructs are more than 0.70, providing evidence of adequate convergent validity of all the constructs. Similarly, the discriminant validity measured by the HTMT for the constructs were within the acceptable range of less than 0.9 and therefore valid for the structural model (Henseler et al., 2015; Ringle et al., 2016).

From the structural model, all the three constructs namely supplier financial support, supplier training and early supplier involvement were found to have a significant and positive effect on operational performance. Among the three constructs, early supplier involvement had the highest direct effect on operational performance followed by supplier financial support, and then supplier training. From the mediation analysis, buyer-supplier commitment is a positive and significant mediator in the predictive relationship between supplier development (supplier financial support, supplier training, early supplier involvement) and operational performance among food and beverage firms in Ghana.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter gives the summary of the major findings, key conclusions and recommendations of the study including future areas of research. The summary presents a concise overview of the research problem, objectives, methodology, background information and findings. The conclusions cover the overall results concerning the findings of the study with regard to the research hypothesis. Finally, this chapter provides recommendations for policy makers and suggestions for future research.

Summary

This study sought to examine the effect of supplier development on operational performance of food and beverage firms in Ghana through the mediating role of buyer-supplier commitment. To achieve this general objective, four specific objectives were formulated as shown in chapter one. Also, the study developed and tested four hypotheses to help achieve the research objectives. The study was guided by the positivism philosophy (quantitative research) which employed the correlational research design. Census sampling procedure was used to select the research participants (Procurement officers) from the food and beverage firms in Ghana, specifically in the Greater Accra region. A questionnaire was the main research instrument used for the data collection. Data on supplier development practices (supplier financial support, supplier training, early supplier involvement), buyer-supplier commitment and operational

performance of food and beverage firms in Ghana were collected from 152 respondents.

To give a general overview of the research respondents (Procurement officers) in these food and beverage firms, frequencies as well as percentage distribution were used. There were four hypotheses of the study that were tested and analysed quantitatively with the help of the Structural Equation Model using Partial Least Square (PLS-SE M 3). An alpha level of 0.05 was used for all test of significance. Also, the test of significance was based on the assumption that the t-statistics should be greater than 1.96 thus its p-value < 0.05. This section finally presented the major findings of the study in relation to the research hypotheses.

Generally, it was found that supplier financial support, supplier training, early supplier involvement collectively and directly had a statistically significant positive relationship with operational performance (R^2 = 73.7%). Remarkably, with buyer-supplier commitment as mediator, buyer-supplier commitment had a positive and significant effect in the predictive relationship between supplier development (supplier financial support, supplier training, early supplier involvement) and operational performance among food and beverage firms in Ghana with (R^2 = 73.3%). The major findings as they related to the specific objectives of the study have been summarised as follows:

The first objective of the study determined the effect of supplier financial support on operational performance of food and beverage firms in Ghana. The study found that supplier financial support had a positive significant effect on operational performance among food and beverage firms in Ghana. Based on the

social exchange theory, supplier financial support contributed 10.6% variation or change in the operational performance of food and beverage firms understudied. This means that supplier financial support plays a significant role in improving operational performance levels of food and beverage firms in Ghana. The result implies that the more supplier financial support is adopted by the food and beverage firms in developing their suppliers, the higher their operational performances and invariably overall firm performance.

The second objective of the study analysed the effect of supplier training on operational performance of food and beverage firms in Ghana. The study found that supplier training had a positive significant effect on operational performance among food and beverage firms in Ghana. Based on the human capital theory, supplier financial support contributed 3.8% variation or change in the operational performance of food and beverage firms understudied. This means that supplier training plays a significant role in improving operational performance levels of food and beverage firms in Ghana. The result implies that the more supplier training is adopted by the food and beverage firms in developing their suppliers, the higher their operational performances and invariably overall firm performance.

The third objective of the study examined the effect of early supplier involvement on operational performance of food and beverage firms in Ghana. The study found that early supplier involvement had a positive significant effect on operational performance among food and beverage firms in Ghana. Based on the social exchange theory, early supplier involvement contributed 15.2%

variation or change in the operational performance of food and beverage firms understudied. This means that early supplier involvement plays a significant role in improving operational performance levels of food and beverage firms in Ghana. This means early supplier involvement during product design stage, sharing relevant and detailed information with key suppliers and establishing long term relationships with suppliers, for instance, are vital to helping the firm improve upon their overall operational performance levels and invariably firm performance.

Lastly, the fourth objective of the study investigated the mediating role of buyer-supplier commitment on the relationship between supplier development and operational performance of food and beverage firms in Ghana. The study found that buyer-supplier commitment had a positive significant effect on the relationship between supplier development and operational performance among food and beverage firms in Ghana. In other words, buyer-supplier commitment is a significant positive mediator in the predictive relationship between supplier development and operational performance among food and beverage firms in Ghana. This means that buyer-supplier commitment plays a significant role in improving operational performance levels of food and beverage firms in Ghana. The result implies that the more buyer-supplier commitment is adopted by both parties during supplier development, the higher the operational performances of the buying firm and invariably overall firm performance.

Conclusions

This study sought to examine the effect of supplier development on operational performance of food and beverage firms in Ghana through the mediating role of buyer-supplier commitment. The following conclusions were, therefore, drawn based on the study's findings.

For objective one, the study's result found that supplier financial support had a positive significant effect on operational performance of food and beverage firms in Ghana. This finding implies that management of the food and beverage firms should consider supplier financial support as a good practice for supplier development. This is because, this practice is likely to speed the delivery time and improve product quality. The result has been largely supported by previous empirical studies by indicating that firms that provide financial support to suppliers improves their performance and subsequently improves the operational performance level of the buying firm**.**

For objective two, the study's result found that supplier training had a positive significant effect on operational performance of food and beverage firms in Ghana. This result implies that management of the food and beverage firms should view supplier training as a practice that could help them improve product quality and increased product lead time. Also, this practice could enable management of these firms to improve customer satisfaction and competitiveness as they will be able to produce high quality product and minimise delivery delays. The study provided empirical evidence that the implementation of supplier training is likely to improve operational performance. The study, therefore,

concluded that supplier training is a key practice for developing suppliers to improve the operational performance levels of food and beverage firms in Ghana.

For objective three, the study's result found that early supplier involvement had a positive significant effect on operational performance among food and beverage firms in Ghana. The practical implication of this finding is that, management of these firms should focus on involving key suppliers at the early stage of production. This is because involving suppliers at the early stage of production can contribute to improving the final product quality and invariably increase operational performance. The finding has been supported by existing related literature by indicating that firms that focus on involving suppliers at the early stage of production are able to improve their product quality and increased lead time of their operational system.

Lastly, the study's result for objective four was found that buyer -supplier commitment had a positive significant effect on the relationship between supplier development and operational performance of food and beverage firms in Ghana. This finding implies that management of the food and beverage firms should focus on establishing commitment between the firm and its suppliers since it is a significant positive mediator in the predictive relationship between supplier development and operational performance. Also, this is likely to speed the delivery time and improve product quality. The result has been largely supported by previous empirical studies by indicating that buyer-supplier commitment improves the relationship between supplier development and operational performance level of the buying firm.

In brief, supplier financial support, supplier training and early supplier involvement as constructs of supplier development were found to have a significant and positive effect on operational performance. Also, buyer-supplier commitment is a positive and significant mediator in the predictive relationship between supplier development (supplier financial support, supplier training, early supplier involvement) and operational performance of food and beverage firms in Ghana.

Recommendations

Based on the strength of the research findings and conclusions, the following recommendations are made:

The study recommended that in order to ensure improved operational performance including high product quality and increased delivery time, management of food and beverage firms studied should provide financial support to their suppliers. This can be done by increasing cash flow visibility, enhancing suppliers' current financial capabilities, lowering financial risk, and providing liquidity to both parties, all of which will strengthen their business relationship.

The study also recommended that to ensure improved operational performance including high product quality and lead time, management of food should make sure their suppliers are well trained and equipped to be able to provide them with high quality input and on time delivery which will subsequently improve the final product quality and increase the delivery time of the final product to customers. These measures will help improve the operational

performance level of the buying firm and invariably the overall performance of the firm.

The study further recommended that in order to enhance operational performance including high product quality and lead time, management of food and beverage firms studied should strategically involve suppliers at the early stage of production as suppliers influences the final product quality. Involving suppliers at the early stage of production would give the buying firm knowledge about early manufacturing possibilities and improves the product quality and saving time and money by avoiding redesigns later and avoid delaying the delivery time of the product to customers.

Finally, the study recommended that to ensure improved operational performance through high product quality and lead time, management of food and beverage firms should establish commitment between their suppliers since it is a significant positive mediator in the predictive relationship between supplier development and operational performance. Also, in order to ensure an improvement in operational performance through high product quality and increased delivery or lead time, management of these firms should be committed to their suppliers and vice versa.

Suggestions for Further Research

This study sought to examine the effect of supplier development on operational performance of food and beverage firms in Ghana through the mediating role of buyer-supplier commitment.

Further studies should focus on other supplier development practices such as supplier certification, supplier audit, supplier technical support among others rather than supplier financial support, supplier training and early supplier development on operational performance. Also, the study was limited to only the operational performance dimension of firm's overall business performance. Further research can, therefore, be carried out to examine other performance dimensions including financial performance, procurement performance, sustainable performance among others. This will help extend existing knowledge on how supplier development affects the other dimensions of firm performance within the food and beverage firms in Ghana.

Additionally, the study concentrated only on food and beverage firms in Ghana. It would be of interest for future researchers to examine how supplier development practices would be applied in other manufacturing firms such as the clothing and textiles, pharmaceuticals, plastics among others. Furthermore, supplier development practices on operational performance can be conducted in the entire manufacturing sector or other competitive customer service industry across the country (e.g., banking sector).

Moreover, further research should focus on the use of qualitative approach or mixed method to examine the effect of supplier development on operational performance of food and beverage firms in Ghana through the mediating role of buyer-supplier commitment.

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APPENDICES

APPENDIX A: QUESTIONNAIRE

UNIVVERSITY OF CAPE COAST

COLLEGE OF HUMANITIES AND LEGAL STUDIES

SCHOOL OF BUSINESS

DEPARTMENT OF PROCUREMENT AND SUPPLY CHAIN MANAGEMENT

SUPPLIER DEVELOPMENT AND OPERATIONAL PERFORMANCE OF FOOD AND BEVERAGE FIRMS IN GHANA: THE ROLE OF BUYER-SUPPLIER COMMITMENT

QUESTIONNAIRE

This questionnaire is designed to gather information on Supplier Development and Operational Performance in Food and Beverage Firms in Ghana: The Role of Buyer -Supplier Commitment. This is purely for academic purposes and will be used as such. Therefore, your utmost privacy and confidentiality as a respondent is highly assured and respected. Thank you for your participation.

SECTION A: Demographic Characteristics

This section gather data on your demographic characteristics. Kindly select the most appropriate answer applicable to you.

1. Gender: Male [ ] Female [ ]

2. Age: 18-25 years [ ] 26-34 years [ ] 35-44 years [ ] 5 and above [ ]

3. Highest level of education: Diploma/HND [ ] b. Undergraduate Degree [ ]

c. Master's Degree [ ] d. PHD [ ] e. Others, please specify

……

4. Number of years you have worked with your organization: Less than a year [ ]

Up to 5 years [ ] Up to 10 years [ ] Up to 15 years [ ] Above 15 years [ ]

5. Number of years your organization has been operating: Less than a year [ ] Up

to 5 years [ ] Up to 10 years [ ] Up to 15 years [ ] Above 15 years [ ]

SECTION B: SUPPLIER DEVELOPMENT PRACTICES

This section gather data on the various practices of supplier development in the food and beverages manufacturing firms in Ghana.

Please kindly select the key below to indicate your degree of agreement or disagreement with the following statement by ticking the appropriate number below. 1= Strongly disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly agree

SUPPLIER DEVELOPMENT PRACTICES					
Supplier Financial Support	**1**	**2**	**3**	**4**	**5**
1. My organisation provides financial support to suppliers to enhance their production capacity					
2. My organisation provides supplier financial support audits to ensure suppliers maintain expected standards					
3. My organisation provides suppliers with finance for the purchase of the equipment hence facilitate purchasing					
4. My organisation provides finance to suppliers for the attainment of farm inputs					
5. My organisation assists our suppliers financially in acquiring certification by agencies					

6. My organisation provides suppliers with capital for new investments at the facilities					
Supplier Training					
1. My organisation conducts training for our suppliers to increase their efficiency					
2. My organisation provides our suppliers with training programs to enhance provision of their information management					
3. My organisation trains key suppliers on best management practices					
4. My organisation's supplier's production line employees participate in training offered by my organization					
5. Managers in our supplier's company participate in training offered by my organization					
6. Training offered by my organisation to our suppliers is well funded					
Early supplier involvement in new product development					
1. My organisation involves our supplier in the development of our new products for which they will be a supplier					
2. My organisation involves our suppliers in the redesign of our existing products for which they will be a supplier					

3. My organisation's suppliers have input concerning new products we make with respect to the specifications we use to make our new products for which they will be a supplier					
4. My organisation conducts site visits to the supplier's premises to assess their facilities when they are involved in new product development process.					
5. My organisation's suppliers are evaluated and are given feedback as soon as possible when involved in product development.					

SECTION C: BUYER-SUPPLIER COMMITMENT

Below are statements about buyer-supplier commitment.

Please kindly select the key below to indicate your degree of agreement or disagreement with the following statement by ticking the appropriate number below. 1= Strongly disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly agree

	Buyer-Supplier Commitment	1	2	3	4	5
1	My organisation intends to do business with current suppliers well into the future.					
2	My organisation's positive feelings towards our suppliers are a major reason we continue working with them.					

3	My organisation has chosen our current suppliers for useful reasons.					
4	My organisation is willing to put in more effort and investment in building our business in relation to our suppliers.					
5	My organisation wants to maintain a long-term relationship with our suppliers.					

SECTION D: OPERATIONAL PERFORMANCE

Below are statements about Operational Performance

Please kindly select the key below to indicate your degree of agreement or disagreement with the following statement by ticking the appropriate number below. 1= Strongly disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly agree

	Operational Performance	**1**	**2**	**3**	**4**	**5**
1	Providing financial support to our suppliers has improved our product quality					
2	As a result of assisting our suppliers financially, our product delivery time has improved					
3	Conducting training programs for key suppliers has improved our product quality					
4	Offering training programs for our suppliers has improved our product delivery time.					
5	As a result of involving our suppliers in new product development, our product quality has improved					

6	By allowing suppliers to participate in our new product development, our product delivery time has improved					

THANK YOU FOR YOUR PARTICIPATION