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Total Quality Management and Green Practices Adoption for Enhancing Organizational Performance in Palestinian Food Manufacturing Companies

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Dedication

This thesis is intended for our beloved parents. They both gave me the motivation to teach and appreciate the value of reading and lifelong learning.

To my wonderful uncle who taught me to fight for my ambition and never stop whenever I faced any obstacle.

To my faithful husband who bore the trouble of the distance between us in order to fulfill my dreams and always believes in my abilities even when I doubted myself.

To all my friends and loved ones, who guided and supported me throughout my studies.

Thank you for being the most beautiful part of my life.

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Before thanking anyone, I thank Allah, who enabled me to reach this stage of knowledge and realize dreams, who helped me stay up late for nights and achieve dreams, and who is always with me and helps me. Glory is to Allah, who gave me the wisdom to choose the path of light and knowledge and inspired me patience to continue the long path and reach my dreams.

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Finally, I would like to thank all of the study participants who provide valuable information to reach wealthy results that enrich this research.

Declaration

I, the undersigned, presenter of the letter with the title:

"Total Quality Management and Green Practices Adoption for Enhancing Organizational Performance in Palestinian Food Manufacturing Companies"

The work provided in this thesis, unless otherwise referenced, is the researcher's work and has not been submitted elsewhere for any other degree or qualifications

Student Name:

Signature:

Date:

List of Abbreviations

TQM	Total Quality Management
OP	Organizational Performance
GM	Good Manufacturing
VOC	The Voice Of The Customer
QFD	Quality Function Deployment
PFI	Palestinian Federation Of Industries
PCBS	Palestinian Central Bureau Of Statistics
ISO	International Organization For Standardization
QC	Quality Culture
TMC	Top-Management Commitment
HRM	Human Resources Management
GM	Green Management
GSCM	Green Supply Chain Management
TQEM	Total Quality Environmental Management
SMEs	Small and Medium-Sized Enterprises
SCM	Supply Chain Management
EM	Environment Management
QM	Quality Management
APO	Asian Productivity Organization
PNA	Palestinian National Authority
GHRMP	Green Human Resources Management Practices
GDP	Gross Domestic Product
PFIU	Palestinian Food Industries Union
ISCI	International Standard Industrial Classification
SPSS	Statistical Package for Social Sciences
HR	Human Recourse
WHO	World Health Organization
PSI	The Palestinian Quality Marks Standards
PSM	The Palestinian Standards Mark

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Abstract

Owing to the rapidly deteriorating environment in developing countries caused by practices of manufacturing organizations and lack of adequate studies that can help manufacturing organizations to counter this issue, this research aims to investigate the underlying relationship between Total Quality Management (TQM) and the level of Green Manufacturing (GM) practices implementation in Palestinian Food Manufacturing Companies. The research also investigates how GM practices mediate the relationship between TQM and Organizational Performance (OP) of manufacturing organizations. 9 semi-structured interviews and 250 surveys have been collected using a sequential mixed methodology approach from senior, quality, and HR managers from Palestine Food Manufacturing Companies. The statistical data analysis indicated a significant positive correlation between the TQM practices and the implementation level of GM practices, and a similar positive correlation between TQM practices and OP. Moreover, GM practices have a positive correlation with improving OP. Finally, TQM practices have a significant indirect effect on OP mediated by GM practices. This empirical study is considered as the first study investigating the impact of TQM practices on implementation of GM practices and their complementary impact on OP in Palestine, adding great value to literature via responding to calls to counter environmental issues in developing countries context.

Chapter One
Introduction

Chapter Content:

- General Background
- Food Manufacturing in Palestine
- Green Manufacturing in Palestine
- The Research Problem
- Significance of the Study
- Research Objectives
- Research Questions
- Research Hypotheses
- Thesis Structure

CHAPTER ONE

INTRODUCTION

1.1 General Background

Total Quality Management (TQM) is defined as a concept of modern management. It consists of a set of principles and ideas that can be applied by any organization to achieve the optimum outcomes from any performance, increase productivity and profits, even improve its reputation in the market (Shibli, 2002). TQM is a framework that aims at comprehensive and continuous development covering all phases and performance aspects (Mustafa, 2003). TQM's role in companies is to capture the voice of the customer (VOC) (Dehe and Bamford, 2017). Quality Function Deployment (QFD) is one of TQM's main techniques, aiming to translate the requirements from the customer into suitable technical requirements and that for each development and production stage of product and service (Syed, 2009). Besides, TQM contributes to improving the quality offers for customers to improve company performance and develop their marketing skills (Mustafa, 2003). When such a company uses TQM to capture the customer's voice, the result will be more pleased customers as listening to their means creating a rich customer experience by driving change in the intended places over the time (Yachin, 2018). Nowadays, the customer's voice is asking for protecting the environment (Liao and Tsai, 2019). Thus, companies can reach the consumer's basic requirements by promoting eco-products to the market (Herrmann et al., 2005).

Recently, environmental issues and sustainable development have become a more vital principle according to interest issues to developed and developing countries (Sharmin et al., 2015). The establishment of green concepts results from increased awareness of the environment, which has raised interest in new concepts such as green cities, green education, green food, green philosophy, and green ethics (Firdaus and Udin, 2014). Moreover, new customer demand and recent public policy trends drive management interest away from the traditional focus, such as supplier sponsorship, customer

care, and the internal process (Rai et al., 2019). Customers investigate the potential link between the benefits of TQM and environmental excellence in operations management (Inman et al., 2019; Klassen and McLaughlin, 1993). The customer's requirements need from the company to propose a hierarchical model to develop environmental excellence. Thus, environmental management has become a strategic plan to achieve an improved environment and what is necessary to achieve the integration of performance design, delivery, production, use, circulation, and disposal of products (Famiyeh et al., 2018; Klassen and McLaughlin, 1993). Continuous improvement is possible in the longrun by considering environmental factors in training designed for the workforce and firm structure (Khatib, 2000).

This study deals with food manufacturing companies for their importance in the Palestinian economy, according to its ability to support political, social, and economic development and also because of its direct impact on the environment and human health (United Nations Conference on Trade and Development, 2012). However, Green practices or so-called environmentally friendly practices have a positive effect on reducing the food industry's cost and gaining a good reputation for these products in the long run (Liao, 2018). Therefore, this research study aims to know the impact of TQM practices on the green practices and performance of food manufacturing companies in Palestine.

1.2 Food Manufacturing in Palestine

The food industry sector plays a vital role in the Palestinian economy as it supports political, social, and economic development. Besides, it directly impacts the environment and human health (United Nations Conference on Trade and Development, 2012). The industrial sector representative is the Palestinian Federation of Industries (PFI), a private national institution that included 224 firms, 480 million investment, 8,000 employees, and 50% market share in 2009 (USAID and PFI, 2009). The modern Palestinian food industry grew in the early 20th century, when some food factories and sweets

factories were established, which expanded to provide the most basic food commodities to the Palestinian society. Today, there are more than 120 national food products (The Palestinian Central Bureau of Statistics report, 2017).

In 1998, the Investment Encouragement Law facilitated starting a new business, which encouraged investment in this sector that embraces Food Industry, Olive Oil, Spices, Nuts, Dairy Products, Beverages, Processed Meat, and Desserts. Thus, nowadays, the food and beverage sector is the fastest-growing Palestinian economic sector. This sector has a strong economic power to support the Palestinian economic sectors with the necessary capital for growth and development, via exporting many processed food products in the Palestinian industrial establishments and meeting the demands of Palestinian consumers (PFI, 2017).

Moreover, the food and beverage sector provides the Palestinian market with numerous employment opportunities and reduces the unemployment rate. The number of Palestinian food establishments reached 17% of the total Palestinian establishments in 2017, which provided 20 thousand job opportunities (Federation of Palestinian Food Industries 2017). Besides, the sector's output constitutes 24% of the gross domestic product (GDP) (Palestinian Food Industries Union (PFIU), 2019).

On the other hand, the Central Bureau of Statistics data pointed out that the Palestinian family spends about 36% of its budget on food, which allows these industries to grow and develop in view of this large volume of domestic demand (Mekdad, 2007). These industries' importance is also increasing because of their strong correlation with many other economic activities, especially agriculture. Agricultural products are the main inputs for the food processing industry (PFIU, 2019). The food industry contributes to stimulating this sector, increasing agriculture's benefit, and diversifying agricultural crops. It plays a vital role in improving farmers' incomes and reducing migration to the

city. Not to mention that the main food processing industries in the West Bank are canned vegetables and fruits, Oils and vegetable fats, Wheat flour and grains, and Pasta and vermicelli.

The food industry directly affects the environment, so they are aware of the importance of green practices towards the environment and society, which will benefit their industries, environment, and society (Mekdad, 2007). For example, the water generated by those factories that carry many organic residues leading to significant contamination of the environment, especially when it is poured into rivers without proper treatment. The main reason for water pollution in the world is the factories. The major factors of waterways damage are illegal dumping of chemicals, contaminated water, heavy metals, radioactive materials, or gases, damaging marine life and environment (www.field.org.uk, 2019). However, environmentally friendly green practices or so-called environmentally friendly practices positively impact the cost in the food industry and gain a good reputation for their products in the long term. Implementing green practices reduces direct costs by reducing the value of energy consumption, water, wastewater treatment, waste disposal, and environmental pollution (Amer, 2006).

Table 2. 1: Food Sectors in Palestine (Palestinian National Information Center-WAFA, 2019).

#	ISIC	Sectors operating in the Palestinian food industries	Number of Factories	Number of Employees	Investments value	Market Share
1	1010	Meat products industry	17	>559	>25 m Dollar	90%
2	1030	Manufacturing and packaging vegetables and fruits	18	>545	>30 m Dollar	20%
3	1040	Vegetable oils and fats industry	13	>295	>70 m Dollar	20%
4	1050	Manufacture of milk and dairy products	41	>1754	>67 m Dollar	45%
5	1060	Manufacture of wheat flour and grain products	9	>236	>45 m Dollar	30%
6	1080	Animal feed industry	22	>329	>35 m Dollar	15%
7	1070	Manufacture of bakery products	1498	>5848	>100 m Dollar	90%
8	1073	Confectionery industry	27	>89	>22 m Dollar	25%
9	1074	Pasta and noodles industry	5	>89	>34 m Dollar	30%
10	1100	Manufacturing soft and non-carbonated beverages and concentrates	20	>978	>34 m Dollar	20%
11	1079	Manufacture of other food products	31	>860	>12 m Dollar	35%

According to PFIU (2019), in Palestine, this sector involves 1,701 factories distributed in 11 food sectors, as shown in Table 2.2 above. However, the official registered companies operating in this sector are less than 300 companies.

1.3 Green Manufacturing in Palestine

In general, industrial pollution in Palestine depends on many factors as the high population density, which makes people more vulnerable to the dangers of environmental pollution caused by the presence of certain indiscriminately-distributed institutions of a dangerous nature (Al-Sa'ed; 2005). More precisely, food factories that produce animal and agricultural food industrial waste affect the environment and human, animal, and plant health. It also leads to the contamination of groundwater and air pollution (Sranacharoenpong, 2019). Green practices in the Palestinian industry must be exploited to protect citizens from these dangers (Rod and Handy, 2017). The most important risks associated with industrial pollution in Palestine are the indiscriminate spread of dangerous-nature food factories in Palestine (El Tabil et al., 2000). As a result, the green manufacturing is essential to Palestine and the world, as it reduces global warming, solid and liquid pollutants, and provides a healthy environment for present and future generations (Rod, Handy, 2017).

A few efforts were employed in the field of Green Manufacturing at Palestine; these efforts aimed at finding out the feasibility of applying green principles to improve the quality of Palestinian's environment and the economy as the case of the DELTA program in the year 2004 where some Palestinian industries applied cleaner production (Shkoukani, 2008). It is undeniable that the Palestinian National Authority (PNA)’s current political condition imposes its restrictions on all fields in Palestine besides the limited control that the PNA has over its territory and natural resources (Herman, Fischhendler, 2019). This situation is basically a result of the Israeli occupation and its internal policies, including the environmental ones. Thus, it makes a limited scope of actions and

environmental initiatives the PNA can undertake, which hinders developments in all sectors, including green manufacturing (Gorlach et al., 2011). Nevertheless, Hiba and Jaaron (2019) explained that there are some trends to employ green manufacturing in Palestine in which several studies are to be included in this section related to this field.

1.4 The Research Problem

TQM contributes to improving quality offerings to clients in order to improve company performance and develop their marketing skills (Mustafa, 2003). Client requirements require that the company should develop environmental management into a strategy to achieve improved environmental performance (Famiyeh et al., 2018; Klassen and McLaughlin, 1993). TQM can create a green culture since it aims to reduce the cost through its reliance on minimizing waste (Almudara, 2018). Many companies are running the environmental management system to reduce the quantities of required energy and materials to manufacture a product, leading to reduced product cost, waste disposal costs, and material handling costs (Aminga, 2015). Firms collaborate with customers and suppliers along the supply chain, forcing them to choose environmental practices by applying TQM. Therefore, firms are collaborating in the innovation of green products to develop products with less environmental impact, lower CO_2 emissions, and use less energy (Melander, 2018). On the other hand, TQM can create a green culture because it aims to respond to customer requirements regarding environmental protection (Pattanayak et al., 2017). When customers make their purchasing decisions, they are constantly choosing products with higher sustainability and environmental features (Martinho et al., 2015). Thus, it is very likely that green options will become the norm over time (Hardisty et al., 2019). Nowadays, it is very likely to see the environmental character of product promotion in the media because of the marketers' understanding of consumer requirements about their need to feel that they are taking the right actions towards humanity and adopting the right lifestyle when purchasing a

product or service (ISO Quality Services LTD, 2015).

To achieve quality goals, companies need to implement TQM to encourage environmental excellence in order to reach customer satisfaction (Famiyeh et al., 2018; Klassen and McLaughlin, 1993). However, regarding the literature reviews mentioned in Chapter Two, TQM's implementation can create a green culture and green practices in companies if it captures the customers' voice about their needs to protect the environment, such as reducing the causes of pollution. Moreover, factories are among the most critical causes of Palestine's pollution due to their solid, liquid, and gaseous wastes (Palestine news & info agency, 2018). On the other hand, the food industries sector contributed about 22.2% of the total production of manufacturing companies in Palestine between 2010 and 2016 (PCBS, 2017). As a result, food manufacturing companies play a significant role in creating pollution in Palestine.

The study aims to explore the effect of applying TQM on adopting green practices in Palestinian food manufacturing companies, in the hope that these companies will reduce their negative impact on the environment in light of the lack of literature discussing the relationship between the application of TQM and green practices to achieve higher organizational performance in food manufacturing companies.

1.5 Significance of the Study

This study's importance stems from the fact that the food manufacturing companies have a significant impact on the environment. Moreover, green practices in the food manufacturing companies are essential to the food manufacturing industry's long-term success. Palestinian food manufacturing companies are increasingly recognizing the importance of acceptable practices towards the environment as a whole. There is no doubt that practices that take into account the environment have a positive impact on the environment. The study's importance stems from an understanding of the

impacts of TQM on green practices adoption and implementation in food manufacturing companies in Palestine.

1.6 Research Objectives

This research aims to achieve the following objectives:

1. To explore the most implementing TQM and GM practices in Palestinian food manufacturers.
2. To explore and investigate the level of impact of applying TQM on the adoption of green practices on the Palestinian Food Manufacturing Companies,.
3. To develop a managerial framework to achieve green practices by applying TQM in Palestinian food manufacturing companies.

1.7 Research Questions

The research questions are formulated to achieve the above-mentioned research objectives. This research aims to answer the following research questions:

1. What are the most implemented TQM and GM practices in the Palestinian food manufacturing companies?
2. What is the impact of applying TQM on green practices adoption in the Palestinian food manufacturing companies?
3. What type of managerial framework is required to achieve green practices by applying TQM?

1.8 Research Hypotheses

To achieve the research's aim of assessing the impact of implementing TQM practices on the adoption of GM practices in Palestinian Food Manufacturing Companies. The following hypotheses and conceptual framework (Figure 1.1) have been formulated based on the literature reviews conducted in the Chapter Two.

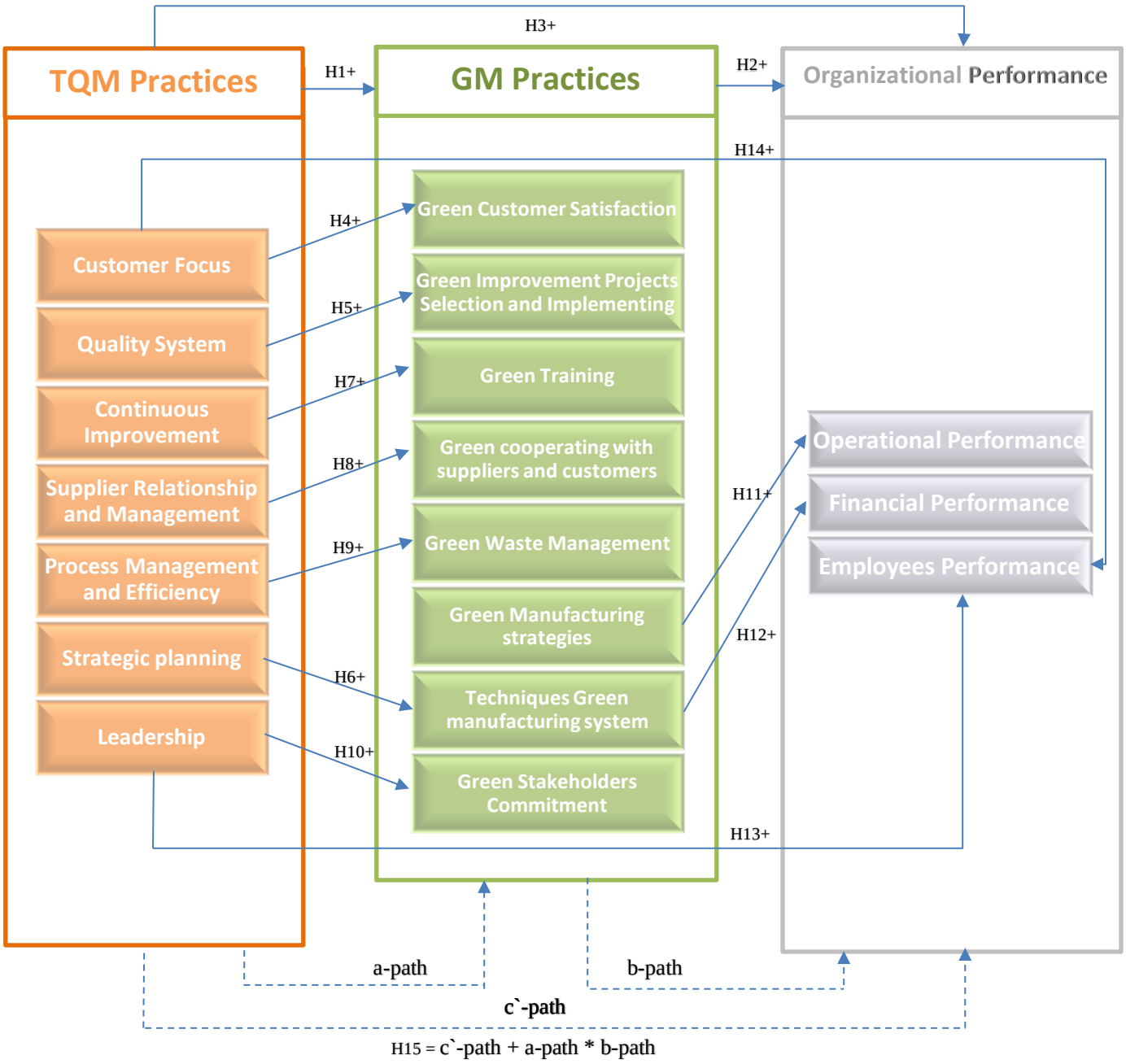

Figure 1. 1: Conceptual Framework

- H1: There is a statistically significant correlation between TQM Practices and GM Practices in the Palestinian food manufacturing companies at significance level of 5%.
- H2: There is a statistically significant correlation between GM Practices and Organizational Performance in the Palestinian food manufacturing companies at significance level of 5%.
- H3: There is a statistically significant correlation between TQM Practices and Organizational Performance in the Palestinian food manufacturing companies at significance level of 5%.
- H4: Customer Focus has a positive effect on Green Customer Satisfaction in the Palestinian food manufacturing companies
- H5: Quality System has a positive effect on Green Improvement Projects Selection and Implementing in the Palestinian food manufacturing companies.
- H6: Strategic planning has a positive effect on the adoption of Techniques Green manufacturing system in the Palestinian food manufacturing companies.
- H7: Continuous Improvement has a positive effect on the adoption of Green Training in the Palestinian food manufacturing companies.
- H8: Supplier Relationship and Management has a positive effect on Green cooperating with suppliers and customers in the Palestinian food manufacturing companies.
- H9: Process Management and Efficiency have a positive effect on Green Waste Management in the Palestinian food manufacturing companies.
- H10: Leadership has a positive effect on Green stakeholders Commitment in the Palestinian food manufacturing companies.
- H11: Green Manufacturing strategies positively affect Operational Performance in the Palestinian food manufacturing companies.
- H12: Techniques Green manufacturing system positively affect the Financial Performance in the Palestinian food manufacturing companies.

- H13: Leadership practice of TQM positively affects Employees Performance in the Palestinian food manufacturing companies.
- H14: Customer Focus positively affects Employees Performance in the Palestinian food manufacturing companies.
- H15: There is a significant indirect effect of implementing TQM practices on Organizational Performance mediated by of GM practices in the Palestinian food manufacturing companies.

1.9 Thesis Structure

This thesis consists of six chapters; each of these chapters contains a group of sections. The first chapter, "Introduction," is a summary to explain the study's significance, research problems, questions, hypotheses, and the conceptual framework. The second chapter, "Literature Review," presents previous research on TQM and its practices, GM and its practices, and TQM and GM's relationship to organizational performance and their applications around the world.

The third chapter, "Methodology," explains the methods used to conduct this research and presents the methods and tools for data collection and analysis. The fourth chapter, "Data Analysis," offers an analysis of the data collected during the data collection process from the target population for both quantitative and qualitative data. It also presents the hypothesis testing results and provides a preliminary and summary description of the analyzed data.

The fifth chapter, "Discussion and Model Development," discusses the analyzed data's results and findings and presents the model development. The sixth chapter, "Conclusions and Recommendation," shows the conclusions of this research's findings and results. Moreover, it gives a set of recommendations and future research proposals.

Chapter Two

Literature Review

Chapter Content:

- Overview
- Quality
- Total Quality Management (TQM)
- Total Quality Management and Organizational Culture
- Green Manufacturing Movement
- Green Manufacturing Practices
- TQM and Green Manufacturing Practices
- The Impact of TQM and Green Manufacturing on the Organization Performance

CHAPTER TWO

LITERATURE REVIEW

2.1 Overview

This chapter introduces a literature review of previous scholarly works that tackle the concept of quality with all its aspects, including quality management movement and the development of the concept of total quality management. Moreover, the chapter is concerned with green manufacturing alongside green practices, and how they interrelate with each other.

2.2 Quality

The quality definition field is vast, with various definitions from different angles and perceptions (Elassy, 2015; Schindler et al., 2015). However, the most relevant definitions that serve this study are to be included.

To begin with, the concept of quality refers to the Latin word (Qualitas), which means the nature of the person or the nature of the thing (Anttila and Jussila, 2017). More precisely, the International Organization for Standardization (ISO) defines quality as the “degree to which a set of inherent characteristics fulfills requirement” (Quality Management, 2019), in which characteristics are a distinguished feature, while the distinguished feature here means the feature that makes something different from others of the same type (Fengchun et al., 2014). Furthermore, in quality, the distinguished feature has to be an inherent permanent characteristic that meets certain requirements (Yavas, 2015).

Referring to the ordinary dictionary, the “quality” word is defined as "the standard of something as measured against other things of a similar kind; the degree of excellence of something" (Oxford Dictionaries, 2019; Russell and Martin, 2016).

2.3 Total Quality Management (TQM)

To begin with, the term Total Quality Management (TQM) denotes both a “philosophy and a set of guiding principles that represent the foundation of a continuously improving organization” (Rusnauka, 2019). It is a contemporary management philosophy based on a set of modern management indicators and concepts regarding innovative efforts, basic administrative definitions, and specialized technical skills. Those indicators and concepts aim to enhance performance, improvement, and continuous development (Khatib, 2000). TQM is adopted in many administrative organizations to improve and develop the quality of its services and production, help face difficult challenges, and gain public satisfaction (Ravichandran, 2000).

However, TQM's evolution started when the traditional control methods, which executed in industries, guarantee that quality existence has not yielded the expected results and the worldwide effects of rapid changes in technology and customer expectations on the organizations (Lakhe and Mohanty, 1993). Thus, the changes in the global economy besides the changes in the market's demand drove into TQM's evolution (Androniceanu, 2017). It has received attention from everywhere and has been adopted in plenty of industries, especially in developed economies, in which the adoption of TQM as a major preoccupation of businesses is very recent (Lakhe and Mohanty, 1993).

The origins of TQM's can be traced back to 1949 when the Union of Japanese Scientists and Engineers formed a committee of engineers, scholars, and public employees focused on improving Japanese products' productivity and developing their life after the war. Then around 1980, American firms started to take earnest notice of TQM (Lorente et al., 2014, p.4).

In principle, total quality management (TQM) holds all parties engaged in the production process responsible for the gross final product or service quality (Barone, 2019). Moreover, it is the

uninterrupted process of detecting and decreasing or eliminating manufacturing errors, leading the supply chain management, enhancing the customer experience, and guaranteeing that employees are up to the required speed with training (Barone, 2019). TQM is a key solution to companies' survival in such a dynamic and competitive environment, by which companies aim to meet the maximum satisfaction and loyalty of customers by increasing the management focus on TQM (Topalović, 2015).

TQM has become the representative of success for most organizations globally, which is increasing its popularity every day (Setu et al., 2016). It proved its efficiency as it has various advantages, including – amongst all- improving and developing the quality of the organization's services and products, and helping in facing difficult challenges, and gaining public satisfaction (Ravichandran, 2000). It also helps meet customers' requirements by improving the effectiveness, competitiveness, and the flexibility of such business (Oakland, 1993; Topalović, 2015). Besides, it leads the organization to reach a differentiation with a high degree, strengthen brand image, and reduce costs by preventing wasted time and low quality (Lee et al., 2015). Finally, it creates a new firm's culture that leads to improvements in its activities and management system (Conca et al., 2004).

Moreover, the basic concepts to be observed in the TQM could be summarized in six points manifested in, first of all, a commitment and involved management in providing long-term top-to-bottom organizational support. Secondly, an unwavering focuses on the customer, both internally and externally. Thirdly, effective involvement and utilization of the entire workforce. Fourthly, continuous improvement of the business and production process. Fifthly, treating suppliers as partners. Finally, embedded performance measures such as nonconforming, uptime, customer satisfaction, and absenteeism should be specified for the process. Quantitative data are indispensable to measure continuous quality improvement activity (Rusnauka, 2019; Stephen Hacker, 2014).

It is important to note to the fact that TQM is vital for organizations and very popular as well because it guarantees the customer's satisfaction, contributes to increasing the market share, reduces costs, and provides a conducive environment for employees (Setu et al., 2016).

2.3.1 Total Quality Management Principles

There are six main integrated principles of the TQM that are applied in organizations concerning customers, senior management, employees, and planning (Tasleem et al., 2015).

First: focus on customers

Any organization's primary objective is to satisfy customers by providing goods or services (Diamandescu, 2016). Customer satisfaction is linked to two variables: the benefit they gain from using the good or service, and the sacrifices made by the customer in order to obtain the goods or services (Razak et al., 2016). However, for the customer to be satisfied, the satisfaction must be greater than the sacrifices made, and the greater the benefit over sacrifice, the greater the customer's satisfaction is (Razak et al., 2016). Not to mention that any organization's success depends on the extent of the employees' awareness of the importance of delivering goods or services efficiently and effectively (Crosby, 1992; Deming, 1986; Oakland, 2003; Sha'aar & Najjar, 2015). This principle encourages organizations to continually seek new customer needs and expectations, leading to organizations' innovation in developing and introducing new products or services to meet the customers' needs and expectations (Topalovic, 2015; Mosadeghrad, 2015).

Second: senior management commitment

Total Quality Management (TQM) is a complicated system that needs continuous support from senior management via ongoing support for change processes and their transition to practice (Kedar and Borikar, 2016; Cooke, 2000; Flynn et al., 1994). Besides, the senior management must adhere to its turn related to the building of the organizational culture through which the values of collective and

cooperative work are built, and the workers are informed of the existence of the freedom to submit proposals and guarantee that they will consider them (Sha'aar & Najjar, 2015; Martin et al., 2015; Cheung and To, 2010; Clark et al., 2009)

Senior management's role is not limited to supervision only, but rather to leadership (Deros et al., 2009; McAdam, 2000; Yusof, 2000). The management must improve its resources by taking good care of the quality of product and service and translating it into the actual product design (Miranda, 2014). The required shift in management requires that managers become leaders (Amanchukwu, 2015). Results-based methods such as management by numbers, management by objectives, performance standards, conformance, zero-fault, a performance appraisal should be neglected, and leadership should be considered instead (Igbinakhase, and Naidoo, 2019; Sha'aar & Najjar, 2015).

Third: Workers' participation and empowerment

The objective of empowering employees is to increase their ability to make decisions on their own without guidance from the management (Sok and O'Cass, 2015; Gómez and Rosen, 2001). The primary objective of empowerment is to provide the proper environment for the employees to contribute with their maximum potential in continuous improvement efforts (Hirze et al., 2017). Therefore, the term empowerment involves sharing decision-making with other administrative levels, and it is a lot more than a mere mandate. The employees feel responsible not only for the work they perform but also for the business's responsibility beyond their function so that the whole organization works better (Al-Asoufi and Akhorshaideh, 2017; Özarallı, 2015). The importance of empowerment lies in giving the employees the ability and responsibility to take effective steps to identify problems in the work environment that affects the quality or customer service and dealing with them effectively (Mone and London, 2018). A vision, strategy, and goals cannot be achieved without empowering employees (Paynevandy, 2016; Sha'aar and Najjar, 2015).

Fourth: Working groups

Forming working groups is one of TQM applications' requirements that aims at solving problems and finding solutions by a team (Ejionueme, and Oyoyo, 2015). TQM requires that senior management creates a team of skilled individuals with the needed estimation to solve problems and improve the quality of the provided goods and services (Cox and Bobrowski, 2016). The main principle is that the group of employees meeting and exchanging views among them leads to a valuable contribution and helps to innovate and create the best methods to work and reduce costs (Sha'aar and Najjar, 2015; D'Ortenzio, 2012).

Fifth: Comprehensive strategic planning

Short, medium, and long-term planning plays a prominent role in the TQM methodology's implementation and success (Oschman, 2017). It is a fundamental pillar of this methodology and is used to address\face the future and its ambiguities and surprises (Oschman, 2017). Strategic planning leaves nothing to guess; every tiny and large issue is subject to study, and planning TQM is based on the principle of leaving nothing to chance or luck; there is no room for personal muddles (Chikwengo, 2017; Kantardjieva, 2015). TQM is a long-term journey, needs strategic planning integrated and high-precision (Sha'aar & Najjar, 2015; Leonard and McAdam, 2002).

Sixth: Continuous improvement

This means that the organization should make continuous improvements to its work systems (McLean, 2017). Continuous improvement is also defined as a philosophy that seeks to improve all factors related to the input conversion process to the output, and continuously, it covers equipment, roads, raw materials, and manpower (Sweis et al., 2019; Benavent et al., 2005; Escrig-Tena, 2004). Continuous improvement refers to the gradual and sudden improvement of knowledge or technology that becomes an integral part of the organization's acts (Sha'aar and Najjar, 2015; Aized, 2012).

Consequently, adopting TQM as a management strategy helps creative organizations to excel and to be distinguished from less creative organizations, as it provides a fertile environment for creativity because TQM embodies principles that correspond to creativity (Dawabsheh et al., 2019; Sha'aar & Najjar, 2015; Colurcio, and Mele, 2006).

TQM is the cornerstone of the cultural environment that encourages innovation. The ability to adapt to changes and take advantage of change opportunities is a manifestation of creativity, which is essential for competitiveness. The organizational culture in the TQM environment is a tool for creativity and the achievement of strategic objectives (Sha'aar & Najjar, 2015). Moreover, applying TQM principles proved to be efficient in achieving competitive priorities in the presence of organizational loyalty, which is the positive feelings the employees have towards the organization they work for that makes them proud to belong to the organization and work effectively and loyally. Because of the positive effects of TQM principles that have proved effective (Qindeel, 2015). Besides, there is a significant correlation between TQM's dimensions (combined) and the effectiveness of time management and functional performance. This can be explained by the fact that the application of all TQM dimensions improves the efficiency of time management and functional performance, and this will be reflected in the performance organizations and their employees, and achieve their goals efficiently and distinctly (Abu-Ziyadah, 2012).

2.3.2 Total Quality Management Practices

TQM practices are the different approaches that the organizations follow to ensure the best level of customer satisfaction in their product or service (Arumugam et al., 2008). The term indicates the importance of responsibility that every participant should take, including stakeholders (Noe et al., 2017). In general, TQM practices within organizations are classified into two main categories, namely soft and hard practices in which all types of techniques could be embraced under them (Rahman and

Bullock, 2005). Starting with the soft practices, in brief, as the name suggests, they are the intangible side of practices. In other words, they are concerned with behavioral and management aspects, including strategies, plans, training, group-work, supplier relationship management, and customer satisfaction (Abdallah, 2013). On the other hand, hard practices are the tangible side concerned with TQM tools and systems enhancement that are meant to improve TQM soft practices (Lewis et al., 2016). TQM's hard practices include constant enhancement, information feedback, and process management (Abdallah, 2013; Lenka et al., 2010).

However, various scholars have identified different practices of TQM in organizations. For instance, Black and Porter (1996) named ten practices, which are strategic quality management, people and customer management, supplier partnerships, communication of improvement information, customer satisfaction orientation, external interface management, teamwork structures for process improvement, operational quality planning, quality improvement measurement systems, and corporate quality culture (QC) (Talib et al., 2011). Figure 2.1 shows the soft and hard practices of TQM.

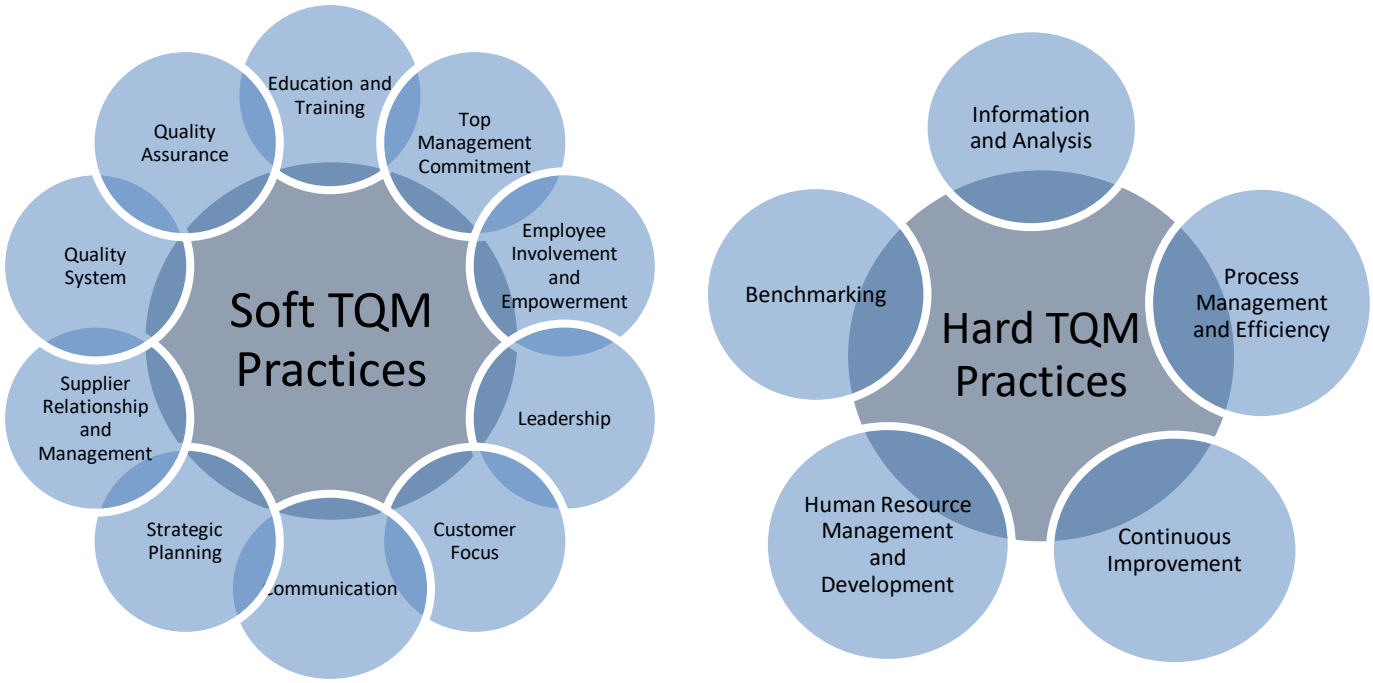

Figure 2. 1: Soft and Hard TQM Practices

Moreover, Sureshchandar et al. (2002) identified 12 TQM practices manifested in top-management commitment (TMC) and visionary leadership, human resource management (HRM), technical system, information, and analysis system, benchmarking which is a way to measure the level of functional performance and compare it to others, internal or external the firm (Hileman and Rauchs, 2017). They also include continuous improvement, customer focus, employee satisfaction, union intervention, social responsibility, servicescapes, and service culture (Talib et al., 2011). Many other scholars have identified numerous practices, such as Brah et al. (2000), Samat et al. (2006), Ueno (2008), and many others (Talib et al., 2011). Nonetheless, the most in-common practices could be classified as Figure 2.1 suggests.

On the other hand, Abu Zayed (1994) enclosed Deming's proposed TQM approach, which summarizes and categorizes the practices of TQM; as shown in Figure 2.2 below.

Figure 2. 2: Deming's TQM approach

Deming's approach identifies the three main pivots of TQM, which have an exchangeable role and interactive and organization setting. TQM starts by identifying the customer that needs the service or product. Furthermore, suppliers and customers are organizational participants. At the same time, the input represents the interactive production process between the organization and the customer who gets the product or service, which is the output. Finally, the customer provides the organization's financial revenues (Sharma et al., 2019; Mumford et al., 2006; Abu Zayed, 1994).

Landowski et al. (2019) explained that TQM practices could be embraced under the three pivots of the Deming's approach, as the following figure suggests, not to mention that Figure 2.3

includes some of the TQM practices in which the rest of them could be included as well.

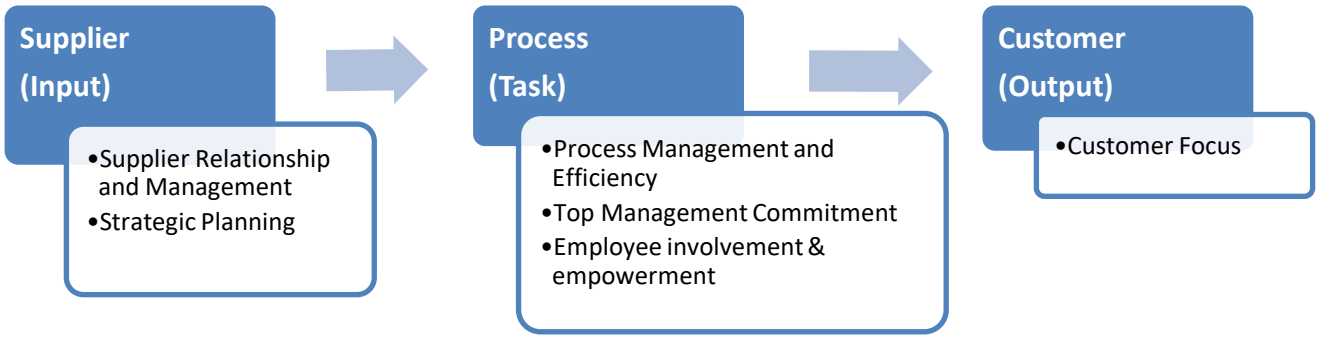

Figure 2. 3: *Deming's TQM approach and TQM practices*

2.4 Total Quality Management and Organizational Culture

Schein (1992) defined the organizational culture as the status when groups solve internal integration and external adaptation problems and use a technique working effectively. They consider it a pattern of shared basic assumptions to be adopted in the future and passed to new members as the most valid track to understand, think and feel concerning future problems (Furlan et al., 2019; Jancikova and Brychta, 2009). TQM and organizational culture are interdependent and interconnected as well; the more successful implementing the TQM, the more the organizational culture is improved and influenced (Eniola et al., 2019). Besides, the organizational culture, in turn, affects the TQM and influences it as well (Valmohammadi and Roshanzamir, 2015). Some scholars even consider TQM's culture, such as Kanji & Yui (Jancikova and Brychta, 2009).

Pun (2011) argues that applying TQM principles depend on the quality culture and supportive infrastructure (Jancikova and Brychta, 2009). This quality culture is characterized by –amongst all- the state of being progressive that is continually evolving, and that it responds and evaluates to stimuli, tries to keep the true beliefs. Changes are infrequent and occur when there is stimulation that challenges traditions, and in cases of multinational organizations, it becomes a hybrid culture (Cheney and Munshi, 2018). Furthermore, when TQM is implemented, the results are not limited to a financial

outcome; instead, there is a spiritual side as well. For instance, the outcome would be a change in processes, attitudes, and behaviors (Pambreni et al., 2019; Ranasinghe et al., 2018). In turn, if the awareness of the principles of the organization's TQM is achieved, a transformation in the total quality culture occurs. This awareness is attained via training and education of quality side by side with a structural and progressive change of management systems (Gambi et al., 2015).

2.5 Green Manufacturing Movement

The urgent need for green practices has emerged in response to the initiatives of international organizations concerned with the preservation of the environment and its resources after the Industrial Revolution, the breadth of global business and the negative effects and practices of these businesses and industries that have greatly increased pollution and environmental degradation in general. Scientists became alert to these catastrophic problems in the environment and society (Mabasa and Mukwakungu, 2019; Rashid, 2018; Al-Sakarneh, 2017; Deif, 2011).

At the beginning of the 1980s, countries began to think about combating these problems and reducing the harmful practices towards the environment (Alier et al., 2016; Al-Sakarneh, 2017). Among the most prominent of these conventions, treaties and protocols is the Montreal Protocol on the Reduction of Ozone Hazards (1987), New York (1988), London (1990), Rio de Janeiro (1992), Kyoto (1998), the Copenhagen Climate Encoders Conference (2009), and the recent Paris Climate Change Conference (2015) with the participation of 195 countries, including 158 heads of state (Emilian and Mihaela, 2015; Al-Sakarneh, 2017). The agreement calls on all rich and developing countries to undertake climate change measures that reduce global warming From 2 degrees Celsius above the Kyoto Protocol, which will expire in 2020. The document was signed in New York at United Nations Headquarters on 22 April 2016 “and will enter into force after ratification by 55 countries producing at least about 55% of greenhouse gases” (Falkner, 2016: Al-Sakarneh, 2017).

Dobers & Wolff (2000), Kleindorfer et al. (2005), Rahimifard & Clegg (2007), Saha & Darnton (2005), and Seliger, Kim, Kernbaum & Zettl (2008) all state that the term 'green' is commonly used to denote the concept of "sustainability' regarding environmental, social and economic dimensions (Baines et, al., 2012). Furthermore, green manufacturing is the method that enables the organization, whether large or small, to understand what should be done about its negative effects on the environment that causes efficiency reduction, increases the cost and reduces its productivity. The continuous progressive improvement in products and processes creates great opportunities to prevent pollution and reduce waste (Dawood, 2018). Thus, green manufacturing is concerned with natural resources conserving and material recycling via improving the production process, as well as improving performance throughout employing sustainable development (Belekar, 2017).

Fortunately, many industrial companies seek to adopt modern concepts and apply them, especially in the field of environmental conservation and green productivity\manufacturing that contribute to reducing environmental pollution inside and outside the organization (Dawood & Hashem, 2017; Dawood, 2018). A green product is an ideal candidate for environmental conservation in which it is a manifestation of green manufacturing. It is a product that does not damage the environment when it is produced, used, or destroyed (Dawood, 2018). However, no product is totally\purely green as it is a relative matter; Ottman (1998) argues that the products that are labeled as green require multiple resources and energy as well to be produced, transported, used, and disposed of (Durif et al., 2010). On the other hand, the aims of green production, in brief, are summarized in reducing, controlling, preventing, and avoiding the waste that would occur in the production process. Thus, it protects workers, the environment, and consumers, alongside improving competitiveness, profitability, and industrial efficiency (Eshikumo and Odock, 2017).

Green manufacturing could be mixed with other terms used in the same field, such as cleaner

production, sustainable production, organic production, clean technology, pollution prevention, low-cost technology, waste minimization technology, green processing, and green productivity (Blok et al., 2015; Mundial, 1998; Ozturk et, al., 2016). However, studies, research, and views in this area have not revealed any significant differences in their content. They all stress the efficient use of resources and the reduction of emissions and waste (Ismaeil, 2013, p.286; Cai et al., 2019; Tukker and Ekins, 2019; Vahatiitto, 2010; Fayad, 2008; Kralj & Markic, 2007). Green manufacturing is the extended application of a preventive and integrated environmental strategy towards services, processes, and products to increase the total efficiency and minimize the damage and risks for the environment and human beings (Elwan et al.; Hens et al., 2018).

2.6 Green Manufacturing Practices

Lin (2011) classified green manufacturing (GM) practices into two main categories, namely green supply chain management (GSCM) including (waste management, green purchasing, green manufacturing, green packaging, green design, and reverse logistics)) (Luthra et al., 2013), and total quality environmental management (TQEM) (Alhamali, 2019; Laosirihongthong et al., 2013).

Before delving into more details, it would be beneficial to define the two terms. Starting with GSCM, which is assimilating environmental thinking into supply chain management, which includes selection, product designing, and material sourcing, as well as processes of manufacturing, final-product delivery to customers, and product end-of-life management (Gajendrum, 2017). On the other hand, TQM is a relatively modern management concept that combines the concepts of TQM and environmental management, aiming at continually improving the environment through the reduction or elimination of waste and environmental pollution to help the organization achieve a competitive advantage (Dawood, 2016; Alhamali, 2019).

Azevedo et al. (2011) stated that GSCM practices are manifested in greening the supply

process, product based practices, delivery process, and green practices through cooperating with suppliers and customers (Ali et al., 2015; Chin et al., 2015). On the other hand, Tomlin (1996) identified the TQEM framework for pollution preventions in the following continuous improvement process: management commitment, quality action teams, training, environmental impact determining, improvement projects selection, improvement projects implementing, results measure, improvements standardization (Luthra et al., 2013).

Binti Zakaria and Bin Haji Hasan (2017) categorized six critical factors that affect GM Practices for the SMEs. The first factors are the style of the organization; the environmental issues should be taken into account when organizations develop their strategic plans, policies, and social and economic development projects besides supporting the green concepts in their participation in decision-making and implementation of the ISO 14001 (Ghinmine and Sangotra, 2015; Leen et al., 2013). The second factor is the business environment, which requires commitment from business stakeholders to concern about the environment and natural resources and incorporates environmental concepts into their financial practice (Rehman et al., 2013; Motwani, 2001). The third factor is eco-knowledge, in which organizations should focus on commitment to educate their employees about GM by providing training and education about the environmental responsibilities and awareness of reverse logistics. In turn, this leads to protect the natural heritage as critical ecological systems and resources (Govindan et al., 2015; Ghinmine and Sangotra, 2015). The fourth factor is society, which focuses on customers' satisfaction by engaging them with environmental awareness, and therefore, they'll have the knowledge and green attitude reflected in their requirements (Saad et al., 2006). Thus, manufacturers should primarily focus on these requirements during product design (Ghinmine and Sangotra, 2015; Ghazilla et al., 2015; Rehman et al., 2015). The fifth factor is Supply Chain Management, which entails the manufacturers to focus on green purchasing, green and reverse logistics, and internal

environmental operation management and involves suppliers and customers (Ghinmine and Sangotra, 2015). The last factor is the technology network, in which the manufacturers should use the technology innovation to analyze the customer outcomes and determine its suitability for green manufacture (Ghinmine and Sangotra, 2015; Rehman et al., 2006).

Deif (2011) and Dornfeld (2010) pointed out that the GM Practices are summarized in four main strategies, namely: delivering products that consume as little material and energy as possible (Time), replacing inputs (Flexibility), reducing unwanted outputs (Quality), and recycling (Cost).

Al-Azawi and Al-Sabbawi (2013) and Nunes (2011) referred to three main strategies of GM Practices (4Rs); Reduce, Recycle, and Remanufacturing or Reuse. John (2008) defended the' Reduce' as the dilution or removal of the toxic substance from the waste before its production. While Zahid (2008) defined it as reducing the risk, volume, or weight of hazardous substances used in the product, increasing the product's life, producing reusable products, or reducing the overall consumption of goods (Al-Ghazawi and Al-Sabawi, 2013; Rebellon, 2012). 'Recycle' is the reprocessing of used materials into useful new products, which means reusing waste as raw materials in the manufacturing of a new product (Dahlstrom, 2011; Swink et al., 2011). This is done in four steps: collection, separation, treatment, and manufacturing (Willan et al., 2005). Recycling maintains sustainable development, reduces natural resources exploitation, and creates new jobs (Mitzel, 2005). The 'Reuse' is starting from production by reducing as much as possible the diversity of the production process and multiple inputs and outputs in addition to the development of products to be made of a single material (Henriques et al., 2014; Environment and Water Research Unit, 2009; Delahaye, 2007). The British Standard Institute –BSI defines 'Remanufacturing' as the process of returning the materials used - at least- to the original product specifications from the customer's point of view, and offer products with ensuring that are close to the performance of newly manufactured products (Kauffman and Lee, 2013).

These strategies can be applied by doing some practices such as modification of the consumption pattern by not buying excessive amounts and end it up in waste, avoiding buying disposable plastic products and replacing it with products that can be used more than once or permanently, using recyclable products, and abstaining from throwing unneeded products that are still in good condition and donate them instead (Al-Azawi and Al-Sabbawi, 2013; Environment and Water Research Unit, 2009; Zahid, 2008).

Al-Rubaie and Mohammed (2017) emphasize eight requirements besides GM strategies to design the GM system. The first requirement is the Green Information System, which is a system that combines four critical elements -namely: employees, technology, processes, and data - to collect, process, manage, analyze and distribute information effectively, efficiently, and with minimal environmental impact (Wallace, 2015; Murugesan and Gangagharan, 2010). This information is related to energy consumption and management issues, manufacturing practices, process design, and recycling, products' end-of-life issues, total cost issues, company performance, and disposal methods for damaged products (Al-Rubaie and Mohammed, 2017).

The second requirement is the Environmental Management Systems. It requires GM companies to adhere to special specifications that consider the environmental impact (Al-Rubaie and Mohammed, 2017; Al-Ta'i et al., 2009). such as ISO 14001:2004, which is concerned with the factory's environmental policies and plans during the planning, implementation, operation, and commitment to conduct inspections, corrective action, and periodic review of management (Salomone et al., 2013; Ben Eishawi, 2013). ISO 14020:2000 addresses environmental labels (Muhsen and Al-Najjar, 2012). ISO 14067:2013 is concerned with carbon emissions from products (Muthu, 2014).

The third requirement is the Green Product Design. It entails the product to consider the environmental issues during its manufacture with minimum raw materials and energy and no toxic or

polluting materials besides using the product –which should be recyclable- easily with no disposals or any harm to the environment (Al-Rubaie and Mohammed, 2017; Musa and Jamil, 2012). Thus, by implementing those three concepts, the organizations would be able to reach the Green Product Design, including the Green Design (Environmental Design), Green Quality Function Deployment, and Life Cycle Assessment (Chiarini, 2015; Odeyale, 2014; Henriques et al., 2014; Rathore and Verma, 2013).

The fourth requirement is the Green Purchase, a function designed to ensure that the materials and parts are purchased to meet its environmental objectives (Wisner et al., 2012).

The fifth requirement is the Techniques of GM System. It is the efficient use of energy technology during manufacturing and reducing the use of raw materials, and modifying the process to replace manufacturing plans, materials, and design with less harm to the environment. Besides, monitoring the production process to ensures compliance with environmental specifications, reduceing pollution, and wastes the manufacturing process, adopting techniques that reduce carbon emissions and adopt green maintenance (Kauffman and Lee, 2013; Yuan et al., 2012; Madu, 2001; Yuksel, 2008; Elhagger, 2007; Chakravarty, 2014; Golinska, 2013).

The sixth requirement is the Adoption of Quality Improvement in Manufacturing Processes, which aim to improve manufacturing processes by increasing efficiency and reducing the production cost to achieve the customers' satisfaction and environmental needs (Gardas and Narkhede, 2013). All this could be achieved via employing Quality Improvement in Manufacturing Processes such as Green Six Sigma, Kaizen, and Techniques Quality at Source, which is Workers as Inspectors, Stop and Fix (Line Stop), Andon and Poka Yoka (Mistake-Proofing) (Reid and Sanders, 2013; Muhsen and Al-Najjar; 2012; Swink et al., 2014; Krajewski et al., 2013; Badiru and Agustiady 2013).

The seventh requirement is the Green Packaging, which can be defined as the suitable reusable,

recyclable packaging that neither causes pollution to the product nor the environment during the product life cycle assessment (Zhang and Zhao, 2012).

The eighth requirement is Social Responsibility and Environmental (Al-Rubaie and Mohammed, 2017). The fact that the institution is a member of the community leads to force it to adapt and adhere to all the requirements associated with society to ensure that the environment is not harmed (Okpara and Idowu, 2013).

To sum up with, the researcher embraced the green practices under the two categories that are entitled Green supply chain management (GSCM) and Total quality environmental management (TQEM) using the proper references included in Table 2.1 in which it could embrace any practice under one of the categories.

Table 2. 2: Green manufacturing practices

Green Manufacturing Practices			
Green supply chain management (GSCM)	**Reference/s**	**Total quality environmental management (TQEM)**	**Reference/s**
Greening the supply process	Azevedo et al. (2011) Rha, (2010)	Management commitment	Israa (2019) Ormazabal et al. (2017)
Product based practices	Ali et al. (2016) Azevedo et al. (2011) Trigos (2007)	Quality action teams	Israa (2019)
Delivery process	Alveranga et al. (2013) Azevedo et al. (2011)	Training	Israa, (2019) Dief (2011)
Green practices through cooperating with suppliers and customers	Dai (2013) Azevedo et al. (2011)	Environmental impact determining	Israa (2019) Curkovic (2008)
Eco-knowledge	Govindan et al. (2015) Ghinmine and Sangotra (2015)	Improvement projects selection	Israa (2019) Qasem, (2011)
Green Manufacturing strategies (Reduce,	Al-Azawi and Al-Sabbawi (2013)	Improvement projects implementing	Israa (2019) Qasem, (2011)

Recycle and Reuse or Remanufacturing	Nunes (2011)		
Green Product Design (Green Design (Design of Environment or Eco-design), Green Quality Function Deployment and Life Cycle Assessment)	Al-Rubaie and Mohammed (2017) Musa and Jamil, (2012)	Results measure	Israa (2019) Qasem, (2011)
Techniques Green manufacturing system (The efficient use of energy , reducing the raw materials, modifying the process, monitoring the production process, reduce carbon emission and green maintenance)	Kauffman and Lee (2013) Yuan et al. (2012) Madu (2001) Yuksel (2008) Elhagger (2007) Chakravarty (2014) Golinska (2013)	Improvements standardization	Israa (2019) Qasem, (2011)
Quality Improvement in Manufacturing Processes	Gardas and Narkhede (2013) Reid and Sanders (2013) Muhsen and Al-Najjar (2012) Swink et al. (2014) Krajewski et al. (2013) Badiru and Agustiady (2013)	Green Technology Network	Ghinmine and Sangotra (2015) Rehman et al. (2006)
Green Packaging	Zhang and Zhao (2012)	The Green Organization Style	Ghinmine and Sangotra (2015) Leen et al. (2013)
waste management	Luthra et al. (2013)	Business Environment and stakeholders commitment	Rehman et al. (2013) Motwani (2001)
Green Purchase	Wisner et al. (2012)	Social Responsibility and Environmental and customer satisfaction	Saad et al. (2006) Ghinmine and Sangotra, (2015) Ghazilla et al. (2015) Rehman et al. (2015) Okpara and Idowu (2013)

Green Marketing	Zhu et al., 2005	Green Information System	Wallace (2015) Murugesan and Gangagharan (2010)
		Environmental Management Systems (ISO 14001:2004, ISO14020:2000 and ISO 14067:2013	Al-Rubaie and Mohammed (2017) Al-Ta'i et al. (2009)

2.7 TQM and Green Manufacturing Practices

Organizations are becoming aware of the fact that their green management practices could influence the organization's performance enduringly (Tomlin, 1996). Moreover, environmental management has become an integral part of the process managers' mindset and practice for sustainability (D'Souza et al., 2019). Since the 1980s until today, there has been a broad trend towards implementing sustainability in quality management (Dawood, 2016). There are some similarities in terms of philosophies and practices applied between sustainability and quality programs (Lagrosen, and Lagrosen, 2019.). Both philosophies take a proactive stance in which managers' focus on long-term goals, maintaining performance achievements, zero-defect approach, waste reduction, life cycle assessment, employee participation, and training (Dawood, 2016).

In general, TQM's role in companies is to capture the voice of the customer (VOC) (Salcido-Delgado et al., 2019). Quality Function Deployment (QFD) is one of TQM's main techniques, which aims to customer focus and translate his/her requirements into suitable technical requirements in each development and production stage of any product and service (Gupta, and Modi, 2018). In the late 1960s and early 1970s, Bridgestone Tire and Mitsubishi Heavy Industries used quality charts that consider customer requirements in the product design process, so they originated QFD at the same time in 1978. Yoji Akao and Shigeru Mizuno published their first work on capturing customer needs in

the production process (Syed, 2009). Thus, when such companies use TQM to capture the customer's voice, the result will be more pleased customers as listening to them means creating a rich customer experience (Yachin, 2018). However, nowadays, the customer's voice is asking for environmental protection (Lam and Lai, 2015; Nkirote and Mugambi, 2019). Therefore, to increase customer awareness and consumer's purchase of eco-products, companies and their managers should recognize the customer's needs (Legeza et al., 2019; Shamsuddin et al., 2015). This is why product-specific environmental aspects and green marketing strategy should be based upon and emanated from customer focus and the voice of consumers (VOC) to achieve sustainable eco-product consumption by meeting consumer's requirements and being environmental friendliness (Hanss and Böhm, 2012). Thus, companies' management can reach the consumer's basic requirements by promoting eco-products to the market (Herrmann et al., 2005).

By the same token, product quality is an essential element of strong competition (Matsa, 2011). A good quality product is an effective response to customer needs, which allows the organization to achieve customer satisfaction and thus stay in the market (Zakaria et al., 2018). TQM contributes to improving the quality offers for customers in order to improve company performance and develop its marketing skills (Mustafa, 2003). Moreover, environmental issues and sustainable development are becoming more vital principles recently for developed and developing countries (Sharmin, 2015). The arousing of green concepts is a result of increasing awareness about the environment, which, in turn, contributed to arousing new concepts like green cities, green education, green food, green philosophy, and green ethics in which are called green improvement projects (Firdaus et al., 2014).

Fortunately, customers nowadays investigate the potential link between the TQM benefits and the environmental excellence in operations management away from the usual traditional focuses as suppliers care, customer care, and internal process (Wiengarten and Pagell, 2012; Klassen and

McLaughlin, 1993). Thus, customers ' requirements urge companies to propose a hierarchical model for environmental excellence developing (Vartiak, 2016; Curkovic et al., 2000). This way, environmental management has become a strategic plan to achieve environmental excellence and performance design integration, delivery, production, use, circulation, and disposal of products (Klassen and McLaughlin, 1993). Continuous improvement could be possible in the long term by considering the environmental factors in the designed training for the workforce and the firm structure of reward (Judeh, 2014).

Not to mention that the future of research in the field of environmental operations management could be predicted based upon the developmental stages of TQM and supply chain management (SCM). Those stages include quality goals, environmental improvement goals, which should be an essential part of the annual business plan, and performance review to track progress and support environmental excellence to reach the customers' satisfaction (Corbett and Klassen, 2006). Consequently, TQM proved to be efficient in green practices adoption by playing a vital role in responding to customers' needs for a better cleaner environment (Herrmann, Stachura, and Yim, 2005). However, to prove that the two concepts are interrelated, the researcher followed Deming's leads and embraced the green practices the same way TQM practices were embraced in Deming's TQM approach. Consider Figure 2.4 (Boussiba et al., 2012).

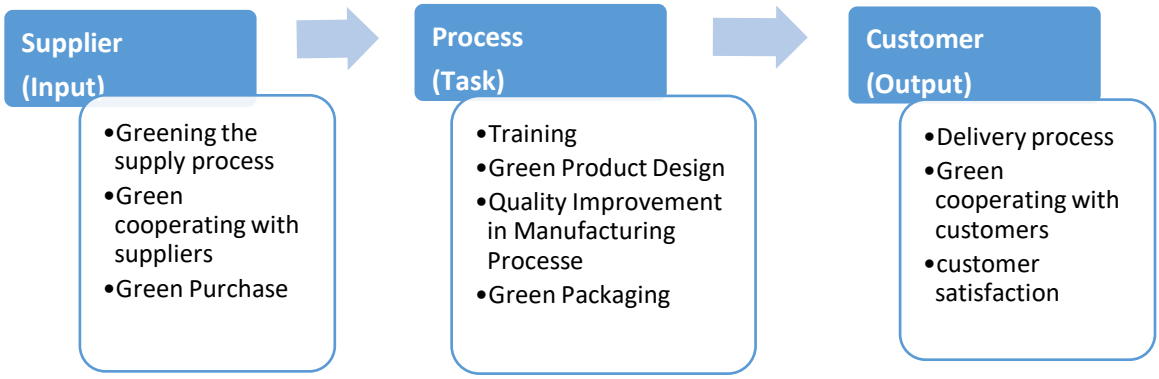

Figure 2. 4: *Deming's TQM approach and Green manufacturing practices*

If we take a close look at Figure 2.1 that represents the TQM soft and hard practices, along with Table 2.1 that represents the GM practices, we can find a lot in common and that the green practices could also be categorized into soft and hard practices. For instance, management commitment could be embraced under soft practices, while greening the supply process could be embraced under the hard practices. Moreover, the common practices between TQM and GM are manifested in training, management commitment, improvement, and communication. All the previous represent further evidence that TQM and Green Production share various aspects. Consider Figure 2.5 below.

Figure 2. 5: *Hard and Soft green manufacturing practices*

TQM practices aim at improving the efficiency of organizational processes to eliminate defects (Sweis, 2019). Certain practices such as 'zero defects' are closely related to the 'no waste' goal of EM-based systems. Efforts to eliminate pollution and waste through EM can follow the same basic principles applied in TQM, as both practices share a similar focus: using inputs more efficiently. Due

to this and other similarities, organizations that have adopted TQM practices might foster and develop a set of skills that facilitate the adoption of EM practices. Besides, the idea underlying EM is based on the concepts associated with QM (Allur et al. 2018). Saraph et al. (1989) argue that the in-common practices between TQM and GM are training, continuous improvement, leadership, and self-assessment (Allur et al. 2018; Sharma and Kodali, 2008). Moreover, both TQM and Green Production encourage and emphasize the importance of developing internal competencies, the improvement of organizational effectiveness, and organizational learning (Pollalis, 2001).

In other words, GM and TQM encourage organizational learning, the development of internal competencies, and the improvement of organizational effectiveness (Fok-Yew and Ahmad, 2017; Le et al., 2018). An organization's senior leader should meet customer focus and set clear and visible values and directions, and high expectations in order to improve organizational effectiveness (Sweis et al., 2019), taking into consideration that the directions, values, and expectations should meet all the needs of stakeholders (Chiarini, and Vagnoni, 2017). These stakeholders require actions not to harm the environment by deploying the green practices within the organization, which leads to more organizational benefits both directly and indirectly by creating a green reputation for the organization (Abbas, 2019). These actions need continuous improvement, which TQM supports, and include green practices (Jermsittiparsert et al., 2019). Moreover, TQM requires the leader to ensure the creation of strategies, systems, and methods for achieving excellence, stimulating innovation and building knowledge and capabilities by focusing on continuous training and enhancing the self-assessment (Jalilvand et al., 2018).

2.7.1 The Impact of TQM and Green Manufacturing on the Organization Performance

At the outset, it should be pointed to the fact that the scholarly literature suggests that QM paradigm and TQM facilitate the adoption of environmental practices. So, as GM Practices consider

that these two concepts are working together to improve organizations' quality, competitive advantage and reputation, profits, and overall performance (Allur et al., 2018; Khan and Qianli, 2017; Zhu et al., 2004). Stakeholders nowadays consider GM management the principal contributor to many environmental issues, so they increase the pressure on firms in order to incorporate GM management into their business practices (Zhao et al., 2018).

By the same token, GM success factors improve the organizational performance measures: financial and manpower performance, competitive advantages, operational performance, continuous improvements, stakeholder enrichment, and green supply chain performance (Rehman, 2016). Emanating from this belief, the Asian Productivity Organization (APO) encourages the GM Practices at the organizational level via productivity and management tools application including TQM, which could be combined with practices that aim for reducing waste, conserving energy, controlling pollution, preventing emission and Environmental Management systems (Jadhav et al., 2013).

GM aims at/focuses on reducing parts, rationalizing materials, and reusing components to help build products more efficiently, which is reflected positively on the performance of the organization (Shrivastava, 2017). Organizations with higher levels of green practice implementation are associated with better performance outcomes (Zhu et al., 2007). Green supply chain management can reduce the ecological impact of manufacturing activities without reducing the quality and reliability and without increasing the cost, which improves the performance and ensures the overall economic profit (Shang et al., 2010; Srivastava, 2007).

On the other hand, TQM enhances organizational leadership and focuses on customer satisfaction and relationship with customers, which lead to improving organizational performance by the positive effects of TQM on top management communication, commitment, planning, interaction, leadership, responsibility, evaluation, and anticipation (Keinan and Karugu 2018; Omar et al., 2018;

Qasrawi et al., 2017). Thus, TQM enhances the organization to collect data, study, and plan for improvement, inspection, and control the manufacturing processes to improve employees' skills, leading to improving the overall organizational performance (Pradhan, 2017; Qasrawi et al.; 2017). Consequently, the common aims of TQM and GM are summarized in Figure 2.6.

Figure 2. 6: *Common aims between TQM & Green Manufacturing*

Those common goals have been proved by numerous scholars such as Beckmerhagen et al. (2003), Beechner and Koch (1997), Poksinska et al. (2003), Rodríguez and Ricart (2000), Wilkinson and Dale (1999), Zeng et al. (2005), and Zutshi and Sohal (2005) (Allur, 2018). All the previous affirm the strong interrelated relationship between TQM and GM, which forms this study's core. The current study's framework is presented in Chapter One, Section 1.6, Figure 1.1, where the study hypotheses are identified. The conceptual framework was tested using the exploratory approach in the context of food manufacturing companies in Palestine. It includes direct effects from TQM practices towards the adoption of GM practices, as well as direct effects from TQM practices and GM practices towards the components of organizational performance.

Chapter Three
Research Methodology

Chapter Content:

- Overview
- Research Type
- Research Approach
- Methodology Flow Chart Diagram
- Data Collection Tools
- Research Population and Sampling Techniques
- Analysis Techniques
- Ethical Concerns

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Overview

This chapter discusses the methodological approach for this research using a comprehensive plan for data collection. This plan follows an exploratory research approach to answer specific research questions through testing particular hypotheses. This chapter also discusses the methods of collecting the needed data and the methods and techniques of data analysis. The research population is discussed, and the research methodology diagram is presented in this chapter. This chapter also discusses reliability and validity in addition to the ethical considerations of developing this research study.

3.2 Research Type

Sekaran (2003) defined research as "an organized, systematic, data-based, critical, objective, scientific inquiry or investigation into a specific problem, undertaken with the purpose of finding answers or solutions to it.'' Research objectives include choosing the data collection methods, specifying the data analyzing, and designing the actual research conducting. Opie (2019) and Bhattacherjee (2012) have categorized the research according to its purpose as follows:.

- The descriptive type: The purpose of using this approach is to find ideas and patterns rather than conducting the test of a hypothesis (Zhang, 2019).

- The exploratory type: This type refers to studying an unclear situation of the precise nature of the problem (Saunders et al., 2009). The exploratory type is focusing on studying the social phenomena without pre-expectations aiming at developing the research questions (Algozzine and Hancock, 2016).
- The explanatory type: This type focuses on reality. It explains the current context and follows the corrective path to figure out the preferable practices in each sector (Snead and Wright, 2014).

This research follows an exploratory approach because it is the first research of its kind in

Palestine, and there are no previous studies on this field in Palestinian context based on literature reviews of prior studies that are presented in Chapter Two of this thesis. Therefore, there are no clarifications or details on the subject of this research. Thus, it is discussed and examined for the first time. The exploratory approach used when there are few previous studies or no studies on the subject of the research (Shankardass et al., 2014). However, the exploratory design is useful when the problem is in its initial stage (Pérez-López et al., 2019). However, exploratory research has several advantages: an effective way to obtain necessary information about a specific topic, flexible, and can address research questions of all kinds. It also provides an opportunity to define new terms and clarify current concepts. It is often used to create primary hypotheses and to develop more fundamental research problems. In addition, exploratory studies help establish research priorities. Further, it generally uses relatively small sample sizes (Hunter et al., 2018).

3.3 Research Approach

The research approach is reflecting the researches' plan (Creswell, 2013), therefore, the best explanation of the research approach is the procedures and plans for researching from the setting of hypothesis and assumptions to the details of data collection methods, the analyses, and the final interpretations (Creswell, 2014). It has been chosen based on the nature of the research type (Huang et al., 2019). It could be quantitative, qualitative or mixed of both (Creswell, 2013).

3.3.1 Qualitative Method Approach

The qualitative approach is a method for doing research that requires using the qualitative data as the central resource of data (Opie, 2019). It aims to explore and understand the circumstances of the selected phenomenon in the research problem (Creswell, 2013), in addition to use and generate non-numerical data (Saunders et al., 2009).

The qualitative research approach depends on the collection of data that relies on the

descriptive word more than the numbers (Creswell, 2013). The four major themes in qualitative research are; the occurrence in the natural environment, the derived data based on interviewee's or interviewer's perspective, the flexible design that let the researcher adjusts the method of data collection or analysis due to set of certain constraints. And standardization of instrumentation methods or analysis methods is not used (Simons and Mawn, 2010). However, semi-structural interviews are used for this research. Further details in Section 3.5.1

3.3.2 Quantitative Method Approach

The quantitative approach is a method for doing research that requires using the quantitative data as the primary source of data and using the quantitative data analysis methods (Opie, 2019). It aims to explore the correlations among variables that reflect a characteristic or an attribute of the selected population (Creswell, 2013) in addition to use or generate numerical data (Sanders et al., 2009). Thus, quantitative studies use standardized measures that suitable for different opinions and experiences into predetermined answer categories (Klenke, 2016). Accordingly, a quantitative approach is fitting for data that could be described and measured easily. Not to mention that the hypotheses could be identified and tested by designing the quantitative approach. Therefore, a specific size of the survey must be obtained to be able to use statistical analysis for testing the suggested hypotheses (Malhotra et al, 2004).

3.3.3 Mixed-Method Approach

It is an approach for doing research that requires using a combination of qualitative and quantitative data (Opie, 2019). By taking into consideration that the quantitative and qualitative approaches are not possible to be totally separated or fully isolated from each other (Saunders et al., 2009), and by following an exploratory approach in this research, the researcher will use the mixed-method approach using a combination of qualitative and quantitative data collection methods (Larkin

et al., 2014). So the research will involve qualitative approach (Semi-structured interviews) based on personal interview answers and quantitative approach based on the survey which will mainly be built based on the literature review. Besides upgrading its questions by interview data as this is a new study in food manufacturing companies in Palestine.

However, this exploratory research follows the sequential mixed methodology approach interpretation for data collection and analysis, which is considered a modified version of the mixed methodology approach (Fetters et al., 2013). The main difference between them is the timing of the data collection (Willer, 2015). While mixed methodology allows data collection to happen in parallel, the sequential mixed methodology does it sequentially. It starts with the collection and analysis of qualitative data, and then, the collection and analysis of quantitative data. Finally, it uses all analysis to interpret the final results (Fetters et al., 2013), as shown in Figure 3.1. Further details about data collection tools and techniques are presented in the next section.

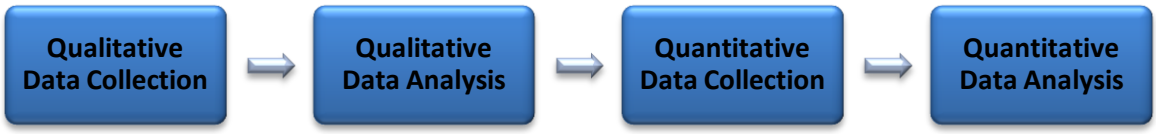

Figure 3. 1: *Sequential mixed methodology approach interpretation*

3.4 Methodology Flow Chart Diagram

The study started on April 2019 and continued till September 2020, while the interview period and the survey distribution were from April 2020 to July 2020. Furthermore, the Palestinian food manufacturing companies, which meet conditions that suit the research objectives, were the research population and sample. However, the research study methodology is explained further in Figure 3.2 using flowchart.

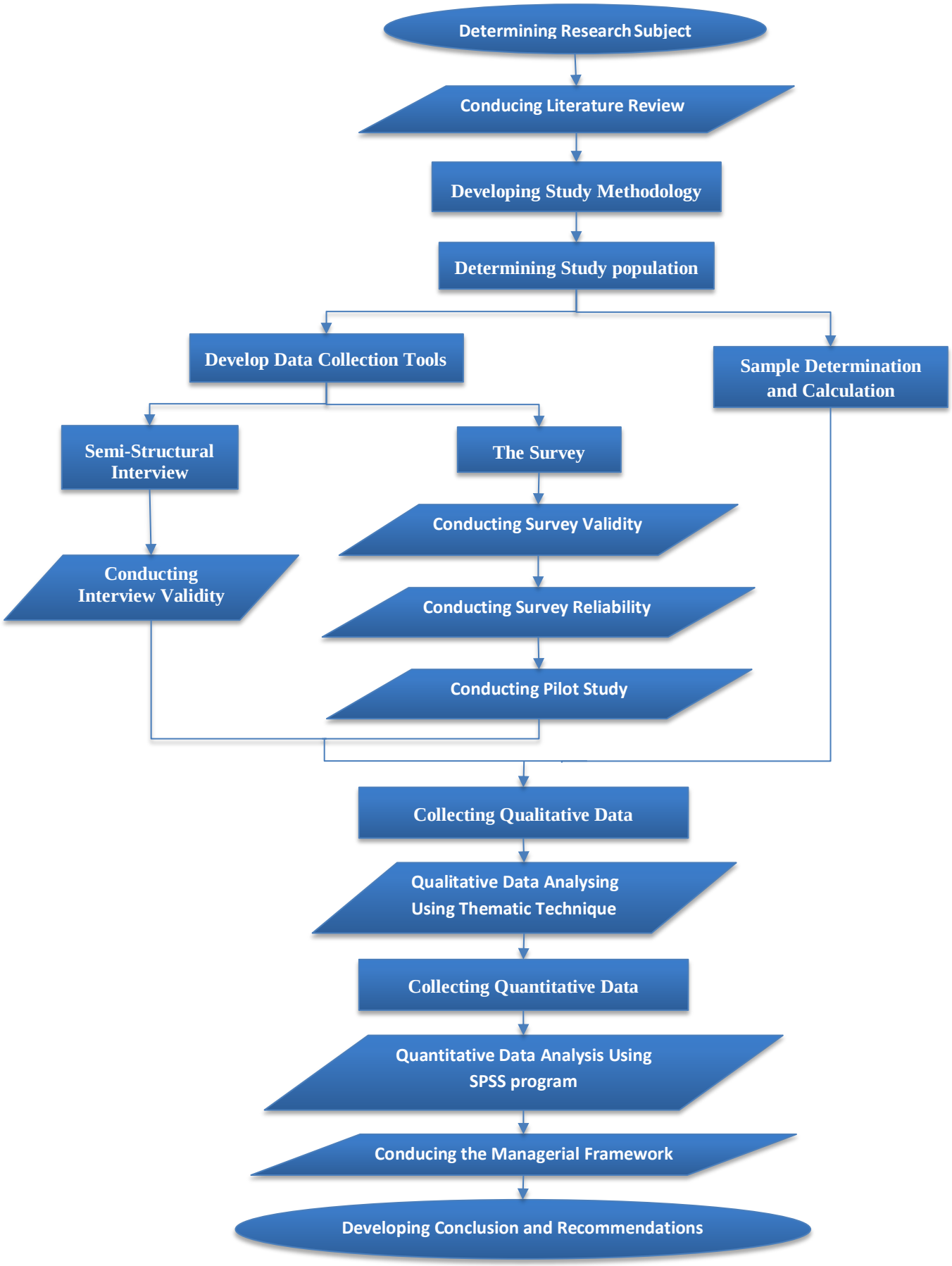

Figure 3. 2: Research Methodology Flow Chart Diagram

Identifying the scope and objective of the study was the first phase. It followed by looking deeply into the prior literature about the concept of TQM and GM practices to reach the step of formulating research questions and hypotheses. The second phase was started by identifying the research population and sample, and then, designing the data collection tools which were basically the semi-structured interview and the survey, after that all, conducting the collecting data.

The third phase was concerning collected data analysis using the Statistical Package for Social Sciences (SPSS) to test the set hypotheses, and to answer the research questions. The fourth step came based on data analysis in the third step. The framework was developed in order to be a guide model for the food manufacturing companies in Palestine in applying the TQM and GM practices. Finally, finalizing conclusions and recommendations, which was the fifth phase.

3.5 Data Collection Tools

Data collection of the research study could be accomplished by many tools (Onwuegbuzie et al., 2010). Accordingly, for this research, the main tools used to collect data are the survey and semi-structured interviews, which were the sources of the primary data. At the same time, the literature review was the source of the secondary data and was used to support and provide additional information to the primary data (Creswell, 2013). The interviews are generally considered an open approach to collect qualitative data, receive unexpected responses, and explore new areas in the research (Roulston, 2013). At the same time, the surveys are considered closed questions to collect and analyze quantitative data in an easy way (Salganik and Levy, 2015).

3.5.1 Interviews

Interviews are the most popular tools for qualitative research (Roulston, 2012). It can be executed in many forms, such as face to face, over the telephone, instant messaging, or online such as

emails (Opdenakker, 2006). Irvine et al. (2013) indicated that most researchers and experts recommend face to face semi-structured interviews because of its visual interactions that add rich data.

Interviews offer the interviewer a chance to clarify any concerns, ask and follow-up the questions, and control the atmosphere of the interview (Creswell, 2013; Bhattacherjee, 2012). At the same time, interviews allow respondents to explain personal details of his/her point of view and answer in their own terms (Irvine et al., 2013). Not to mention that the interviews are time-bounded by taking advantage of social cues such as tone and body language. In which can be used easily to terminate the meeting through gestures (Irvine et al., 2013). On the other hand, interviews are time-consuming, expensive, provide information that can be difficult to analyze, and don't allow extensive geographical coverage (Irvine et al., 2013; Creswell, 2013; Bhattacherjee, 2012).

Stuckey (2013) and Saunders et al. (2009) categorized the interviews into three types:

1. Structured Interview: It is an interview where the interviewer asks predetermined, clear, standardized, and identical questions that provide the participants with a tiny space in their answers.
2. Semi-Structured Interview: it is a kind of interview where the interviewer covers general outlines and list of topics and questions; thus, the respondents have more space to answer. At the same time, it's non-standardized. It could be changed from an interview to another, which means the interviewer can improvise if he/she felt that something needs to neglect, replace, change the order or add extra questions according to the interviewee says to meet the research objectives. This type creates freedom, which can help interviewers to adapt the questions according to the interview situation and interviewees.
3. Unstructured interview: It's informal and has no pre-structural list of questions. However, unstructured interviews - or so-called 'in-depth interviews'- impose interviewer to have obvious ideas about the desired aspects to be explored while the researcher pays attention to the interviewee's story based on

his/her own experience and life challenges.

Semi-structured interviews have been chosen as the data collection tool for the qualitative since this research study is the first of its kind in Palestine. It also is exploratory research; therefore, the researcher does not know the questions that should be asked on the survey. However, s/he has an idea about questions but wants to empower the interviewee to rich the question and have an understanding in a new light.

Semi-structured interview methodology starts with developing the questions and protocol of interviews to obtain more information about GM and TQM practices at Palestinian food manufacturing companies based on the literature reviews (Ivankova et al., 2006). Then, three independent academic professor and one expert from the Palestinian food manufacturing companies have been selected to review these questions before they were adopted in order to reach the validation.

A one-page letter was attached at the beginning of the semi-structured interview pages to explain its goals, ensure that the interviewee's identity was not revealed, and obtain the consent of the person interviewed by signature. The semi-structured interview contained two parts, the first part about the interviewee's general information while the second part contained nine questions about TQM practices, GM practices, and organizational performance. However, the last version of the semi-structured interview was developed in English. However, the Palestinian mother language is Arabic and, as a result, it has been translated into Arabic. See Appendix I and Appendix II for the Interview questions used.

Nine interviews were conducted with quality managers, senior managers, and HR managers in targeted Palestinian food manufacturing companies. Most of the interviews were conducted at the company's headquarters. However, three of them were conducted via web applications (Zoom and

Cisco WebEx Meetings). At the beginning of the interview, a copy of the questions was presented to the interviewee. The average interview time is around 55 minutes, bearing in mind that all nine interviews were recorded along with taking notes during the interview. After completing the interview, a short transcript of each was prepared.

3.5.2 The survey

Survey research is like other collecting data methods in descriptive analysis, such as developmental design, correlation, and observational studies that used to conduct quantitative research (Bryman, 2015). By using the survey research method, the researcher tests phenomena at the moment by a sample or all of a well-defined population (Williams, 2007). More specifically, surveys are used to collect real data to test the research's conceptual framework (Creswell, 2013), which was formulated in Chapter One. Surveys are used due to their low cost and ease of answering questions by the respondents and processing the data by the researchers, in addition to its ability to reduce the possibility of variability and increase data harmony and compatibility (Bryman, 2015). Moreover, the survey is a rapid straightforward tool for gathering information in a systematic and organized manner and in a reasonable time with a reasonable effort. On the other hand, surveys sometimes have a higher rate of respondents' errors because of the length of surveys or misunderstanding of listed questions (Moser and Kalton, 2017).

The survey is the second major tool chosen in this research after the interviews. It was developed based on interviews and the literature related to the subject, and after looking thoroughly to understand the gaps and best practices related to TQM and GM in the Palestinian food manufacturing companies by using a five-point Likert scale. This scale is an ordered, one- dimensional from which respondents choose one option from strongly disagree, disagree, neutral, agree and strongly agree according to the best aligns with their view (Nemoto and Beglar, 2014).

Surveys can be filled out by respondents in different ways including face-to-face, online using mail, and web applications (Walston et al., 2006). The survey design has been reviewed by three independent academic professor and one expert from the Palestinian food manufacturing companies before it was adopted to reach the validation. The survey contained four sections, the first section about the Demographic Characteristics, the second section about TQM practices, the third section about green management practices, and the final section about organizational performance:

First section: the demographic data section which consisting of five items. It contains general information about the respondent such as the participants' gender, age, education level, years of experience in the organization, and respondents' position.

Second section: TQM Practices which consist of 31 items. This section is used to measure the extent to which organizations use TQM practices to improve overall performance.

Third section: GM Practices which consist of 36 items. This section is used to measure the extent to which organizations use GM practices to encourage green behavior.

Fourth section: Organizational Performance which consist of 12 items. This section was used to collect information about organizational performance in terms of operational, financial, and employee performances from the respondent viewpoint.

A letter of one-page was attached at the beginning of the survey pages to explain the goals of it, ensure the respondent's anonymity, and present the contact data of the researcher for any inquiry. The last edition of the survey was developed in English. However, the Palestinian mother language is Arabic and, as a result, it has been translated into Arabic. See Appendix III and Appendix IV for the survey used.

The Survey was sent to all targeted companies using email, and then followed up by telephone

or visited to ensure the correct filling out of the survey and answer any concerns the respondents have. The data collection process took four months to be ready for the analysis stage.

3.5.3 Data Collection Tools Validity and Reliability

Validity and reliability are significant issues to be considered in data collection tools whether the research is quantitative or qualitative to ensure the adequate development of the research tools, and to ensure the robust and validation of data collected.

- ✓ **Interviews Validity**

The questions of the interview were developed based on the literature review presented in Chapter Two. After that, it was sent to four arbitrators for arbitration; three academics and one expert from the Palestinian food manufacturing companies. See Appendix V for a list of arbitrators used and their position and level of experience.

The four arbitrators provided comments, and suggestions for improvements. The first academic provided advice about presenting a cover page to explain how data will be used and handled, what is the main goal of the research, in addition to his concern of not presenting a question about the interviewee's perception of the relationship between TQM practices and GM practices. After taking his comments into consideration, interview questions were sent to the other two academics and the expert. Their main concern was about using the word "in general" in all nine questions and suggested replacing it with the word "in your company". After that all, the interview questions were adopted to use in the collecting data stage.

- ✓ **Survey Validity**

One of the critical factors to determine the quality of developed tools used to collect the data is validity (Kimberlin & Winterstein, 2008) .This tool tests the appropriateness of the survey's questions

with what have been reviewed in the literature and the developed hypothesis (Mertens, 2014) to ensure a better consistency of outcomes which leads to satisfied answers of the research questions (Saunders et al., 2009; Sekaran and Bougie, 2010).

For verifying the validity of the survey, it was sent to four arbitrators for arbitration; three academic professors and one expert from the Palestinian food manufacturing companies before it was adopted to confirm its constructed validity and to ensure that it is free from linguistic and technical problems. See Appendix V for a list of arbitrators used and their position and level of experience. Then, a pilot study has been done -Farther detail in the next section-. The last step was to test the reliability of the survey tool based on the fact that the tool cannot be reliable without being already valid (Kimberlin and Winterstein, 2008). However, that can be done using Cronbach's Alph (Thompson, 2002).

- ✓ **Survey Reliability**

The reliability test of the data is very significant before beginning data analysis to ensure the stability, credibility, and consistency of results (Thompson, 2002). Survey reliability means if the researcher conducted the same research that targeting the same population several times with several conditions, it would give nearly the same outcomes and results. Moreover, to confirm the survey reliability, the data needs to be more consistent and scientifically significant (Sekaran and Bougie, 2010; Saunders et al., 2009).

The researcher used Cronbach's alpha coefficient to test the reliability of the survey as proposed by Creswell (2012), stating that Cronbach's alpha is recommended for the 5-point Likert scale survey to check the internal consistency by measuring the correlations between items in the study. However, regarding the acceptable scores for assessing internal consistency, there are different views. Based on Bonett and Wright (2015), any α value < 0.7 is directly rejected. Per contra Shelby

(2011) suggested that any α value between 0.7 and 0.8 is acceptable, and any α value between 0.8 and less than 0.9 is good while α value equal to or above 0.9 is excellent.

Table 3.1 shows the values of Cronbach's Alpha for each variable of the survey. It's clear that all the survey variables are above 0.7 and less than 0.9, while the total is 0.913. Thus, the research data is acceptable and so, it is reliable.

Table 3. 1: Cronbach's Alpha for each variable of the Survey

#	Variable	No. of Item/s	Cronbach's Alpha
1	**TQM Practices**	**31**	**0.718**
1.1	Customer focus	7	0.707
1.2	Quality system	3	0.706
1.3	Continuous improvement	5	0.702
1.4	Supplier relationship & management	5	0.701
1.5	Process management & efficiency	3	0.712
1.6	Strategic planning	5	0.707
1.7	Leadership	3	0.789
2	**GM Practices**	**36**	**0.816**
2.1	Green customer satisfaction	3	0.707
2.2	Green improvement project	3	0.802
2.3	Green training	4	0.703
2.4	Green cooperation	7	0.702
2.5	Green waste management	7	0.706
2.6	Green manufacturing strategies	4	0.833
2.7	Techniques of green manufacturing	4	0.812
2.8	Green stakeholders commitment	4	0.815
3	**Organizational Performance**	**12**	**0.843**
3.1	Operational performance	4	0.843
3.2	Financial performance	3	0.711
3.3	Employee performance	5	0.820
4	**Overall**	**79**	**0.913**

- ✓ **Surveys' Pilot Study**

One of the essential parts of the research process is pilot testing, even though it is overlooked by some researchers (Bhattacherjee, 2012). However, the pilot test aims to expose possible problems

that respondents may face in answering the survey. Therefore, before distributing the survey, a pilot test was conducted to make sure that the survey is easy to answer. The researcher selected an independent random sample of five trusted managers or engineers who work at the Human Resources or Quality Management Unit in Palestinian food manufacturing companies. Doing so, the researcher could test, feed, and modify the survey's questions based on their feedback to ensure that the survey is clear for respondents and free from linguistic or technical problems. On the other hand, their main concern was about translation of the questionnaire into Arabic, so that it will take less time from the respondents. In addition, they suggested adding a box of recommendations to the end of the questionnaire if respondents had any ideas to help the researcher in a wider understanding.

3.6 Research Population and Sampling Techniques

The targeted sector for this research's population is Palestinian food manufacturing companies due to its vital role in the Palestinian industry and having many international franchises. However, after classifying food factories into a company or just a factory produce type of food without official registration, we found out only 238 official registered companies according to the Palestinians food industries union (PFIU, 2019). After that, these companies were studied to make sure they are eligible to answer the research questions in order to obtain the reliability and validity of quantitative data. Each company must meet some conditions to be a part of this research population, which are the following:

1- A company is registered and licensed by the official Palestinian authorities.
2- A company with a clear and well-established organizational structure. i.e., that has a quality department, a quality function, or quality control/management activities with a quality officer and announced quality policy. In addition to a company that has a human resources department with announced HR policy, or has HR activities carried out by HR representatives.

The investigation was done by directly contacting them using their phone number and mail,

visiting their office, or accessing their websites to ensure that the companies met all the set conditions. Therefore, about 283 companies meet the set requirements. All the 283 companies were received the online survey and followed-up by visiting or phoning them. However, what the researcher was able to collect from the population is 250 out of 283.

The interviews were set to cover all the food sector fields by focusing on a variety of the chosen company in terms of type, business, location, experience, etc. However, the optimal sample size of interviews is hard to determine in qualitative research due to its reflection in the complexity of the study (Francis et al., 2010). The number of conducted interviews is nine since six to ten interviews will be sufficient for phenomenal research (Marsha et al., 2013) bearing in mind that qualitative studies are often smaller in sample size than quantitative studies (Dworkin, 2012). See Appendix VI for a list of interviewees used and their title and experience and their company location and food sector.

The minimum sample size is necessary to be determined for surveys in order to be able to generalize the results from the population (Saunders et al., 2009). Goodhue et al. (2012) provided a formula for obtaining a statistically representative sample size for the population, which was adapted from Singh and Masuku and Singh (2014), and Masri (2016).

$$n = \frac{N * P\,(1 - P)}{[(N - 1) * \left(\frac{d^2}{Z^2}\right)] + P(1 - P)}$$

Where:
n = Sample size
N= Population (283)
P= Proportion of property offers and neutral (0.5)
d = Error margin (0.05)
z = z value, upper α/2 from the normal distribution
(For 95% of confidence level z= 1.96)

$$n = \frac{283 * 0.5\ (1 - 0.5)}{[(283 - 1) * \left(\frac{0.05^2}{1.96^2}\right)] + 0.5(1 - 0.5)} = 164$$

The sample size formula shows that at least 164 responses must be obtained for sufficient results from analyzing the survey data. However, about 280 surveys were distributed online, and the total number of usable responses was only 250 models, which were sufficient to meet the research objectives. This represented a response rate of 88.3%.

3.7 Analysis Techniques

Based on the fact that this research adopts a sequential mixed method, the analysis technique was conducted using the mixed-analysis method. It involves using the analysis technique of both quantitative and qualitative data in a way that the analysis results of the qualitative data are used to interpret and explain the results of the quantitative data (Onwuegbuzie and Combs, 2011).

This section presents and summarizes the methods of analyzing the qualitative data collected during the interviews as well as the means of analyzing the quantitative data collected from the survey.

3.7.1 Interview Analysis

Nine semi-structured interviews were conducted to provide more feeding to the study about TQM and GM practices from the viewpoint of Palestinian food manufacturing companies. Qualitative data have been analyzed using the "thematic analysis" approach. This approach is essentially a flexible and simple method that allows the researcher to invent new ideas that could be identified, analyzed, and reported to patterns or so-called topics (Ball et al., 2011). The thematic analysis organizes and explains the detail of your data (Braun and Clarke, 2006).

The following steps summarize the thematic analysis approach (Vaismoradi et al., 2013):

- Being more familiar with the data by reading the notes recorded during interviews and listening to the

interviews' recordings several times to gain a good understanding of the respondents' answers.

- Generating initial codes and collecting data relevant to each one by identifying and grouping issues together and classifying them.
- Gathering each set of similar or related codes into one theme.
- Reviewing and correcting the themes in order to ensure that only the main themes that directly support the study are listed.
- Defining and naming the themes to make a better understanding of the report generated from the interview analysis.
- Building a valid argument to validate the themes.
- These steps were followed by the researcher in this study to ensure high quality outcomes from a comprehensive qualitative analysis.

3.7.2 Survey Analysis

Quantitative data collected from the survey has been analyzed using the Statistical Package for Social Sciences (SPSS) to study the relationship between the survey's variables and examine the correlation between the hypotheses. Furthermore, the Statistical Package for Social Sciences (SPSS) was also used to support the correlation examination between different aspects of the data collected and finally achieve the research objectives. For instance, to find out the significant elements, the researcher examined the p-value. Accordingly, in this study, SPSS was used to test the reliability of the survey using the Cronbach alpha test (Delcea and Siserman, 2020), and to evaluate and rank the level of implementing TQM practices, GM practices, and organizational performance in Palestinian food manufacturing companies by finding out the data mean, standard deviation, and percentage. Mean and standard deviation are statistical tools used in the objective measure of opinion, or subjective data, and provide a basis for comparison (Ali and Bhaskar, 2016). Basically, standard deviation indicates the

distribution shape, in another word, how many the individual values close to the mean value (McKinnon et al., 2016). It's together with the mean and percentages provide a more complete picture for the quantitative analysis (McGrath et al., 2020).

Also, SPSS was used to test hypothesizes by using correlation analysis. Correlation analysis is a statistical method used to assess the strength of the relationship between two or more quantitative variables. The correlation measures the extent of the relationship between different phenomena (two or more phenomena or two or more variables) to see whether the change of one or a group of them is related to the other (Schober et al., 2018). Its main goal is to determine the degree of relationship between the variables, from zero (no correlation) to negative or positive one (perfect correlation) (Cavallo, 2020).

The normal distribution of the collected data was examined using Shapiro-Wilk ration; it was found that it is not normally distributed; therefore, the analysis will be done using a non-parameter test (Mircioiu and Atkinson, 2017). The Spearman Rank Correlation Coefficient (Spearman Correlation) is a non-parameterized coefficient of the strength and direction of the correlation that exists between two or more variables. Its value ranges from -1 to +1, and it is the highest correlation values, while the closer it is to zero, the lower the correlation (Armstrong, 2019). However, a positive correlation indicates a positive association between the variables, and a negative correlation indicates a negative association (Croux and Dehon, 2010).

Correlation tests can be applied in various business and academic studies such as biological, environmental, social sciences, and business studies (Senthilnathan, 2019). SPSS was used to find the mean values to help in ranking the implementation of tested practices. The answer range for the survey is 5 -1, so the range length can be found in the following formula (Creswell, 2017):

$$\text{The Range Length} = \frac{\text{Answer Range}}{\text{Number of Answers}}$$

$$\text{The Range Length} = \frac{5-1}{5}$$

$$\text{The Range Length} = 0.8$$

As a result, any mean values between the range of (1 - 1.79) is shallow, and mean values between the range of (1.8 - 2.59) are low, and mean values between the range of (2.6 - 3.39) is medium, any mean values between the range of (3.4 - 4.19) is high, and any mean values between the range of (4.2 - 5) are very high.

Moreover, SPSS was used to find the Correlation Coefficient (r) values to help in ranking the strength of tested correlations (relations). The r correlation is always a number between -1 and 1 (Armstrong, 2019). However, to interpret a relationship's strength based on its R-value, the absolute values are used to make all values positive. Therefore, Table 3.2 represents a rule of thumb for interpreting the strength is considered in this research (Mindrila and Balentyne, 2017):

Table 3. 2: The strength of r correlation results

Strength of Relationship	Correlation Coefficient (r)
Strong	$r > 0.7$
Moderate	$0.5 < r < 0.7$
Weak	$0.3 < r < 0.5$
None or Very Weak	$r < 0.3$

This study is concerned about the sector of Palestinian food manufacturing companies, which are considered mostly family businesses (Hanieh et al., 2015). At the same time, SPSS is strong in

handling data collected from family businesses (Heck et al., 2013), not to mention that it has a strong ability to analyze the data with no normal distribution (Denis et al., 2018).

In this study SPSS was used as mentioned below:

- Cronbach alpha test has been done to test the reliability of the survey
- The normality test was assessed for each variable using the Shapiro-Wilks test.
- Frequencies test and percentages have been done to analyze the demographical data of the respondents.
- Spearman's correlation has been used to test the hypotheses.
- The mean and the standard deviation have been used to rank the implementation of TQM Practices, GM Practices, and dimensions of Organizational Performance.

3.8 Ethical Concerns

During the development process of interviews and surveys, ethical concerns were taken into consideration. First of all, the researcher announced on the first page of the survey that the collected data, and the identity of individuals and companies surveyed will be anonymous, kept in a safe place, and used only for scientific research purposes.

The researcher took precaution steps: a recommendation letter has been taken from the Faculty of Higher Education – Arab American University to every selected company, following up the respondent after sending the online survey form to ensure that he/she filled it. Besides, there was no indication for the person who fills the survey, nor was there any indication of the interviewee or place of work in the survey. Moreover, the selected companies have received surveys at varying times, allowing each one to fill out the survey form during only one week. As a result, confidentiality was maintained in all processes and procedures. Thus, the verification of no dishonesty or fraud during the data collection process was guaranteed.

Chapter Four
Data Analysis and Results

Chapter Content:

- Interviews Analysis
- Survey Analysis
- Normality Test
- Respondents' Characteristics
- Level of Implementing TQM Practices, GM Practices, and Organizational Performance
- The Relationship between TQM Practices, GM Practices, and Organizational Performance
- The Relationship between TQM Practices and GM Practices
- The Relationship between GM Practices and Organizational Performance
- The Relationship between TQM Practices and Organizational Performance
- The Relationship between TQM Practices and Organizational Performance Dimensions: GM Practices as Mediator

CHAPTER FOUR

DATA ANALYSIS AND RESULTS

4.1 Overview

This chapter is devoted to data analysis and the results of the qualitative and quantitative data collected using interviews and surveys. More specifically, respondents' characteristics are analyzed descriptively. The interviews are discussed and analyzed. In addition, the levels of total quality management and green management practices in the Palestinian food manufacturing companies are assessed. The organizational performance of these companies is then evaluated. Finally, the hypotheses are tested using inferential statistics.

4.2 Interviews Analysis

Table 4.1 represents the objective analysis of the qualitative data collected from nine semi-structured interviews. The analysis began with an indication of the codes representing the idea demonstrated, followed by categorizing the issues discussed according to the codes. Finally, the themes of each set of codes were identified and discussed.

Table 4. 1: Summary of identified codes, basic themes, and central themes

Codes	Issues Discussed	Initial/ Central Themes
Apply ISO 22000	International Standard	TQM Practices
Apply ISO 9001		
Apply FSSC 22000		
Apply WHO Standards		
Apply PSI standards	Locally Standard	
Apply PSM standards		
Apply File management	Private internally System	
Apply internal quality system		
Use GM Practices app	Smart Applications	
Use the company's own app		
Food Safety	Advantages	TQM Importance

risk-reducing		
Reducing defects and waste		
Customer satisfaction		
Opening new markets		
Reducing time		
Occupation's limitations	Barriers	
Suppliers limitations		
Employees and Managers Resistance		
Infrastructure		
High costs		
Creativity margin		
ISO 14000	International Standard	GM Practices
ISO 14001		
Environment Ministry standards	Locally Standard	
Local Municipality's Standards		
Waste separation	Private internally System	
Recycling		
Insect and rodent control system		
Wastewater treatment		
Customers satisfaction	Advantages	GM Importance
Reducing inconvenience		
Reducing waste		
Savings		
unawareness	Barriers	
Qualified staff		
Infrastructure		
High cost		
Administrative approvals		
Training	Enhancing Employees Performance	TQM contribution to organizational performance
Employee creativity		
Continuous evaluation		
Systematic work	Enhancing Operational Performance	
Documentation		
Systematic work	Enhancing Operational Performance	GM contribution to organizational performance
Reduce Error rate		
increase sales	Enhancing Financial Performance	
Reduce waste		
Brand reputation		

The six themes emerged from the semi-structured interviews are presented below:

Theme 1: TQM Practices

This theme is aimed at identifying the major TQM practices done by Palestinian food manufacturing companies. Most interviewees confirmed that their companies apply some International Standards such as ISO 22000, ISO 9001, FSSC 22000, and WHO standards. On the other hand, some interviewees confirmed that their companies apply the local quality standards set by Palestine Standard Institute, like The Palestinian Quality Marks Standards (PSI) and The Palestinian Standards Mark (PSM). However, some interviewees confirmed that their companies do not apply any international or local TQM standards, and instead, they apply an internal quality system and their file management system. Finally, some companies also referred to use the internet applications to keep pace with technology in implementing total quality management through GM practices application and/or the company's applications.

Theme 2: TQM Importance

TQM's importance has resulted from its positive effects on organizational performance due to reduced defects, waste, and time, in addition to achieving food safety, risk-reduction, and customer satisfaction, which in turn can lead to opening new markets.

In achieving the positive effects that food manufacturing companies can make during TQM implementation, it often faces many obstacles and barriers. The barriers that exist in the Palestinian context are summarized by the most of interviewees in the obstacles made by the Israel occupation and suppliers' limitations, the resistance of employees and managers, the scarcity of infrastructure, the high costs, and the employee's creativity margin which prevents the correct application of TQM.

Theme 3: GM Practices

This theme is aimed at identifying the major GM practices done by Palestinian food manufacturing companies. Most interviewees confirmed that their companies apply some International Standards such as ISO 14000 and ISO 14001 or apply the local green standards set by the Palestinian Environment Ministry and local municipalities. However, most interviewees confirmed that their companies do not apply any international or local GM standards. Instead, they apply an internal green system such as waste separation, recycling, insect and rodent control system, and wastewater treatment.

Theme 4: GM Importance

TQM's importance has resulted from its positive effects on operational performance due to reduced waste and inconvenience, in addition to achieving customer satisfaction and plenty of savings.

In achieving the positive effects that food manufacturing companies can make during GM implementation, they often encounter numerous obstacles and barriers. Most interviewees summarized the obstacles in the lack of employees' and managers' awareness, the scarcity of infrastructure and qualified personnel, the high costs, and the need for administrative approvals that can, in turn, lead to resistance and obstruction of GM implementation.

Theme 5: TQM Contribution to Organizational Performance

Most interviewees confirmed that food manufacturing companies in Palestine often try to enhance their organizational performance by applying TQM practices, which leads to the development of knowledge and increases employee awareness. This can be achieved by focusing on preparing strategic planning and holding continuous training to improve employee creativity and achieve ongoing evaluation. As a result, enhancing employee performance, at the same time, TQM will benefit the company in improving the level of operational performance through integrated systematic work

and documentation.

Theme 6: GM Contribution to organizational Performance

Some of the interviewees confirmed that food manufacturer companies in Palestine sometimes try to improve their organizational performance by applying GM practices, which improves operational performance by applying systematic green work, which reduces the error rate by facilitating understanding and application of procedures and organizing all departments. Furthermore, interviewees agreed that green management practices improve the financial performance of the company by increasing sales. This is achieved by enhancing the company's image and reputation to match the customer's requirements for green products, and increasing the brand value, which is one of its assets. On the other hand, interviewees indicated that GM practices improve financial performance by reducing waste and its costs of correction or disposal.

4.3 Survey Analysis

Surveys were used to collect quantitative data in order to test the research hypotheses (listed in Chapter One, Section 1.6). Surveys were distributed using visiting the company's headquarters or email and phone calls. The survey was filled out by the people targeted in the companies. The responses of all respondents were stored in a database with keeping their identity anonymous. Then, the SPSS program was used; The Cronbach Alpha method was used to test the survey's reliability. Then various statistical analysis tools such as frequencies, averages, percentages, Spearman correlation, and mediation test were used to verify the relationships between the survey's items. The strength of each mentioned relationship between the research variables has been described as ranked in chapter three, section 3.7.2.

4.1.1 Normality Test

The data collected from the respondents were stored in the database. The data distribution must be examined before using it to determine whether it is normally distributed or not. The normality test is essential to find out whether parametric or non-parametric tests can be used. In the event that the collected data is not normally distributed, non-parametric tests are appropriate in this case, and vice versa (Mircioiu and Atkinson, 2017). The normality test was assessed for each variable using the Shapiro-Wilks test (listed in Appendix VII - Annex 1), with a p-value less than 0.05, indicating non-normal distributions. Hence, a non-parametrical test was used.

4.1.2 Respondents' Characteristics

This section presents respondents' characteristics in terms of their gender, age, education, years of experience, and job responsibilities, as shown in Table 4.2. The results indicate that nearly 78% of respondents are males, whereas the remaining 22% are females. Regarding age distribution, 11% of the respondents are under 30, 49% are 30-40, 24% are 41-50, 11% are 51-60, and 6% are above 60. With respect to educational level, nearly 10% have a diploma, 78% have BA, nearly 12% have Master's, and none of the respondents is Ph.D. The results also show that nearly 7% of respondents have work experience less than 5 years, nearly 15% have work experience of 5-10 years, nearly 42% have work experience of 11-15 years, nearly 29% have work experience of 16-20 years, nearly 4% have work experience of 21-25 years. Only 3% have work experience for more than 25 years. Finally, regarding respondents' distribution according to job title, results show that nearly 30% are responsible for green operations, nearly 8% are general managers, and nearly 20% are responsible for other related positions.

Table 4. 2: Respondents' Characteristics

Variable		Frequency	Percentage (%)
Gender	Male	194	77.6%
	Female	56	22.4%
Age	Under 30	27	10.8%
	30–40	122	48.8%
	41–50	59	23.6%
	51–60	28	11.2%
	Over 60	14	5.6%
Education	Diploma	24	9.6%
	BA	195	78.0%
	Master's	31	12.4%
	PhD	0	0.0%
Experience	Less than 5	18	7.2%
	5–10	37	14.8%
	11–15	106	42.4%
	16–20	73	29.2%
	21–25	9	3.6%
	More than 25	7	2.8%
Job title	Human resource manager	76	30.4%
	Quality manager	63	25.2%
	Green operations manager	41	16.4%
	General Manager	19	7.6%
	Others	51	20.4%

4.1.3 Level of Implementing TQM Practices

In this section, the level of implementing TQM practices in the Palestinian food manufacturing companies is evaluated, as shown in Table 4.3.

Table 4. 3: Descriptive Statistics for Implementing TQM Practices

Practices	Mean Value	Std. Deviation	Implementation Level
Customer focus	4.1726	0.38762	High
Quality system	4.4147	0.49003	Very High
Continuous improvement	3.8016	0.44703	High
Supplier relationship & management	3.6080	0.51509	High
Process management & efficiency	3.6440	0.93898	High
Strategic planning	3.8344	0.31087	High
Leadership	4.0987	0.72011	High
Total	**3.9391**	**0.26070**	**High**

Table 4.3 shows that TQM practices consist of seven dimensions. The results indicate that the TQM practices are highly implemented in the Palestinian food manufacturing companies with an overall mean value of 3.94 out of a possible maximum of 5. More specifically, the most implemented dimensions of TQM practices are quality system, customer focus, and leadership, respectively. On the other hand, the least implemented dimensions are supplier relationship and management, process management and efficiency, continuous improvement, and strategic planning, respectively.

4.1.4 Level of Implementing Green Management Practices

In this section, the level of implementing green management practices in the Palestinian food manufacturing companies is evaluated, as shown in Table 4.4.

Table 4. 4: Descriptive Statistics for Implementing Green Management Practices

Practices	Mean Value	Std. Deviation	Implementation Level
Green customer satisfaction	4.1120	0.51301	High
Green improvement project	4.1960	0.82859	High
Green training	3.1270	0.62263	Medium
Green cooperation	3.2160	0.39154	Medium
Green waste management	2.3971	0.34722	Low
Green manufacturing strategies	4.1390	0.73354	High
Techniques of green manufacturing	3.8450	0.77791	High
Green stakeholders commitment	3.9460	0.72850	High
Total	**3.6223**	**0.33776**	**High**

Table 4.4 shows that green management practices consist of eight dimensions. The results indicate that green management practices are highly implemented in the Palestinian food manufacturing companies with an overall mean value of 3.62 out of a possible maximum of 5. More specifically, the most implemented dimensions of green management practices are green improvement project selection and implementation, green manufacturing strategies, and green customer satisfaction. In contrast, the least implemented practices are green waste management, green training, green cooperation, green manufacturing techniques, and green stakeholders' commitment, respectively.

4.1.5 Level of Organizational Performance

In this section, the level of organizational performance of Palestinian food manufacturing companies is evaluated, as shown in Table 4.5.

Table 4. 5: Descriptive Statistics for Organizational Performance

Performances	Mean Value	Std. Deviation	Implementation Level
Operational performance	4.1750	0.74623	High
Financial performance	4.3093	0.50288	Very High
Employee performance	4.0920	0.70501	High
Total	**4.1921**	**0.47849**	**High**

Table 4.5 shows that three types of performance are used to capture Palestinian food manufacturing companies' organizational performance. The results indicate that Palestinian food manufacturing companies have a high organizational performance level with a mean value of 4.20 out of a possible maximum of 5. More specifically, financial performance is the highest among the three types of organizational performance; employee performance is the lowest, whereas operational performance is in between.

4.1.6 The Relationship between Overall TQM Practices, Overall GM Practices, and Overall Organizational Performance

In this section, the relationship between TQM practices, GM practices, and Organizational Performances in Palestinian food manufacturing companies is evaluated. In other words, the relationship between overall TQM practices and overall GM practices, overall GM practices and overall Organizational Performance, and overall TQM practices and overall Organizational Performances in Palestinian food manufacturing companies are evaluated. In order to test these relations, the following hypotheses are set:

Hypothesis H1: There is a statistically significant correlation between the TQM Practices and GM Practices in the Palestinian Food Manufacturing Companies at the level of ($\alpha \leq 0.05$).

Hypothesis H2: There is a statistically significant correlation between the GM Practices and Organizational Performance in the Palestinian Food Manufacturing Companies at the level of ($\alpha \leq 0.05$).

Hypothesis H3: There is a statistically significant correlation between the TQM Practices and Organizational Performance in the Palestinian Food Manufacturing Companies at the level of ($\alpha \leq 0.05$).

Table 4. 6: Spearman Correlations Tests Between TQM Practices, GM Practices, and Organizational Performances

Nonparametric Correlations			Overall TQM Practices	Overall GM Practices	Overall Organizational Performances
Spearman's rho	Overall TQM Practices	Correlation Coefficient (r)		0.650**	0.605**
		Sig. (α) (2-tailed)		0.000	0.000
		N		250	250
	Overall GM Practices	Correlation Coefficient (r)	0.650**		0.827**
		Sig. (α) (2-tailed)	0.000		0.000
		N	250		250
	Overall Organizational Performances	Correlation Coefficient (r)	0.605**	0.827**	
		Sig. (α) (2-tailed)	0.000	0.000	
		N	250	250	

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4.6 shows the following:

- There is a statistically significant correlation (relation) between overall TQM Practices and overall GM Practices, which is clear from the value of α, which less than 0.05, reaching 0.000. Therefore, the hypothesis H1 is supported. However, the correlation strength is moderate, where the value of the Correlation Coefficient (r) is (0.650).
- There is a statistically significant correlation (relation) between overall GM Practices and overall Organizational Performances, which is clear from the value of α, which less than 0.05, reaching 0.000. Therefore, the hypothesis H2 is supported. However, the correlation strength is strong, where the value of the Correlation Coefficient (r) is (0.827).
- Table 4.6 shows that there is a statistically significant correlation (relation) between overall TQM

Practices and overall Organizational Performances, which is clear from the value of α, which less than 0.05, reaching 0.000. Therefore, the hypothesis H3 is supported. However, the correlation strength is moderate, where the value of the Correlation Coefficient (r) is (0.605).

Table 4.7 summarizes the results of the above mentioned hypotheses.

Table 4. 7: Summary of Hypotheses Testing of the relationships between overall TQM practices, overall GM practices, and overall Organizational Performances

Hypothesis No.	Hypothesis statement	Hypothesis test
H1	There is a statistically significant correlation between the TQM Practices and GM Practices in the Palestinian Food Manufacturing Companies at the level of ($\alpha \leq 0.05$).	Supported
H2	There is a statistically significant correlation between the GM Practices and Organizational Performance in the Palestinian Food Manufacturing Companies at the level of ($\alpha \leq 0.05$).	Supported
H3	There is a statistically significant correlation between the TQM Practices and Organizational Performance in the Palestinian Food Manufacturing Companies at the level of ($\alpha \leq 0.05$).	Supported

4.1.7 The Relationship between Items of TQM Practices and Items of GM Practices

In this section, the relationship between items of TQM practices (i.e., Customer Focus, Quality System, Strategic Planning, Continuous Improvement, Supplier Relationship and Management, Process Management and Efficiency, and Leadership) and GM practices (i.e., Green Customer Satisfaction, Green Improvement Projects Selection and Implementing, Techniques Green Manufacturing System, Green Training, Green Cooperating With Supplier and Customers, and Green Waste Management) in Palestinian food manufacturing companies is evaluated. In order to test these relations, the following hypotheses are set:

Hypothesis H4: Customer Focus has a positive effect on Green Customer Satisfaction in the Palestinian Food Manufacturing Companies.

Nonparametric Correlations Test (Spearman's rho) is used to test this hypothesis since we are interested in examining the effect of one independent variable (i.e., Customer Focus) on the dependent variable (i.e., Green Customer Satisfaction).

Table 4.8 shows a statistically significant correlation between Customer Focus and Green Customer Satisfaction, which is clear from the values of α, which is less than 0.05, reaching 0.001. Still, the correlation strength is Very Weak, where the value of the correlation coefficient is (0.206).

Therefore, hypothesis H4, which states that Customer Focus has a positive effect on Green Customer Satisfaction, is not accepted, and it is replaced by an alternative hypothesis (Customer Focus has no effect on Green Customer Satisfaction).

Table 4. 8: Spearman Correlations Tests Between Customer Focus and Green Customer Satisfaction

Nonparametric Correlations			Customer Focus	Green Customer Satisfaction
Spearman's rho	Customer Focus	Correlation Coefficient (r)	1.000	0.206**
		Sig. (α) (2-tailed)	.	0.001
		N	250	250
	Green Customer Satisfaction	Correlation Coefficient (r)	0.206**	1.000
		Sig. (α) (2-tailed)	0.001	.
		N	250	250

**. Correlation is significant at the 0.01 level (2-tailed).

Hypothesis H5: Quality System has a positive effect on Green Improvement Projects Selection and Implementing in the Palestinian Food Manufacturing Companies.

Nonparametric Correlations Test (Spearman's rho) is used to test this hypothesis to test this hypothesis since we are interested in examining the effect of one independent variable (i.e., Quality System) on the dependent variable (i.e., Green Improvement Projects Selection and Implementation).

Table 4.9 shows no statistically significant correlation between Quality System and Green

Improvement Projects Selection and Implementing, which is clear from the values of α, which more than 0.05, reaching 0.971. The correlation strength level is very low, where the value of the correlation coefficient is (0.002).

Therefore, hypothesis H5, which states that Quality System has a positive effect on Green Improvement Projects Selection and Improvement, is not accepted and it is replaced by an alternative hypothesis (Quality System has no effect on Green Improvement Projects Selection and Implementing).

Table 4. 9: Spearman Correlations Tests Between Quality System and Green Improvement Projects Selection and Implementing

Nonparametric Correlations			Quality System	Green Improvement Projects Selection and Implementing
Spearman's rho	Quality System	Correlation Coefficient (r)	1.000	0.002
		Sig. (α) (2-tailed)	.	0.971
		N	250	250
	Green Improvement Projects Selection and Implementing	Correlation Coefficient (r)	0.002	1.000
		Sig. (α) (2-tailed)	0.971	.
		N	250	250

**. Correlation is significant at the 0.01 level (2-tailed).

Hypothesis H6: Strategic planning has a positive effect on the adoption of the Techniques Green manufacturing system in the Palestinian Food Manufacturing Companies.

Nonparametric Correlations Test (Spearman's rho) is used to test this hypothesis since we are interested in examining the effect of one independent variable (i.e., Strategic Planning) on the dependent variable (i.e., Techniques of Green Manufacturing System).

Table 4.10 shows a statistically significant correlation between Strategic planning and Adoption of Techniques Green manufacturing system, which is clear from the values of α, which less than 0.05, reaching 0.000. The correlation strength level is high, where the value of the correlation coefficient is (0.865).

Therefore, hypothesis H6, which states that Strategic Planning has a positive effect on

Techniques of Green Manufacturing System, is accepted. The implication is that more existing of strategic planning increases the level of using techniques of green manufacturing system.

Table 4. 10: Spearman Correlations Tests Between Strategic planning and Adoption of Techniques Green manufacturing system

Nonparametric Correlations			Strategic planning	Techniques Green manufacturing system
Spearman's rho	Strategic planning	Correlation Coefficient (r)	1.000	0.865**
		Sig. (α) (2-tailed)	.	0.000
		N	250	250
	Techniques Green manufacturing system	Correlation Coefficient (r)	0.865**	1.000
		Sig. (α) (2-tailed)	0.000	.
		N	250	250

**. Correlation is significant at the 0.01 level (2-tailed).

Hypothesis H7: Continuous Improvement has a positive effect on the Green Training in the Palestinian Food Manufacturing Companies.

Nonparametric Correlations Test (Spearman's rho) is used to test this hypothesis since we are interested in examining the effect of one independent variable (i.e., Continuous Improvement) on the dependent variable (i.e., Green Training).

Table 4.11 shows no statistically significant correlation between Continuous Improvement and Green Training, which is clear from the values of α, which more than 0.05, reaching 0.216. The correlation strength level is very low, where the value of the correlation coefficient is (0.079).

Therefore, hypothesis H7, which states that Continuous Improvement has a positive effect on Green Training, is not accepted and it is replaced by an alternative hypothesis (Continuous Improvement has no effect on the Green Training).

Table 4. 11: Spearman Correlations Tests Between Continuous Improvement and Green Training

Nonparametric Correlations			Continuous Improvement	Green Training
Spearman's rho	Continuous Improvement	Correlation Coefficient (r)	1.000	0.079
		Sig. (α) (2-tailed)	.	0.216
		N	250	250
	Green Training	Correlation Coefficient (r)	0.079	1.000
		Sig. (α) (2-tailed)	0.216	.
		N	250	250

**. Correlation is significant at the 0.01 level (2-tailed).

Hypothesis H8: Supplier Relationship and Management has a positive effect on Green cooperating with suppliers and customers in the Palestinian Food Manufacturing Companies.

Nonparametric Correlations Test (Spearman's rho) is used to test this hypothesis since we are interested in examining the effect of one independent variable (i.e., Supplier Relationship and Management) on the dependent variable (i.e., Green Cooperation with Suppliers and Customers).

Table 4.12 shows a statistically significant correlation between Supplier Relationship and Green cooperating with suppliers and customers, which is clear from the values of α, which less than 0.05, reaching 0.000. The correlation strength level is high, where the value of the correlation coefficient is (0.915).

Therefore, hypothesis H8, which states that Supplier Relationship and Management has a positive effect on Green Cooperation with Suppliers and Customers, is accepted. The implication is that more supplier relationship and management increases the level of green cooperation with suppliers and customers.

Table 4. 12: Spearman Correlations Tests Between Supplier Relationship and Management, and Green cooperating with suppliers and customers

Nonparametric Correlations			Supplier Relationship and Management	Green cooperating with suppliers and customers
Spearman's rho	Supplier Relationship and Management	Correlation Coefficient (r)	1.000	0.915**
		Sig. (α) (2-tailed)	.	0.000
		N	250	250
	Green cooperating with suppliers and customers	Correlation Coefficient (r)	0.915**	1.000
		Sig. (α) (2-tailed)	0.000	.
		N	250	250

**. Correlation is significant at the 0.01 level (2-tailed).

Hypothesis H9: Process Management and Efficiency have a positive effect on Green Waste Management in the Palestinian Food Manufacturing Companies.

Nonparametric Correlations Test (Spearman's rho) is used to test this hypothesis since we are interested in examining the effect of one independent variable (i.e., Process Management and Efficiency) on the dependent variable (i.e., Green Waste Management).

Table 4.13 shows no statistically significant correlation between Process Management and Green Waste Management, which is clear from the values of α, which more than 0.05, reaching 0.761. The correlation strength level is very low, where the value of the correlation coefficient is (0.019).

Therefore, hypothesis H9, which states that Process Management and Efficiency has a positive effect on Green Waste Management, is not accepted and it is replaced by an alternative hypothesis (Process Management and Efficiency have no effect on the Green Waste Management).

Table 4. 13: Spearman c Correlations Tests Between Process Management and Efficiency, and Green Waste Management

Nonparametric Correlations			Process Management and Efficiency	Green Waste Management
Spearman's rho	Process Management and Efficiency	Correlation Coefficient (r)	1.000	0.019
		Sig. (α) (2-tailed)	.	0.761
		N	250	250
	Green Waste Management	Correlation Coefficient (r)	0.019	1.000
		Sig. (α) (2-tailed)	0.761	.
		N	250	250

**. Correlation is significant at the 0.01 level (2-tailed).

Hypothesis H10: Leadership has a positive effect on Green stakeholders Commitment in the Palestinian Food Manufacturing Companies.

Nonparametric Correlations Test (Spearman's rho) is used to test this hypothesis since we are interested in examining the effect of one independent variable (i.e., Leadership) on the dependent variable (i.e., Green Stakeholders Commitment).

Table 4.14 shows a statistically significant correlation between Leadership and Green stakeholders Commitment, which is clear from the values of α, which less than 0.05, reaching 0.000. The correlation strength level is very high, where the value of the correlation coefficient is (0.948).

Therefore, hypothesis H10, which states that Leadership has a positive effect on Green Stakeholders Commitment, is accepted. The implication is that more existing of leadership increases the level of green stakeholder's commitment.

Table 4. 14: Spearman Correlations Tests Between Leadership and Green stakeholders Commitment

Nonparametric Correlations			Leadership	Green stakeholders Commitment
Spearman's rho	Leadership	Correlation Coefficient (r)	1.000	0.948**
		Sig. (α) (2-tailed)	.	0.000
		N	250	250
	Green stakeholders Commitment	Correlation Coefficient (r)	0.948**	1.000
		Sig. (α) (2-tailed)	0.000	.
		N	250	250

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4.15 summarizes the results of the above mentioned hypothesis.

Table 4. 15: Summary of Hypotheses Testing of the relationships between TQM practices, and GM practices

Hypothesis No.	Hypothesis statement	Hypothesis test
H4	Customer Focus has a positive effect on Green Customer Satisfaction in the Palestinian food Manufacturing Companies.	Rejected
H5	Quality System has a positive effect on Green	Rejected

	Improvement Projects Selection and Implementing in the Palestinian food Manufacturing Companies.	
H6	Strategic planning has a positive effect on the adoption of the Techniques Green manufacturing system in the Palestinian food Manufacturing Companies.	Supported
H7	Continuous Improvement has a positive effect on the Green Training in the Palestinian food Manufacturing Companies.	Rejected
H8	Supplier Relationship and Management has a positive effect on Green cooperating with suppliers and customers in the Palestinian food Manufacturing Companies.	Supported
H9	Process Management and Efficiency have a positive effect on Green Waste Management in the Palestinian food Manufacturing Companies.	Rejected
H10	Leadership has a positive effect on Green stakeholders Commitment in the Palestinian food Manufacturing Companies.	Supported

4.1.8 The Relationship between Items of GM Practices and Items of Organizational Performance

In this section, the relationship between items of GM practices (i.e., Green Manufacturing Strategies, and Techniques Green Manufacturing System) and items of organizational performance (i.e., Operational Performance and Financial Performance) in Palestinian food manufacturing companies is evaluated. In order to test these relations, the following hypotheses are set:

Hypothesis H11: Green Manufacturing strategies positively affect Operational Performance in the Palestinian Food Manufacturing Companies.

Nonparametric Correlations Test (Spearman's rho) is used to test this hypothesis since we are interested in examining the effect of one independent variable (i.e., Green Manufacturing Strategies) on the dependent variable (i.e., Operational Performance).

Table 4.16 shows a statistically significant correlation between Green Manufacturing strategies and Operational Performance, which is clear from the values of α, which less than 0.05, reaching 0.000. The correlation strength level is very high, where the value of the correlation coefficient is (0.886).

Therefore, hypothesis H11, which states that Green Manufacturing Strategies positively affect Operational Performance, is accepted. The implication is that more existing of green manufacturing strategies increases the level of operational performance.

Table 4. 16: Spearman Correlations Tests Between Green Manufacturing strategies and Operational Performance

Nonparametric Correlations			Green Manufacturing strategies	Operational Performance
Spearman's rho	Green Manufacturing strategies	Correlation Coefficient (r)	1.000	0.886**
		Sig. (α) (2-tailed)	.	0.000
		N	250	250
	Operational Performance	Correlation Coefficient (r)	0.886**	1.000
		Sig. (α) (2-tailed)	0.000	.
		N	250	250

**. Correlation is significant at the 0.01 level (2-tailed).

Hypothesis H12: Techniques Green manufacturing system positively affect the Financial Performance in the Palestinian Food Manufacturing Companies.

Nonparametric Correlations Test (Spearman's rho) is used to test this hypothesis since we are interested in examining the effect of one independent variable (i.e., Techniques of Green Manufacturing System) on the dependent variable (i.e., Financial Performance).

Table 4.17 shows a statistically significant correlation between Techniques Green manufacturing system and Financial Performance, which is clear from the values of α, which less than 0.05, reaching 0.000. The correlation strength level is very high, where the value of the correlation coefficient is (0.921).

Therefore, hypothesis H12, which states that Techniques of Green Manufacturing System positively affect financial performance, is accepted. The implication is that more existing of techniques of green manufacturing system increases the level of financial performance.

Table 4. 17: Spearman Correlations Tests Between Techniques Green manufacturing system and Financial Performance

Nonparametric Correlations			Techniques Green manufacturing system	Financial Performance
Spearman's rho	Techniques Green manufacturing system	Correlation Coefficient (r)	1.000	0.921**
		Sig. (α) (2-tailed)	.	0.000
		N	250	250
	Financial Performance	Correlation Coefficient (r)	0.921**	1.000
		Sig. (α) (2-tailed)	0.000	.
		N	250	250

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4.18 summarizes the results of the above mentioned hypothesis.

Table 4. 18: Summary of Hypotheses Testing of the relationships between GM practices, and Organizational Performances

Hypothesis No.	Hypothesis statement	Hypothesis test
H11	Green Manufacturing strategies positively affect Operational Performance in the Palestinian Food Manufacturing Companies.	Supported
H12	Techniques Green manufacturing system positively affect the Financial Performance in the Palestinian Food Manufacturing Companies.	Supported

4.1.9 The Relationship between Items of TQM Practices and Items of Organizational Performance

In this section, the relationship between items of TQM practices (i.e., Leadership and Customer Focus) and item of organizational performances (i.e., Employee Performance) in Palestinian food manufacturing companies is evaluated. In order to test these relations, the following hypotheses are set:

Hypothesis H13: Leadership practice of TQM positively affects Employees Performance in the Palestinian Food Manufacturing Companies.

Nonparametric Correlations Test (Spearman's rho) is used to test this hypothesis since we are interested in examining the effect of one independent variable (i.e., Leadership) on the dependent

variable (i.e., Employee Performance).

Table 4.19 shows a statistically significant correlation between Leadership practice of TQM and Employees Performance, which is clear from the values of α, which less than 0.05, reaching 0.000. The correlation strength level is very high, where the value of the correlation coefficient is (0.918).

Therefore, hypothesis H13, which states that Leadership has a positive effect on Employee Performance, is accepted. The implication is that more existing of leadership increases the level of employee performance.

Table 4. 19: Spearman Correlations Tests Between Leadership practice of TQM and Employees Performance

Nonparametric Correlations			Leadership	Employees Performance
Spearman's rho	Leadership	Correlation Coefficient (r)	1.000	0.918**
		Sig. (α) (2-tailed)	.	0.000
		N	250	250
	Employees Performance	Correlation Coefficient (r)	0.918**	1.000
		Sig. (α) (2-tailed)	0.000	.
		N	250	250

**. Correlation is significant at the 0.01 level (2-tailed).

Hypothesis H14: Customer Focus positively affects Employees Performance in the Palestinian Food Manufacturing Companies.

Nonparametric Correlations Test (Spearman's rho) is used to test this hypothesis since we are interested in examining the effect of one independent variable (i.e., Leadership) on the dependent variable (i.e., Employee Performance).

Table 4.20 shows a statistically significant correlation between Customer Focus and Employees Performance, which is clear from the values of α, which less than 0.05, reaching 0.000. The correlation strength level is high, where the value of the correlation coefficient is (0.811).

Therefore, hypothesis H14, which states that Customer Focus has a positive effect on Employee Performance, is accepted. The implication is that more existing of customer focus increases

the level of employee performance.

Table 4. 20: Spearman Correlations Tests Between Customer Focus practice of TQM and Employees Performance

Nonparametric Correlations			Customer Focus	Employees Performance
Spearman's rho	Customer Focus	Correlation Coefficient (r)	1.000	0.811**
		Sig. (α) (2-tailed)	.	0.000
		N	250	250
	Employees Performance	Correlation Coefficient (r)	0.811**	1.000
		Sig. (α) (2-tailed)	0.000	.
		N	250	250

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4.21 Summaries the results of the above mentioned hypothesis.

Table 4. 21: Summary of Hypotheses Testing of the relationships between TQM practices, and Organizational Performances.

Hypothesis No.	Hypothesis statement	Hypothesis test
H13	Leadership practice of TQM positively affects Employees Performance in the Palestinian Food Manufacturing Companies.	Supported
H14	Customer Focus positively affects Employees Performance in the Palestinian Food Manufacturing Companies.	Supported

4.1.10 The Relationship between TQM Practices and Organizational Performance Dimensions: GM Practices as Mediator

In this section, the relationship between TQM practices and Organizational Performance dimensions mediated by GM practices in Palestinian food manufacturing companies is evaluated. However, the following hypothesis was tested:

Hypothesis H15: There is a significant indirect effect of implementing TQM practices on Organizational Performance mediated by GM practices.

The normality test was evaluated for each variable using the Shapiro-Wilks test, with a p-value less than 0.05, indicating non-normal distributions. So the data has been worked on to become

normally distributed (normalization).

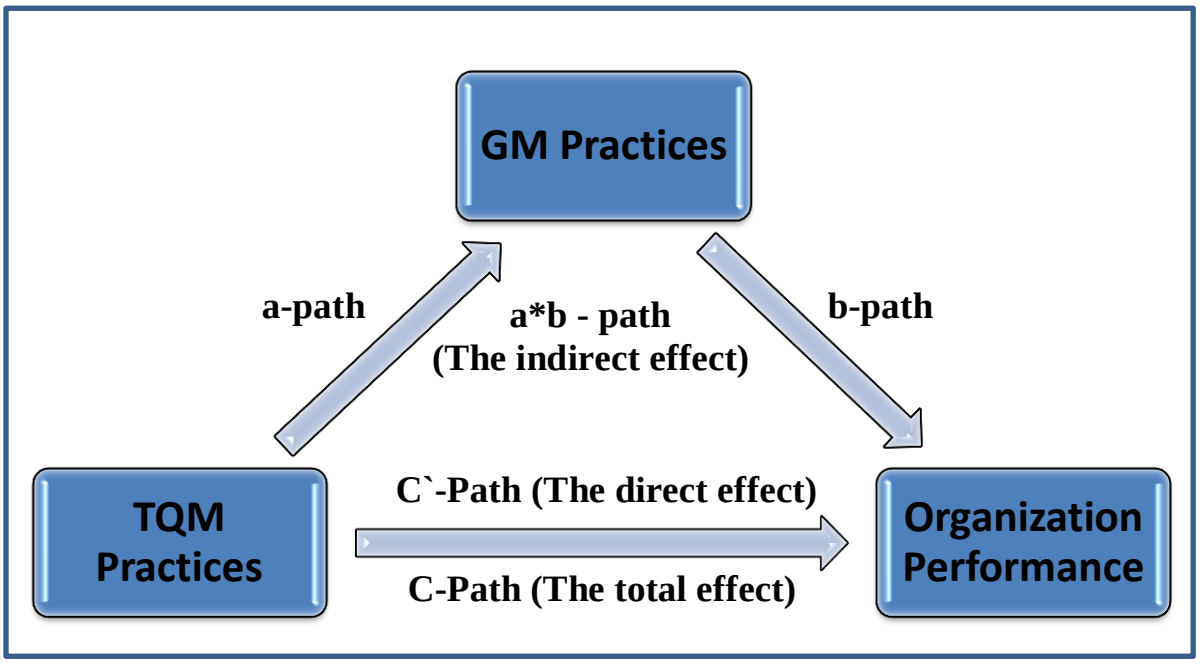

Figure 4. 1: The conceptual relationship between TQM practices and Organizational Performance mediated by GM practices

Figure 4.1 shows the conceptual mediation relationship from TQM practices on Organizational Performances mediated by GM practices. The a-path represents the relation coefficient between independent variables (i.e., TQM practices) and the mediator variable (i.e., GM practices). In contrast, the b-path represents the relation coefficient between the mediator variable (i.e., GM practices) and dependent variables (i.e., Organization Performance). On the other hand, a*p-path represents the indirect path between independent variables (i.e., TQM practices) and dependent variables (i.e., Organization Performance). The C`-path represents the mediator variable's direct effect on the relationship between independent variables (i.e., TQM practices) and dependent variables (i.e., organization performance) while C-path represents the total effect.

The PROCESS v3.5 for SPSS is used to test hypothesis H15, Table 4.22 shows the SPSS

output.

Table 4. 22: Mediation relationship test between TQM practices and Organizational Performance mediated by GM practices

Path	Effect Type	Outcome Variables	Income Variable	Effect	p-value	LLCI	ULCI
a-path	Indirect Effect Of X On Y	GM Practices	TQM Practices	0.6604	0.0000	0.5665	0.7543
c`-path	Direct Effect Of X On Y	Organizational Performances	TQM Practices	0.0889	0.0201	0.0140	0.1638
b-path	Indirect Effect Of X On Y	Organizational Performances	GM Practices	0.8326	0.0000	0.7577	0.9074
c-path	Total Effect Of X On Y	Organizational Performances	TQM Practices	0.6387	0.0000	0.5425	0.7349
a*b-Path	Indirect Effect Of X On Y	Effect Of X On Y	Mediated By GM Practices	0.5498	0.0529	0.4483	0.6555

CI: confidence interval/Report 95%

Table 4.22 shows a significant indirect effect of TQM practices on Organizational Performance mediated by GM practices, which is clear from p-values, which are less than 0.05, reaching 0.000. However, the effect value of a*b-path can be found from the effect value of a-path and b-path. As a result, a*p-path = 0.55, the Boot upper level and down level is [0.45, 0.66].

On the other hand, Table 4.22 shows a significant total effect of TQM practices on Organizational Performance, which is clear from p-values, which less than 0.05, reaching 0.000. Hence, the mediator could account for roughly 86% of total effect (i.e. 0.64). Moreover, Table 4.22 shows a significant direct effect of TQM practices on Organizational Performance, which is clear from p-values, which are less than 0.05, reaching 0.014. However, the direct effect is very weak (i.e. 0.09).

The total effect of TQM practices on Organizational Performance could be summarized as follows:

Total effect = Direct effect + Indirect effect

c-path = c`-path + a*b-path

c-path = 0.09 + (0.66*0.83)

c-path = 0.09 + 0.55

c-path = 0.64

Therefore, hypothesis H15, which states there is a significant indirect effect of implementing TQM practices on Organizational Performance mediated by GM practices, is supported.

Figure 4.2 represents the relationship between TQM practices and Organizational Performance mediated by GM practices

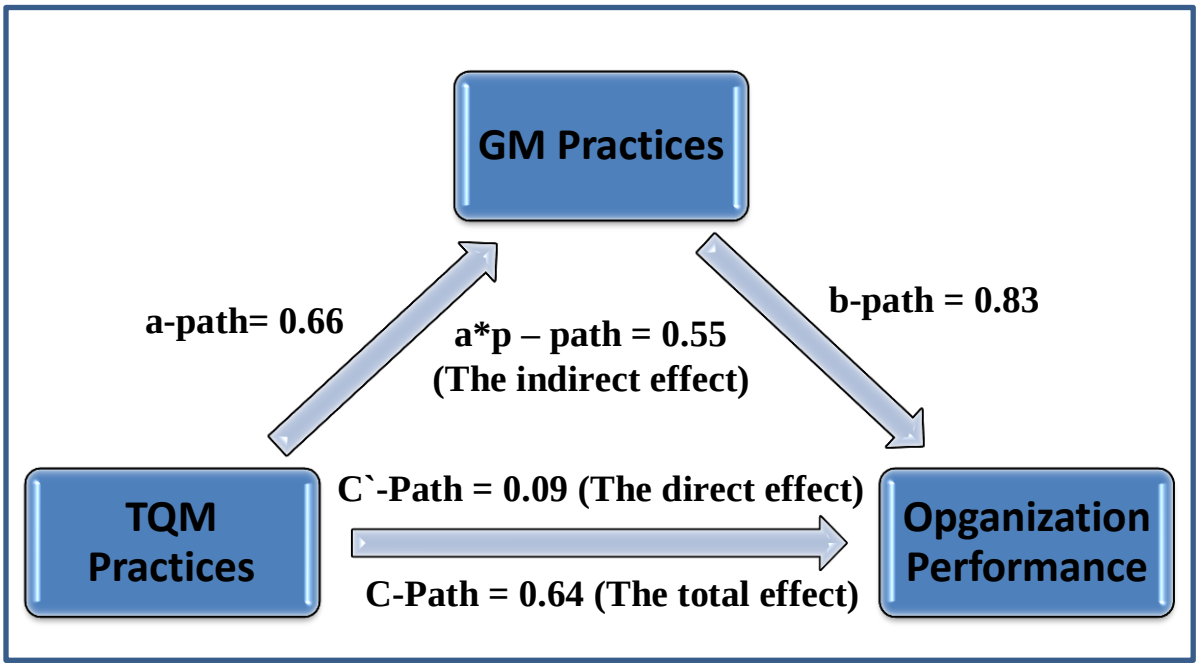

Figure 4. 2: The relationship between TQM practices and Organizational Performance mediated by GM practices

4.4 Hypotheses results and Conceptual Framework

In this section, the results of all hypotheses set are summarized and the conceptual framework and final conceptual model.

The conceptual framework (which was formulated in Chapter One) represents the hypotheses from H1 to H15. It shows the relationships between overall TQM practices, overall GM practices, and overall organizational performance. On the other hand, it shows the relationships between TQM and GM practices, between practices of GM and each of organizational performance dimension, and

between practices of TQM and dimensions of organizational performance. However, based on the results of Table 4.23, which summarizes the hypotheses analysis (from H1 to H15), the conceptual framework can be updated as it's showed in Figure 4.3.

Table 4. 23: Summary of Hypotheses Testing (from H1 to H11)

Hypothesis No.	**Hypothesis**	**Result**
H1	There is a statistically significant correlation between the TQM Practices and Green Management Practices in the Palestinian Food Manufacturing Companies at the level of ($a \leq 0.05$).	Supported
H2	There is a statistically significant correlation between the Green Management Practices and Organizational Performance in the Palestinian Food Manufacturing Companies at the level of ($a \leq 0.05$).	Supported
H3	There is a statistically significant correlation between the TQM Practices and Organizational Performance in the Palestinian Food Manufacturing Companies at the level of ($a \leq 0.05$).	Supported
H4	Customer Focus → Green Customer Satisfaction	Rejected
H5	Quality System→ Green Improvement Projects	Rejected
H6	Strategic Planning →Techniques of Green Manufacturing System	Supported
H7	Continuous Improvement → Green Training	Rejected
H8	Supplier Relationship and Management → Green Cooperation	Supported
H9	Process Management and Efficiency → Green Waste Management	Rejected
H10	Leadership → Green Stakeholders Commitment	Supported
H11	Green Manufacturing Strategies →Operational Performance	Supported
H12	Techniques of Green Manufacturing →Financial Performance	Supported
H13	Leadership →Employee Performance	Supported

H14	Customer Focus →Employee Performance	Supported
H15	There is a significant indirect effect of implementing TQM practices on Organizational Performance mediated by GM practices.	Supported

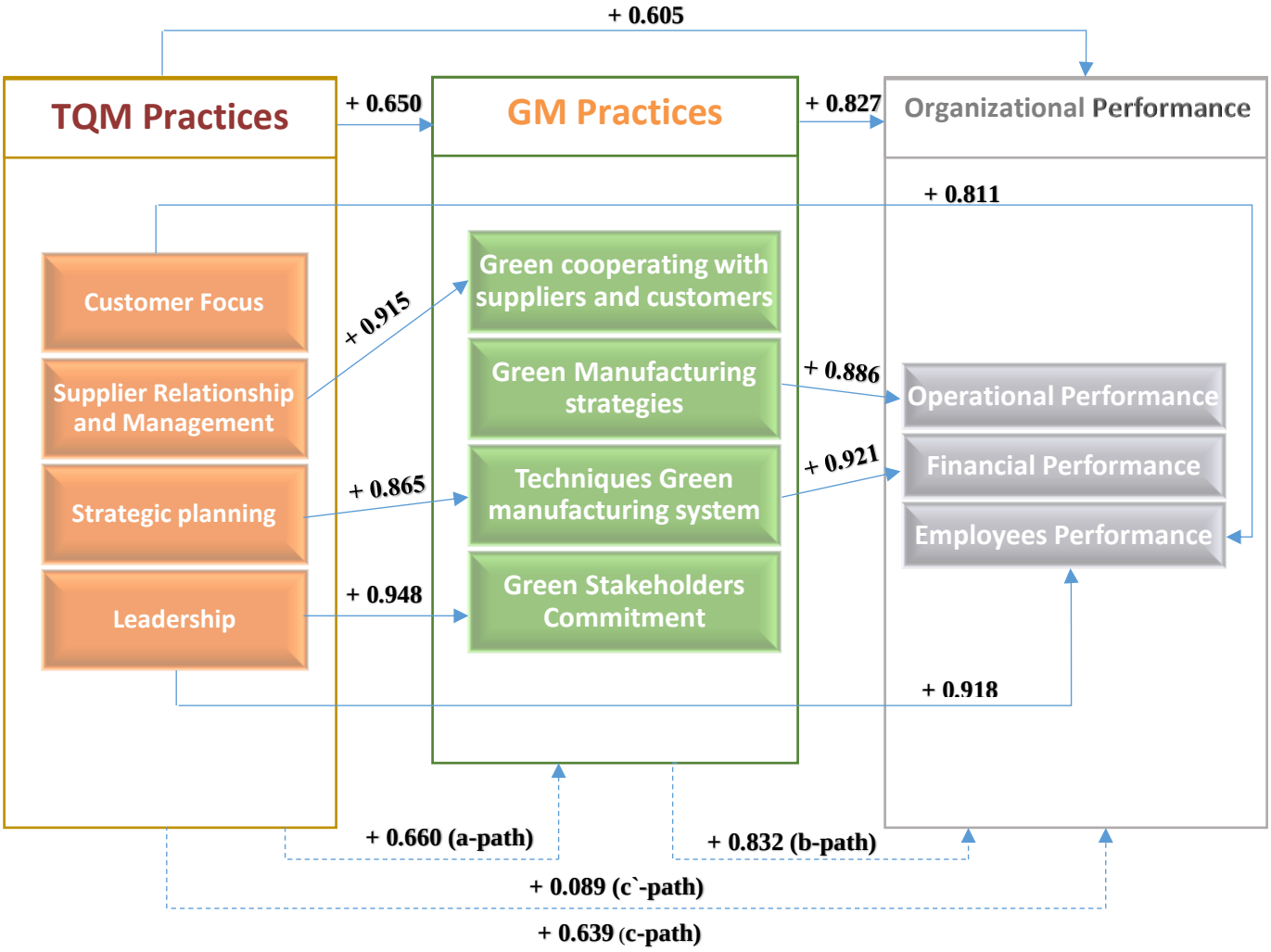

Figure 4. 3: Updated Conceptual Framework Based on the Analysis Results

Chapter Five
Discussion and Managerial Framework

Chapter Content:

- Overview
- Discussion of TQM Practices' Implementation Level
- Discussion of GM Practices' Implementation Level
- Discussion of Organizational Performance Level
- Discussion of TQM Practices' Advantages and Barriers
- Discussion of GM Practices' Advantages and Barriers
- Discussion of the Effect of Applying TQM Practices on Adoption of GM Practices
- Discussion of the Effect of GM Practices on the Organizational Performance
- Discussion of the Effect of TQM practices on Organizational Performance
- Managerial Framework

CHAPTER FIVE

DISCUSSION AND MANAGERIAL FRAMEWORK

5.1 Overview

This chapter is devoted to present the discussion of the research results and outcomes for the qualitative and quantitative data collected using interviews and surveys. The test result of the implementation level of TQM and GM practices and organizational performance in Palestinian Food Manufacturing Companies is discussed. Also, the TQM and GM practices' importance and its barriers and expected benefits are discussed too.

The extent of the relationships existing between TQM practices and GM practices, between GM practices and organizational performance, and between TQM practices and organizational performance in Palestinian food manufacturing companies are discussed by discussing the research hypotheses' results to the results of the interviews. Moreover, this chapter presents the discussion of the indirect effect of implementing TQM practices on Organizational Performance mediated by GM practices. Finally, this chapter presents the managerial framework developed to verify the relation of applying TQM practices to adopting GM practices and how this relationship enhances organizational performance in Palestinian food manufacturing companies.

5.2 Discussion of TQM Practices' Implementation Level

To achieve the first objective of this research, this section examines to what extent Palestinian food manufacturing companies apply TQM practices. Findings illustrate that these companies appear to use TQM practices at a highly implemented level to enhance their organizational performance.

The analysis demonstrates that the preferred TQM practice is the "Quality System." This is because the existence of a quality system is the cornerstone of achieving quality requirements.

Interviewees indicated that in order to set the quality system rules and conditions, some companies apply international standards such as ISO 22000, ISO 9001, and FSSC 22000, while other companies apply local quality standards set by Palestine Standard Institute such as PSI and PSM standards. However, many Palestinian food manufacturing companies have their internal quality system and file management system. This result is consistent with previous studies. For instance, Kedar and Borikar (2016) and Abdallah (2013) indicated that the preferred TQM practice - supported by senior management and other managerial levels - is the "Quality System."

In the second place, the TQM practice of "Customer Focus." Because focusing on the customer has a direct relationship to increasing profits, and local Palestinian companies adopt the phrase "the customer is always right". Moreover, the interviews' results indicate that Palestinian food manufacturing companies focus on the customer by adopting his/her requirements. For instance, companies adhere to WHO standards in order to focus on customers' needs. On the other hand, companies create mobile applications to listen to customers and focus more on their needs. This result is consistent with previous studies. For instance, Munyanduri (2018) and Sweis et al. (2019) indicated that quality management adopts multiple principles that cover customer focus, and senior leaders must fulfill this practice. Moreover, Sharma et al. (2019) indicated that the Deming's TQM approach focuses on the outputs, which are the customer, since the customer provides financial revenue to the organization.

Third place was for the "Leadership". This result is not considered strange in the Palestinian society that has a leadership tendency. However, it has been found that, in Palestinian food manufacturing companies, Leadership has a positive relationship with a customer focus. This can be explained by the fact that each person within the organization supports the Leadership's focus on customers so that all processes and strategies are continually evaluated to ensure compliance and thus

achieve higher profits. However, previous studies emphasized the importance of practicing Leadership in an organization. For instance, O'Hagan and Persaud (2009) indicated that quality alone is not enough; true effectiveness needs the culture of quality, which is a commitment to several elements of the surrounded culture such as Leadership. Yusof (2000) indicated that senior management's role is not limited to supervision only, but rather to Leadership. While Munyanduri (2018) emphasized that quality management adopts multiple principles that cover Leadership, and Qasrawi et al. (2017) indicated that TQM enhances organizational Leadership, which leads to improving organizational performance.

The fourth most implemented practice was “Strategic Planning.” This was confirmed by interviewees who indicated that companies in the Palestinian society, and under conditions of occupation, plan for every eventuality in order to stay at the market and make the best possible benefits. As a result, strategic planning is a vital TQM practice in Palestinian Food Manufacturing Companies. Previous studies emphasized the importance of strategic planning and the level of its application in institutions. For instance, Chikwengo (2017) and Kantardjieva (2015) indicated that strategic planning is the fifth principle of TQM. It leaves nothing to guess, chance, or luck, while Oschman (2017) confirmed that the short, medium and long term planning plays a prominent role in the implementation and success of TQM methodology.

Fifth place was for “Continuous Improvement.” This was confirmed by interviewees, who indicated that Palestinian food manufacturing companies continuously seek to keep abreast of technology and digital advancement, evidenced by their smartphone application adoption. Previous studies confirmed this finding. McLean (2017) indicated that continuous improvement is the sixth principle of TQM. Sweis et al. (2019) indicated that continuous improvement is important in companies since it seeks to continuously improve all factors related to the input conversion process to

the output. Sha'aar and Najjar (2015) and Aized (2012) found that continuous improvement supports using the technology, which becomes an integral part of the organization's acts.

In the sixth place, the TQM practices of "Supplier Relationship and Management," while the seventh-place of TQM practice was for "Process Management and Efficiency". However, interviewees indicated that supplier limitation is a barrier to implementing TQM practices. However, it can be overcome by establishing relationships and management with them. Nevertheless, the previous study indicated the importance of these two practices as Landowski et al. (2019) showed that Process management and efficiency were set in the middle of the Deming approach while the supplier was set in the first stage of the approach. This difference between the research results and previous studies is due to the limited availability of suppliers and the difficulty of importing, which negatively affects process management and efficiency.

5.3 Discussion of GM Practices' Implementation Level

To achieve the first objective of this research, this section examines to what extent Palestinian food manufacturing companies apply GM practices. Findings illustrate that these companies appear to use GM practices at a highly implemented level to enhance their organizational performance.

The analysis demonstrates that the preferred GM practice is the "Green Improvement Project Selection and Implementation". This is because Palestinian companies still believe that green management is a project that can be implemented and terminated rather than practices and culture. Interviewees indicated that at the level of Palestinian food manufacturing companies, the green improvement projects selected and implemented most often revolve around waste separation projects, recycling projects, insect and rodent control system projects, and wastewater treatment projects. However, previous studies emphasized this result. For instance, Lotra et al. (2013) found that

continuous improvement in projects should be taken, such as green improvement projects' selection and green improvement projects' implementation to prevent pollution in the manufacturing process. Firdaus and Udin (2014) indicated that green cities, green education, green food, green philosophy, and green ethics are new concepts called green improvement projects.

The second most implemented GM practice was "Green Manufacturing Strategies." Interviewees indicate that their companies follow the green manufacturing strategy in their systems by implementing some international standards or local green standards or alternatively implementing an internal green system in addition to adopting other strategies to achieve many GM benefits such as customer satisfaction, reducing inconvenience, reducing waste, and making savings. Similarly, previous studies confirmed the importance of green manufacturing strategies. For instance, Al-Rubaie and Mohammed (2017) found that green manufacturing strategies are required to design the green manufacturing system.

In the third place, the GM practice of "Green Customer satisfaction." Interview results indicated that Palestinian food manufacturing companies focus on customer satisfaction, which increases interest in the environment. Several studies, such as Wiengarten and Pagell (2012), emphasized this, who found that Green Customer satisfaction became a vital practice since the customers nowadays care about the environment. Moreover, Sharma et al. (2019) indicated the importance of green customer satisfaction since Deming's approach to TQM and GM practices focuses on the output, which is the customer, given the fact that the customer provides financial revenue to the organization.

In the fourth place, the GM practice of "Green Stakeholder's Commitment." Previous studies confirmed this result. Chiarini and Vagnoni (2017) found that within the company, the directions,

values, and expectations should meet all the needs of stakeholders, while Abbas (2019) found that these stakeholders require actions not to harm the environment.

In the fifth place, the GM practice of "Techniques of Green Manufacturing System." Al-Rubaie and Mohammed (2017) and Kauffman and Lee (2013) confirmed this result by emphasizing eight requirements of designing the green manufacturing system. The fifth requirement was the Techniques of Green manufacturing system.

In the sixth place, the GM practice of "Green Training," while the seventh-place of GM practice was for "Green Cooperation". These two practices have a medium level of implementation. This can be explained by the researcher's observations about the companies' belief that these practices require a high cost and its payback in the long run or not feasible. This is due to the lack of awareness of employees and management due to the lack of local experiences.

The last place was for "green waste management". Although the scholars confirmed that the practice of green waste management reduces direct costs, for instance, by reducing wastewater treatment, waste disposal (Amer, 2006), the research results indicated a low level of green waste management practice in Palestinian food manufacturing companies. This is due to the prevailing belief of the companies' owners that green projects and practices need a high cost, while the return is not feasible or in the long-term. This belief is prevalent due to the lack of local experience with green projects and practices, and it is considered a new concept locally. In general, the prevailing consideration is that when waste comes out of the company’s borders, it is the responsibility of the municipalities, not the companies.

5.4 Discussion of Organizational Performance Level

This research results indicate a high level of organizational performance in Palestinian food

manufacturing companies. However, the research's results showed that the highest level of the organizational performance in the Palestinian food manufacturing companies is the "Financial Performance." This is not unlikely, as most food manufacturing companies in Palestine are considered mostly family businesses, so their primary goal is to achieve a financial return. Previous studies confirmed this result. For instance, Yilmazer and Schrank (2006) and Hanieh et al., (2015) indicated that company owners' financial performance is the greatest concern.

The second place was for the "Operational Performance" while the last place was for "Employee Performance." The researcher interprets this arrangement that the respondents were predominantly managers from top management (i.e., Quality manager, Green operations manager, and General Manager) who were more interested in operations rather than employees, while the human resource managers - who care more about the employees - were less (although it was the highest percentage of respondents regarding job title compared to other jobs separately).

5.5 Discussion of TQM Practices' Advantages and Barriers

It was questioned, "what are the advantages of applying TQM practices in the Palestinian food manufacturing companies?". The interviewees indicated that the TQM practices have positive results on organizational performance by reducing the defects, waste, and time and achieving food safety, risk-reduction, and customer satisfaction, which can lead to opening new markets. These results can be illustrated that Palestinian food manufacturing companies are more interested in controlling their financial consumption and expanding their business as a primary strategy before contributing to other quality aspects such as customer satisfaction. It is interesting to note that survey respondents choose "Customer Focus" as a higher practice level than "Strategic Planning". This result does not contradict the outcome of the interviews due to the belief that satisfying the customers will gain financial benefits for the companies by increasing the purchases made by satisfied customers, which in turn is the

primary strategy as explained by the interviewees.

These results are consistent with some studies, while others show benefits beyond that for TQM. For instance, it is consistent with the research's results of Topalović (2015) and Lee et al. (2015) as they indicated that TQM reduces costs by preventing wasted time and mistakes of poor quality and helps to meet customers' requirements. Ravichandran (2000) found in his research that TQM's advantages are improving and developing the quality of the organization's services and products, helping in facing difficult challenges, and gaining public satisfaction. Oakland (1993) found that TQM leads the organization to reach a differentiation with a high degree and strengthen brand image. Also, Conca et al. (2004) found that it creates a new firm's culture that leads to improvements in the firm's activities and management system. This discrepancy in the results is due to the peculiarity of the Palestinian context and its conditions that cause economic instability. Accordingly, the investor's view of the importance of quality changes.

On the other hand, it was questioned, "what are the most significant barriers to implementing TQM practices in Palestinian food manufacturing companies?". The main barriers are caused by the existence of Israeli occupation in the Palestinian state is considered the first barrier, which limits the possibility of dealing with foreign trade and the possibility of establishing relationships with suppliers by controls the export/import ports and channels. As a result, the relationships with supplier are the second barrier of TQM.

The third barrier was employees and managers' resistance, where they are convinced of the traditional system more. They do not believe that there are advantages in the implementation of TQM. They refute their resistance by the peculiarity of the Palestinian context. In addition, the employee's creativity margin prevents the correct application of TQM. The fourth barrier was the scarcity of

infrastructure, and the final barrier was the high costs. There are few real and successful experiences in implementing TQM in the Palestinian context, which reinforced the notion that quality is expensive and requires a large infrastructure.

Previous studies are consistent with these research findings. Shameer and Sing (2013) indicated that TQM's barriers in the Mauritian context are employees' resistance to change and employees' frequent turnover. Bhat and Rajashekhar (2009) showed that the Indian context's TQM barriers lack leadership, statistic planning, TQM resources, and human resource development and management.

5.6 Discussion of GM Practices' Advantages and Barriers

It was questioned, "what are the benefits of applying GM practices in the Palestinian food manufacturing companies?". The interviewees indicated that GM practices have positive effects on operational performance by reducing wastes. It can be explained that Palestinian food manufacturing companies are more interested in traditional GM practices as their primary GM practice before contributing to their inherent system. This result is consistent with the results of Dawood (2018) and Belekar (2017), who indicated that preventing pollution leads to waste reduction and green manufacturing is concerned in improving the production process, as well as improving performance throughout employing sustainable development, which, in turn, reducing the inconvenience.

Another advantage that the respondents mentioned is green customer satisfaction. In previous studies, many researchers - such as Nkirote and Mugambi (2019), Lam and Lai (2015), Legeza et al. (2019), and Shamsuddin et al. (2015) - indicated that customers are becoming more interested in the environment. Thus the company's concern for the environment will generate satisfaction among its customers.

Few respondents indicated that green management achieves financial benefits, and the results

of the questionnaire showed a weak correlation relationship between GM practices and achieving financial performance in the company. The reason for this impression is the poverty of the Palestinian context for real and successful experiments in the field of green projects, as well as the need for green projects to have a long payback period that made the general belief that they need high-cost investment with low feasibility. Nonetheless, previous studies - such as Allur et al. (2018), Khan and Qianli (2017), and Zhu et al. (2004) - emphasized that GM practices make financial benefits for the companies.

On the other hand, it was questioned, "what are the most significant barriers that hinder Palestinian food manufacturing companies from applying GM practices?". The interviewees indicated that GM practices have a barrier of the lack of employees' and managers' awareness. This suggests a lack of green expertise among the employees of Palestinian food manufacturing companies. This finding is consistent with previous studies. Gerstenfeld and Roberts (2000) found that lack of knowledge is a GM practice barrier; Ebinger et al. (2006) found lack of capabilities is a GM practice barrier; Angel et al; (2008) found the lack of human resource capabilities, knowledge, technical skills, and professional consultation are GM practices barriers; McAdam et al. (2004) found a lack of empowerment and employee ideas are GM practices barriers; Bowen et al. (2001) found a lack of environmental knowledge is a GM practice barrier, and Geng and Doberstein (2008) found the lack of guidelines and low environmental awareness are GM practices barriers.

The second barrier was the scarcity of infrastructure and qualified personnel. This indicates that green practices are a new concept in Palestinian companies. The third barrier was high costs. This can be explained that there are few real and successful experiences in implementing GM in the Palestinian context, and this reinforced the notion that GM practices are expensive and require huge infrastructure. This finding is consistent with previous studies. Hillary (2004) found the lack of human resources is a

GM practice barrier; Hadjimanolis and Dickson (2000) found limited resources is a GM practice barrier, which affects the ability to adopt new practices and a limited range of technological competencies; Biondi et al. (2002) found limited staff resources is a GM practice barrier, and Quayle (2003) found lack of new technology is a GM practice barrier.

A final barrier was the need for administrative management approvals, which can, in turn, lead to resistance and obstruction to GM implementation. This indicates that there is a lack of real awareness about the importance of GM practices to the environment and the company itself in the Palestinian context. This finding is consistent with previous studies. McAdam et al. (2004) found the lack of empowerment is a GM practices barrier; Lin and Ho (2008) found low involvement from the top management is a GM practices barrier; Taylor and Barker (2004) found environmental legislation and requirements are GM practices barriers; Del Brío and Junquera (2003) found the type of organizational structure is a GM practices barrier, and Revell and Rutherfoord (2003) found the lack of commitment and communication by the owners to reduce negative environmental impact is GM practices barrier.

5.7 Discussion of the Effect of Applying TQM Practices on Adoption of GM Practices

To achieve the second objective of this research, this section discusses the relationships between TQM and GM practices to figure out the impact of applying TQM on GM practices adoption, besides the most GM practices that are affected by applying TQM practices in the Palestinian food manufacturing companies. This can be done by presenting the research hypotheses results in addition to the result of interviews. However, regarding the general assumption that there is a potentially positive correlation between the TQM practices and GM practices in the companies, hypotheses were formulated to examine whether these correlations exist in Palestinian food manufacturing companies.

As for the result concerning the positive relationship between overall of TQM practices and overall of GM practices in Palestinian food manufacturing companies, many scholars found a similar result where they affirmed the strong interrelated relationship between TQM and Green Manufacturing, these scholars are Allur (2018), Zutshi and Sohal (2005), Zeng et al. (2005), Beckmerhagen et al., (2003), Poksinska et al. (2003), Rodríguez and Ricart (2000), Wilkinson and Dale (1999), Beechner and Koch (1997), and others. This result can be explained by referring to one of the main objectives around which TQM revolves: to reduce waste and error rate, which is completely consistent with the results of green management.

With regard to the relationships of separate practices, a positive relationship was found between Customer Focus and Green Customer Satisfaction, and this was confirmed by Hanss and Böhm (2012), where they emphasized in their research about green marketing strategy and indicated that it should be based upon and emanated from customer focus and the voice of consumers (VOC) to meet consumer's requirements and being environmental friendliness. This result gives the impression that Palestinian customers want products that do not harm the environment more than before. Otherwise, the researcher did not find a relationship between Quality System and Green Improvement Projects Selection and Implementing in the Palestinian food manufacturing companies. That contradicts the result reached by Firdaus et al. (2014) in their research, who confirm the existence of the relationship between the Quality System and the Improvement of Green Projects in the Malaysian context. This result indicates that Palestinian companies do not consider green projects as part of the company's quality system. In addition, green issues are not included in quality management systems such as ISO, and if it is included, it is not obligatory in Palestine.

According to the result of Klassen and McLaughlin (1993) and what Judah (2014) emphasized, environmental management has become a strategic plan in order to achieve the green techniques of

manufacturing systems such as performance design integration, delivery, production, use, circulation, and disposal of products. Similarly, this research verified that there is a positive relationship between Strategic Planning and Adoption of the Techniques Green manufacturing system. Hence, this result shows the belief of Palestinian food manufacturing companies that green manufacturing techniques are among the clear strategic plans that they must adopt now or soon such as pollution control, recycling process, and separated waste.

It was found that there is no significant relationship between Continuous Improvement and Green Training, which leads to the conclusion that training may have become a less important priority in Palestinian food manufacturing companies. This result in the Palestinian context does not coincide with what Judeh (2014) indicated in his research that continuous improvement could be possible in the long term by considering the environmental factors in the designed training for the workforce and the firm structure of reward. This contradiction can be illustrated that Palestinian companies' owners still believe that employees' training is considered costly and ineffective due to the high job turnover in Palestinian manufacturing companies.

The research results indicated that there is a strong positive relationship between Supplier Relationship and Green cooperating with suppliers and customers. Previous scholars confirm this as Theyel (2006) in the context of the United Kingdom and Okpara and Idowu (2013) in the context of Germany and the United Kingdom. They confirmed that existing more supplier and management relationships increase the level of green cooperation with suppliers and customers who become more environmentally conscious. This finding confirms the impression that the Palestinian customers and suppliers want and provide products that do not harm the environment more than before.

Although previous scholars such as Sweis (2019) and Allur et al. (2018) confirmed the

relationship between Process Management and Green Waste Management, this research indicates that there is no relationship between them in Palestinian food manufacturing companies. This indicates that the Palestinian context gives less priority to green waste disposal. The interviewees indicated that companies consider green projects that aim to dispose of waste in an environmentally safe manner as expensive projects. In addition, the prevailing consideration is that when waste comes out of the company's borders, it is the responsibility of the municipalities, not the companies.

As for the result concerning the positive relationship between Leadership and Green stakeholders Commitment in Palestinian food manufacturing companies, a lot of scholars found a similar result. They affirmed that the more existing leadership increases the level of green stakeholder's commitment since an organization's senior leader should meet all the needs of stakeholders who require actions not to harm the environment. These scholars are Abbas (2019), Chiarini and Vagnoni (2017), and others. This result confirms that leadership takes care of the environmental needs of the stakeholders within the Palestinian food manufacturing companies.

Based on the above, the main research hypothesis is accepted: "TQM practices implementation has a positive impact on the adoption of GM practices in Palestinian food manufacturing companies", and the most affected GM practice by implementing TQM practices in Palestinian food manufacturing companies is Green Stakeholders Commitment, and then Green Manufacturing Strategies, Green Improvement Project Selection & Implementation, Green Cooperation with Suppliers & Customers, and Techniques of Green Manufacturing System, respectively.

5.8 Discussion of the Effect of GM Practices on the Organizational Performance

To achieve the third objective of this research, this section discusses the impact of applying GM practices on organizational performance in the Palestinian food manufacturing companies by

presenting the research hypotheses results, in addition to the result of interviews to discuss the existing relations between GM practices and organizational performance in Palestinian food manufacturing companies.

As for the result concerning the positive relationship between overall of GM practices and overall of organizational performance in Palestinian food manufacturing companies, Rehman (2016) found a similar result where he indicated that green manufacturing success factors lead to improving the organizational performance measures such as financial performance, manpower performance, and operational performance. Interestingly, most of the interviewees indicated that green practices in the Palestinian context do not improve the company's performance, especially financial performance. Nevertheless, the results of the survey indicated that Palestinian food manufacturing companies believe that green practices improve the performance of companies.

It was found that there is a strong positive relationship between Green Manufacturing strategies and Operational Performance. This result is in line with what Shrivastava (2017) stated that green manufacturing strategies aim at/focus on reducing parts, rationalizing materials, and reusing components, to help build products more efficiently, which is reflected positively on the performance of the organization. However, this relationship was confirmed by the interviewees, who indicated that food manufacturing companies in Palestine sometimes try to improve their organizational performance by applying GM practices. In order to do so, they adopt green manufacturing strategies such as green systematic to reduce the error rate by facilitating the understanding and application of procedures and organizing all departments.

The results indicate that there is a strong positive relationship between Techniques Green Manufacturing System and Financial Performance in Palestinian food manufacturing companies.

However, the interviewees confirmed this relationship, which indicated that green management practices improve the company's financial performance by increasing sales. This is achieved by applying green manufacturing systems techniques such as reducing waste to improve the company's image and reputation, thus aligning the customer's requirements for green products and increasing the brand value that is one of the company's assets. Continuously, previous studies confirmed this finding; for example, Shang et al., (2010) and Srivastava (2007) emphasized the positive relationship between green manufacturing system technologies and financial performance. This is because green manufacturing system technologies - such as green supply chain management - can reduce the environmental impact of manufacturing activities without reducing quality and reliability, without increasing cost, thus improving financial performance.

Based on the above, the main research hypothesis is accepted: "GM practices adoption has a positive impact on Organizational Performance in Palestinian food manufacturing companies".

5.9 Discussion of the Effect of TQM practices on Organizational Performance

To achieve the third objective of this research, this section discusses the impact of applying TQM practices on organizational performance in the Palestinian food manufacturing companies by presenting the research hypotheses results in addition to the result of interviews to discuss the existing relations between TQM practices and organizational performance in Palestinian food manufacturing companies.

As for the result concerning the positive relationship between overall of TQM practices and overall of organizational performance in Palestinian food manufacturing companies, Sha’aar and Najjar (2015) and Abu-Ziyadah (2012) indicated that there is a significant relationship between the dimensions of TQM (combined) and the effectiveness of time management and functional performance. This can be explained by the fact that all TQM dimensions' application improves the

efficiency of time management and functional performance. This will be reflected in the performance organizations and their employees, and achieve their goals efficiently and distinctly.

It was found that there is a strong positive relationship between Leadership practice of TQM and Employees Performance. This relationship was affirmed by Keinan and Karugu (2018) in the Kenya context, Omar et al. (2018) in the Malaysian context, and Qasrawi et al. (2017) in the Jordanian context. This can be interpreted as TQM enhances organizational leadership, which leads to improving organizational performance through the positive effects of TQM on top management communication, commitment, planning, interaction, leadership, responsibility, evaluation, and anticipation, and the end result is an improvement in employee performance.

The results indicate a strong positive relationship between Customer Focus and Employees Performance in Palestinian food manufacturing companies. Previous studies emphasized that the existing more customer focus increases the level of employee performance in Palestinian food manufacturing companies such as Pradhan (2017) in the Nepal context and Qasrawi et al. (2017) in the Jordanian Context. This relationship can be interpreted as indicated that TQM enhances organizational customer satisfaction and relationship with customers. Thus, TQM enhances the organization to collect data, study, and plan for improvement, inspection, and control of the manufacturing processes to improve employees' skills in which leads to improving their performance.

The interviewees did not indicate a relationship between leadership or customer focus with improvement in employee performance. However, they emphasized that TQM leads to improving organizational performance. The interviewees indicated that training employees, encouraging their creativity, and carrying out continuous evaluations of them lead to an improvement in the employees' performance in the Palestinian food manufacturing companies, while they indicated that the presence of systematic work and documentation helps to enhance the operational performance in these

companies.

Based on the above, the main research hypothesis is accepted: "TQM practices implementation has a positive impact on Organizational Performance in Palestinian food manufacturing companies". However, to search more for the answer to the second and third questions in this research, GM practices' mediation effect on the relationship between TQM practices and Organizational Performance was tested for the first time in the Palestinian Context.

The test result showed a positive relationship between TQM practices and GM practices named a-path, and between GM practices and organization Performance, which is named p-path. Hence, there was a positive indirect effect of TQM practices on Organizational Performance mediated by GM practices, named a*p-path. Furthermore, it was found that there was a total positive effect of TQM practices on Organizational Performance, which is named c-path. Simultaneously, the positive direct effect of TQM practices on Organizational Performance - which is named c`-path- was found very weak. Therefore, the GM Practices mediator could account for most of TQM practices' total effect on Organizational Performance (i.e., 86%). However, this relationship is not excluded due to TQM practices and GM practices' common objectives, as they overlap in their content to reach better company performance. Confirming the mediation effect of GM practices on the relationship between TQM practices and organizational performance in the context of Palestinian manufacturing companies confirms the need for these companies to adopt green practices to reach ideal performance within companies.

Based on the above, the research hypothesis of "There is a significant indirect effect of implementing TQM practices on Organizational Performance mediated by GM practices "is accepted.

5.10 Managerial Framework

To achieve the third objective of this research, this section discusses the managerial framework developed based on literature reviews and results of the analysis and discussions to verify the relation of applying TQM practices on the adoption of GM practices and how this relationship enhances organizational performance in Palestinian food manufacturing companies.

Semi-structured interviews show that Palestinian food manufacturing companies are still in their early stages of implementing green management. The interviewees expressed that companies still believe that some GM practices, such as Green Waste Management, are costly and not economically feasible. On the contrary, the interviews show a high commitment of the companies to TQM practices. The same results are indicated by the survey results, which show a high level of application of TQM and GM practices. Moreover, the combination of semi-structured interviews and surveys shows that the implementation of TQM practices is positively affected the adoption of GM Practice in Palestinian food manufacturing companies.

Furthermore, it shows that applying TQM and GM Practices would have a major role in enhancing organizational performance. As a result, a clear guide for applying TQM and GM practices is needed to lead top management in achieving high organizational performance.

Figure 5.1 shows the managerial framework. It includes four TQM practices; TQM Leadership, Strategic Planning, Supplier Relationship and Management, and Customer Focus. The framework also includes four GM practices; Techniques Green manufacturing system, Green cooperating with suppliers and customers, Green Manufacturing strategies, and Green Stakeholders Commitment. Finally, the framework includes three Organizational Performances; Employee Performance, Operational Performance, and Financial Performance.

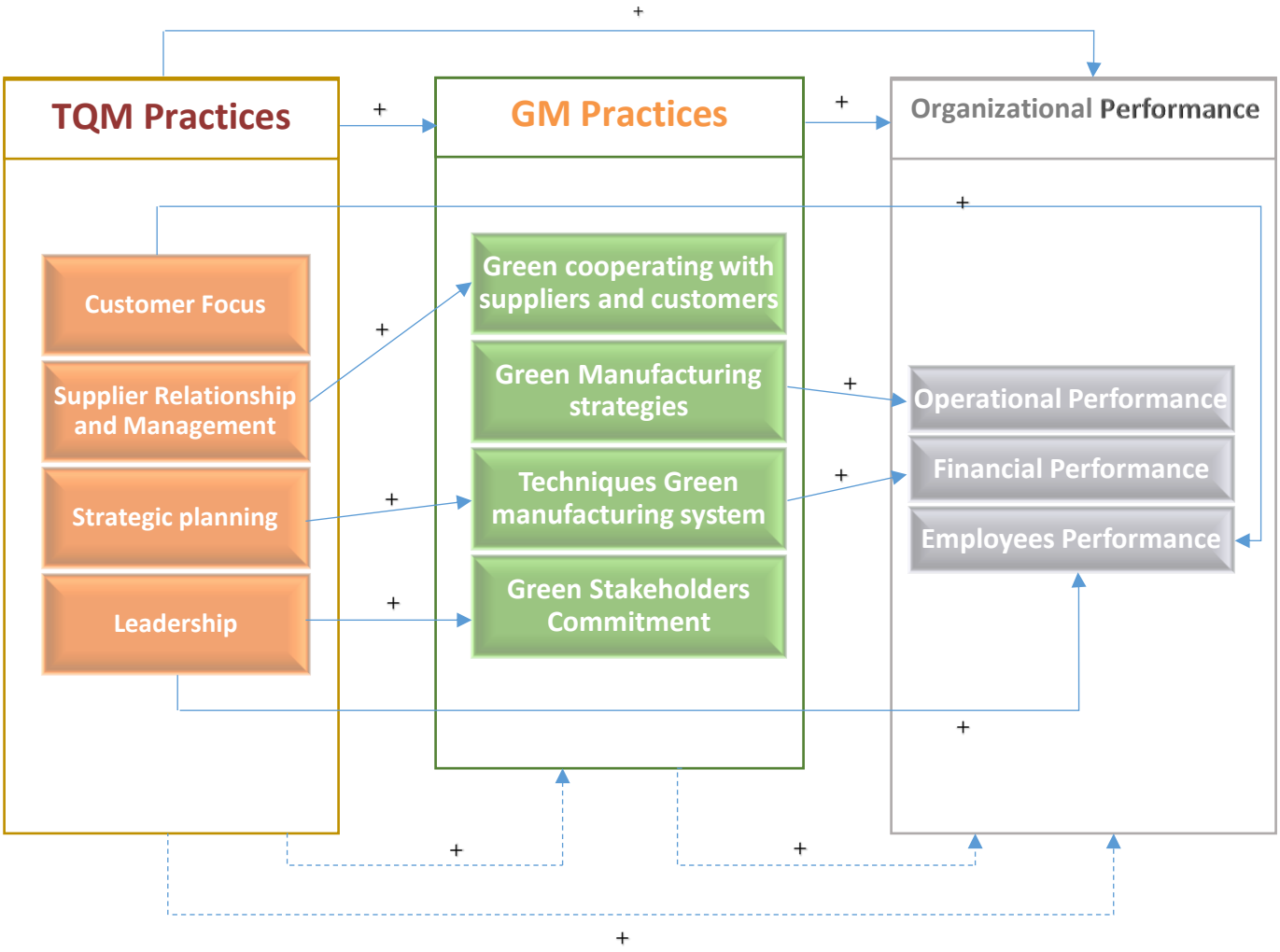

Figure 5. 1: The Managerial Framework

Chapter Six
Conclusions and Recommendations

Chapter Content:

- Overview
- Conclusions
- Recommendations
- Research Contribution
- Limitations of the Study
- Future Research

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.1 Overview

This chapter discusses the results and conclusions of this research. Also, it suggests recommendations for Palestinian Food Manufacturing Companies to follow the best implementation of TQM and GM Practices, discusses the contribution of this thesis, and indicates limitations that were faced during the development of this study. Finally, this chapter discusses suggestions for future studies.

6.2 Conclusions

This research's main objective is to evaluate the best practices of TQM and GM in Palestinian food manufacturing companies. This was done through exploring the extent to which Palestinian food manufacturing companies implement TQM and GM practices, in addition to examining the level of organizational performance of these companies under the current implementation level of TQM and GM practices. It has been found that Palestinian food manufacturing companies are implementing TQM and GM practices at a high level to enhance their organizational performance. More specifically, the preferable TQM practice is the "Quality System," followed by "Customer Focus" and "Leadership," respectively. At the same time, the least implemented TQM practices are "Supplier Relationship and Management", "Process Management and Efficiency", "Continuous Improvement," and "Strategic Planning", respectively. On the other hand, the preferable GM practice is the "Green Improvement Project Selection and Implementation," followed by "Green Manufacturing Strategies" and "Green Customer Satisfaction," respectively. While the least implemented, GM practices are "Green Waste Management", "Green Training", "Green Cooperation", "Techniques of Green Manufacturing System", and "Green Stakeholder's Commitment", respectively. However, Palestinian

food manufacturing companies have a high level of organizational performance. Financial performance is the highest performance, while employee performance is the lowest, and operational performance is in between.

The second objective of this research is to explore and investigate the level of impact of applying TQM on the adoption of GM practices at Palestinian Food Manufacturing Companies. This was done by exploring the interrelationships between TQM and GM practices, finding the best TQM practices to enhance GM practices, on the one hand, improving organizational performance on the anther hand, and finding the best GM practices to reach the best organizational performance. It has been found that there is a positive effect of the implementation of "Quality System", "Strategic Planning", "Supplier Relationship and Management", and "Leadership" on enhancing the adoption of "Green Improvement Projects Selection and Implementing", "Techniques Green manufacturing system", "Green Cooperating with Suppliers and Customers", and "Green Stakeholders" at Palestinian food manufacturing companies.

Moreover, there is a positive effect of the adoption of "Green Manufacturing strategies" and "Techniques Green manufacturing system" on enhancing the Operational and Financial Performances, also of a positive effect of the implementation of "Leadership" and "Customer Focus" on improving the Employees Performance at Palestinian food manufacturing companies. On the other hand, this relationship between TQM practices and organizational performance can also be indirect through the mediation of GM practices.

The third issue the research focused on is identifying the barriers that could affect the implementation of TQM and GM practices and explore the expected benefits of TQM and GM practices on organizational performance from the viewpoint of Palestinian food manufacturing

companies. The analysis results are listed below:

- ✓ Some Palestinian food manufacturing companies pay attention to TQM's international standards, such as ISO 22000, ISO 9001, FSSC 22000, and WHO standards. In addition to the local quality standards set by Palestine Standard Institute, such as The Palestinian Quality Marks Standards (PSI) and The Palestinian Standards Mark (PSM). Moreover, they are paying attention to GM's international standards, such as ISO 14000 and ISO 14001, and the local green standards set by the Palestinian Environment Ministry and local municipalities.

- ✓ Some Palestinian food manufacturing companies are applying an internal quality system and their file management system, and they are using the internet applications to keep pace with technology in implementing TQM through the use of GM practices application and/or the company's applications. Besides, some of them are applying an internal green system such as waste separation, recycling, insect and rodent control system, wastewater treatment.

- ✓ The most benefits of TQM implementation from the viewpoint of Palestinian food manufacturing companies are reduced defects, waste, time, and food safety, risk-reduction, customer satisfaction, and opening new markets. At the same time, the most expected benefits of GM adoption are reduced waste and inconvenience, in addition to achieving customer satisfaction and savings.

- ✓ The main barriers to implementing TQM practices are the Israeli occupation and suppliers' limitations, the resistance of employees and managers, the scarcity of infrastructure, the high costs, and the employee's creativity margin, which prevents TQM's correct application. At the same time, the main barriers to implementing GM practices are the lack of employees' and managers' awareness, the scarcity of infrastructure and qualified personnel, the high costs, the need for administrative approvals, and the top management resistance.

6.3 Recommendations

This research shows that Palestinian food manufacturing companies can benefit through superior use of TQM practices to support and motivate commitment to GM practices, leading to better

organizational performance. Thus, it is advisable to follow the following recommendations to ensure the best quality results, environmental behavior, and organizational performance:

- ✓ Food manufacturing companies are recommended to apply Customer Focus, Supplier Relationship and Management, Strategic Planning, and Leadership TQM practices

  Due to the critical impact of these practices on enhancing the implementation level of green practices in a company

- ✓ Food manufacturing companies are recommended to apply GM practices.

  Due to the critical importance of the environment for the individual and society and achieving material and moral returns for companies, in addition, companies that invest in GM practices will gain more trust and loyalty from their employees and their customers by improving the company's reputation, which will increase sales and strengthen the companies' financial position to enhance their market survival and development.

- ✓ Food manufacturing companies are recommended to increase environmental personnel's awareness and qualifications through training.

  In order to ensure the best implementation and adherence to GM practices within companies, they should raise awareness and knowledge among their employees and top management about the importance of the environment and its practices through continuous training and development, which in turn can lead to an increase the qualifications of employees and reduce the resistance of top management.

- ✓ Ensuring top managers support for GM Practices by demonstrating the benefits of GM Practices.

  Top managers are recommended to be aware of GM's benefits and embrace its practices rather than resist it.

- ✓ Finally, in Chapter 5, section 5.10, the managerial framework is recommended for to apply in Palestinian food manufacturing companies.

  The proposed managerial framework will lead to better results in adopting GM practices and

organizational performance, which was developed based on the results of this research and previous research in other food manufacturing companies' contexts.

6.4 Research Contribution

This research contributes to the literature by evaluating and discussing TQM and GM practices in Palestinian Food manufacturing Companies. The research findings help companies understand their current level of implementation of TQM and GM practices to clarify their strengths and weaknesses and improve their environmental performance.

This study is one of the recent studies investigating and focuses on the relationship between TQM and GM practices with organizational performance. This investigation was done by testing a model that represents these relationships in the Palestinian context. The research provides a managerial framework that aims to explain implementing TQM best practices and GM best practices to help companies understand how to improve their organizational performance.

This research also contributes to highlighting best practices that are worth investing in, such as "Green Waste Management" due to its financial return in the long-run despite the prevailing belief about its high cost due to the lack of local experience with green projects and practices. Moreover, this research also contributes to theory by highlighting the main barriers and benefits of TQM and GM practices in the context of Palestinian food manufacturing companies, which is applicable to other food manufacturing companies in developing countries.

6.5 Limitations of the Study

Several limitations were encountered during the development of this study, which could be included in the followings:

- ✓ The generalization of this research results is limited due to the targeting of the Palestinian food

manufacturing companies only.

This research specifically targeted the Palestinian food manufacturing companies, which make the results of this research only applicable to this sector, and cannot be generalized to other sectors without conducting similar studies to ensure that the features of this research are valid for other sectors.

- ✓ Time limitation

  The spread of the Coronavirus disease (COVID-19) has affected the speed of companies' responses to the survey and interview due to the general closing and social distance in Palestine and worldwide. This resulted in a longer time-consuming data collection.

6.6 Future Research

This research's main contributions are to provide a clear definition of the impact of implementing TQM practices on the adoption of GM practices and to what extent these practices enhance the organizational performance, which has not been done before for the Palestinian food manufacturing sector companies. Future research could explore other possibilities and potential for corporate TQM and GM applications. This can be achieved by using a more comprehensive perspective by repeating the same study in other context. On the other hand, the same study can be repeated in other manufacturing sectors in Palestine or similar contexts. Moreover, conducting studies that compare research results between sectors and/or countries allows for a better understanding of the pros and cons of implementing TQM and GM practices. With regard to measuring the level of implementation of TQM and GM practice, other measures such as development intensity or coverage and perceived quality could be used. These measures not only look at the implementation of the practices but also whether or not they are working well. In fact, poor implementation of TQM and QM practices may lead to significant problems that may outweigh the problems resulting from not implementing them.

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Appendixes

- Appendix I: Interview Questions (English)
- Appendix II: Interview Questions (Arabic)
- Appendix III: Survey (English)
- Appendix IV: Survey (Arabic)
- Appendix V: List of survey and interview questions arbitrators
- Appendix VI: Distribution and Characteristics of Interviewees
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Appendix I: Interview Questions (English)

الجامعة العربية الأمريكية
ARAB AMERICAN UNIVERSITY

Interview Questions

Dear Interviewee,

The researcher is carrying out a study titled "**Total Quality Management and Green Practices Adoption for Enhancing Organizational Performance in Palestinian Food Manufacturing Companies**" in partial fulfillment of the requirements of Master's degree in Quality Management from the Arab American University, Ramallah.

The researcher is interested in conducting interviews with senior officials working in food manufacturing companies in Palestine to have in-depth understanding of TQM practices, Green Management practices, and Organizational Performance of these companies.

The information you provide will be kept strictly confidential. The researcher is the only one who will have access to this information. All information collected using interviews will be analyzed and reported on an aggregate level. No names will appear in the final thesis.

Since you can give a correct picture in this respect, you are kindly requested to participate in answering the interview questions. If you agree to the above mentioned conditions. Please help us understand your perspective on the questions below.

Thank you for your time and cooperation.

Interviewee Name **Signature**

_____ _____

Sincerely yours

Researcher: Amani Hassan

<u>Part One</u>: General Information

1. Title: _____
2. Position: _____
3. Years of experience: _____
4. Date of Interview: _____

<u>Part Two</u>: TQM, Green Management, and Organizational Performance

1. What are the main TQM practices that are applied at your company?

_____

_____

2. In your opinion, what are the advantages of applying TQM practices in your company?

_____

_____

3. What do you think are the most significant barriers that hinder companies in general from applying TQM practices in your company?

_____

_____

4. Do you think that the proper application of TQM practices will affect the Organizational Performance in your company? If yes, how?

_____

_____

5. What are the main Green Management practices that are applied in your company?

_____

_____

6. From your own point of view, what are the benefits that gain from applying Green Management practices in your company?

_____

_____

7. What do you think the most significant barriers that hinder your company from applying Green Management practices?

_____

_____

8. In your opinion, how can TQM practices affect Green Management Practices adoption and implementation? Please explain.

_____

_____

9. Do you think that the application of Green Management practices will affect Organizational Performance in your company? If yes, how?

_____

_____

Thank you

Appendix II: Interview Questions (Arabic)

الجامعة العربية الأمريكية
ARAB AMERICAN UNIVERSITY

اسئلة المقابلة

عزيزي المُشارك،

يجري الباحث دراسة بعنوان "أثر إدارة الجودة الشاملة على تبني الممارسات الخضراء في شركات تصنيع الأغذية الفلسطينية" لإتمام رسالة التخرج لمتطلبات درجة الماجستير في إدارة الجودة من الجامعة العربية الأمريكية ، رام الله.

يهتم الباحث بإجراء مقابلات مع كبار المسؤولين العاملين في شركات تصنيع الأغذية في فلسطين لفهم متعمق لممارسات إدارة الجودة الشاملة ، وممارسات الإدارة الخضراء ، والأداء التنظيمي لهذه الشركات.

الباحث هو الشخص الوحيد الذي يمكنه الوصول إلى هذه المعلومات. سيتم تحليل جميع المعلومات التي تم جمعها باستخدام المقابلات، علماً بأن إجاباتك ستبقى سرية للغاية والباحث هو الشخص الوحيد الذي يمكنه الوصول إلى المعلومات التي تقدمها ولن تظهر أي أسماء في الأطروحة النهائية.

نظرًا لأنه يمكنك تقديم صورة صحيحة في هذا الصدد ، يرجى التكرم بالمشاركة في الإجابة على أسئلة المقابلة. إذا كنت توافق على الشروط المذكورة أعلاه، الرجاء مساعدتنا في فهم وجهة نظرك حول الأسئلة أدناه.

شكرا لك على وقتك وتعاونك.

اسم المُشارك **التوقيع**

_____ _____

مع فائق الاحترام،
الباحثة: أماني حسان

الجزء الأول: معلومات عامة

1. العنوان: _____

2. الوظيفة: _____

3. سنوات الخبرة: _____

4. تاريخ المقابلة: _____

<u>الجزء الثاني</u>: إدارة الجودة الشاملة ، الإدارة الخضراء ، والأداء التنظيمي

1. ما هي الممارسات الرئيسية لإدارة الجودة الشاملة التي يتم تطبيقها على شركتك؟

_____

_____

2. برأيك ، ما هي مزايا تطبيق ممارسات إدارة الجودة الشاملة في شركتك؟

_____

_____

3. في رأيك ما هي أهم الحواجز التي تعوق الشركات بشكل عام عن تطبيق ممارسات إدارة الجودة الشاملة في شركتك؟

_____

_____

4. هل تعتقد أن التطبيق الصحيح لممارسات إدارة الجودة الشاملة سيؤثر على الأداء التنظيمي في شركتك؟ إذا كانت الإجابة نعم ، فكيف؟

_____

_____

5. ما هي ممارسات الإدارة الخضراء الرئيسية التي يتم تطبيقها في شركتك؟

_____

_____

6. من وجهة نظرك، ما هي الفوائد التي تحصل عليها شركتك من تطبيق ممارسات الإدارة الخضراء؟

_____

_____

7. ما رأيك في أهم الحواجز التي تعوق شركتك عن تطبيق ممارسات الإدارة الخضراء؟

_____

_____

8. في رأيك ، كيف يمكن أن تؤثر ممارسات إدارة الجودة الشاملة على تبني ممارسات الإدارة الخضراء وتنفيذها؟ يرجى التوضيح

_____

_____

9. هل تعتقد أن تطبيق ممارسات الإدارة الخضراء سيؤثر على الأداء التنظيمي للشركات في شركتك؟ إذا كانت الإجابة نعم ، فكيف؟

_____

_____

شكراً جزيلاً

Appendix III: Survey (English)

الجامعة العربية الأمريكية
ARAB AMERICAN UNIVERSITY

QUESTIONNAIRE

Dear Participant,

The researcher is carrying out a study titled "**Total Quality Management and Green Practices Adoption for Enhancing Organizational Performance in Palestinian Food Manufacturing Companies**" in partial fulfillment of the requirements of Master's degree in Quality Management from the Arab American University, Ramallah.

The attached questionnaire aims to collect the primary data about green and quality practices at Palestinian food manufacturing companies. The information you provide will help the researcher better understand the impact of total quality management on the adoption of green practices in Palestinian food manufacturing companies. Since you can give a correct picture in this respect, you are kindly requested to answer the questions frankly and honestly.

Your answers will be kept strictly confidential. The researcher is the only one who will have access to the information you provide.

If you agree to participate in this questionnaire, please answer the questions. Answering the questions takes no more than 15 minutes. If you have any questions about this project, feel free to contact the researcher Amani Hassan by email at amanihabubaker@gmail.com.

Thank you for your time and cooperation.

Sincerely yours

Researcher: Amani Hassan

Section One: Respondents' Demographic Characteristics

Please choose the appropriate response:

1. Gender:

1. Male
2. Female

2. Age:

1. Under 30
2. 30–40
3. 41–50
4. 51–60
5. Over 60

3. Education:

1. No education
2. Primary / secondary school
3. Vocational / technical training
4. Diploma
5. BA
6. Master's
7. PhD

4. Number of years working in the company (years of experience):

1. Less than 5
2. 5–10
3. 11–15
4. 16–20
5. 21–25
6. More than 25

5. Job responsibilities:

1. Human resource manager
2. Quality manager
3. Green operations manager
4. General Manager
5. Other. Please specify: _____

Section Two: TQM Practices

Please indicate the level of agreement with each of the following statements on the extent of implementation of TQM practices:

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Dimension 1: Customer Focus					
1. The company defines the client's needs and desires.					
2. The company follows up the client's complaints then works on solving them.					
3. The company considers the clients' views when developing new products.					
4. The company pays more effort for defining the client's needs and expectations.					
5. The company provides distinguished products proportional to expectations.					
6. The company works toward gaining the clients' loyalty and trust.					
7. When acquiring new clients, the attention on the existing clients remains the same.					
Dimension 2: Quality System					
8. The company has a quality manual (i.e. a document stating the quality policy and describing the quality system of the company).					
9. The company has written procedures (i.e. a specified way to perform an activity).					
10. The company has work instructions (i.e. detailed work documents that can guide people in conducting specific work).					
Dimension 3: Continuous Improvement					
11. The company has a set of behaviors and incentives that promote continuous improvement.					

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
12. The company's top management has regular communication with employees to identify continuous improvement needs and encourage participation.					
13. The company's top management continually provides training opportunities to update skills and knowledge in techniques and tools used in the continuous improvement.					
14. The company's managers recognize possible blockages and barriers to implementation of continuous improvement					
15. Top management recognizes and rewards employees for their efforts and actions related to the continuous improvement in all areas in the company.					
Dimension 4: Supplier Relationship & Management					
16. The company's suppliers have an effective system to ensure the quality of their products and/or services.					
17. The company emphasizes quality and delivery performance rather than price in selecting suppliers.					
18. Our suppliers are involved in our quality training.					
19. The company works closely with suppliers to improve each other's processes.					
20. The suppliers are actively involved in the company's new product development process.					
Dimension 5: Process Management & Efficiency					
21. The company designs processes to be "mistake-proof" to minimize the chances of errors.					
22. The company makes extensive use of statistical techniques to reduce variations in processes.					

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
23. The company gives clear, comprehensive, and standardized documentation about work methods and process instructions to employees.					
Dimension 6: Strategic Planning					
24. The company has a mission statement that has been communicated throughout the company and is supported by employees.					
25. The company develops and implements its strategies and plans based on data concerning customers' requirements and the company's capabilities.					
26. The management communicates its strategy and objectives to the staff.					
27. Customers' needs are taken into account when establishing objectives.					
28. The company's quality strategies affect all organizational areas and managerial activities.					
Dimension 7: Leadership					
29. The company's top management views improvement in quality as a way to increase profits.					
30. The company's top management has objectives for quality performance.					
31. The quality performance of the company's top management is evaluated.					

Section Three: Green Management Practices

Please indicate the level of agreement with each of the following statements on the extent of implementation of Green Management practices:

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Dimension 1: Green Customer Satisfaction					
1. Offering green products for our customers can enhance customer satisfaction.					
2. Customers will appreciate us offering green products as an essential way to show our ethical and social responsibility.					
3. Purchasing green products allow customers to feel contributing to environmental protection and sustainable development.					
Dimension 2: Green Improvement Project Selection & Implementation (Whether it is a new project, development projects or expansion projects**)**					
4. The company analyzes environmental concerns before selecting and implementing any project.					
5. The company selects projects that result in improved environmental performance					
6. The company provides employees with the necessary resources and adequate time to implement projects that result in improved environmental performance					
Dimension 3: Green Training					
7. The company provides training to create environmental awareness among employees.					
8. The company provides training to employees to produce a green analysis of workspace.					
9. The company applies job rotation to train green managers in the future.					
10. The company provides opportunities for everybody to be trained in environmental management aspects.					

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Dimension 4: Green Cooperation with Suppliers & Customers					
11. The company follows the environmental criteria in selecting suppliers.					
12. In purchasing, the company requires suppliers to provide certification of testing for green product conformance.					
13. The company requires second-tier suppliers to have an environmentally friendly practice evaluation.					
14. The company requires suppliers to have ISO14000.					
15. The company urges suppliers to take environmental actions.					
16. The company provides suppliers with specifications that include environmental requirements for purchased items					
17. The company communicates with customers to make them realize the importance of environmentally friendly products.					
Dimension 5: Green Waste Management					
18. The company can reuse or recycle the purchased raw material.					
19. The packaging is manufactured from reused or recycled materials.					
20. The company reuses packaging.					
21. The company recycles used products that are resourced from customers.					
22. The company reuses or recycles waste from production.					
23. The company neutralizes and reuses the wastewater generated from all the facilities.					
24. The company manages wastes from all internal and external failures.					

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Dimension 6: Green Manufacturing Strategies					
25. Production planning and control in the company focuses on reducing waste.					
26. Production planning and control in the company focuses on optimizing materials exploitation.					
27. Process design in the company focuses on reducing energy consumption in operations.					
28. Process design in the company focuses on reducing natural resources consumption in operations.					
Dimension 7: Techniques of Green Manufacturing System					
29. The company focuses on green chemistry (i.e. the design of chemical processes and products that are environmentally friendly).					
30. The company focuses on green engineering (i.e. the design of processes and products that the minimize generation of pollution and risks to human health and the environment).					
31. The company adopts inherently safe process design (i.e. using smaller quantities of hazardous materials, and alternative reaction routes or process conditions).					
32. The company follows good manufacturing practices (i.e. methods, facilities, and controls used in manufacturing aiming at high quality, reproducible products meeting the appropriate regulations and standards).					
Dimension 8: Green Stakeholders Commitment					
33. The company recognizes the environmental needs of stakeholders.					
34. The company does its best to minimize potential negative environmental impact on its stakeholders					
35. Shareholders/owners of the company are not very interested in environmental issues affecting stakeholders.					
36. Customers are reluctant to accept higher bills for environmental protection.					

Section Four: Organizational Performance

Please indicate the level of agreement with each of the following statements on the extent of Organizational Performance of your company:

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Dimension 1: Operational Performance					
1. The quality of the company's products is high.					
2. The reliability of the company's products is high.					
3. The company delivers products on time to customers.					
4. The company has production flexibility.					
Dimension 2: Financial Performance					
5. The return on assets of the company has increased.					
6. Profits of the company have grown.					
7. Sales of the company have grown.					
Dimension 3: Employee Performance					
8. The employees' organizational commitment is high.					
9. The employees' job performance is high.					
10. The employees' absenteeism is low.					
11. The employees' morale is high.					
12. The employees' turnover rate is low.					

Dear Participant, If you have any further comments, suggestions, notes or any related idea that you would like to share with the researcher, please add them below.

Thank You

Appendix IV: Survey (Arabic)

الجامعة العربية الأمريكية
ARAB AMERICAN UNIVERSITY

استبيان

عزيزي المُشارك،

يجري الباحث دراسة بعنوان **"أثر إدارة الجودة الشاملة على تبني الممارسات الخضراء في شركات تصنيع الأغذية الفلسطينية"** لإتمام رسالة التخرج لمتطلبات درجة الماجستير في إدارة الجودة من الجامعة العربية الأمريكية ، رام الله.

يهدف الاستبيان المرفق إلى جمع البيانات الأولية حول الممارسات الخضراء والجودة في شركات تصنيع الأغذية الفلسطينية. سوف تساعد البيانات التي تقدمها الباحث في فهم تأثير إدارة الجودة الشاملة بشكل أفضل على تبني الممارسات الخضراء في شركات تصنيع الأغذية الفلسطينية، ونظرًا لأنه يمكنك تقديم صورة صحيحة في هذا الصدد ، يرجى التفضل بالإجابة على الأسئلة بصراحة وصدق.
علماً بأن إجاباتك ستبقى سرية للغاية والباحث هو الشخص الوحيد الذي يمكنه الوصول إلى المعلومات التي تقدمها.
إذا وافقت على المشاركة في هذا الاستبيان ، يرجى الإجابة على الأسئلة أدناه. لا تستغرق الإجابة عن الأسئلة أكثر من 15 دقيقة. إذا كان لديك أي أسئلة حول هذا البحث ، فلا تتردد في التواصل مع الباحثة أماني حسان عبر البريد الإلكتروني التالي: amanihabubaker@gmail.com.

شكرا لك على وقتك وتعاونك.

مع فائق الاحترام،
الباحث: أماني حسان

القسم الأول: الخصائص الديمغرافية للمشاركين

الرجاء اختيار احدى الخيارات المناسبة لكل سؤال:

1. **الجنس**
   1. ذكر
   2. أنثى
2. **العُمر**
   1. أقل من 30 سنة
   2. 30 – 40 سنة
   3. 41 – 50 سنة
   4. 51 – 60 سنة
   5. أكثر من 60 سنة
3. **التحصيل التعليمي:**
   1. غير مُتعلم
   2. مدرسة ابتدائية \ أساسية
   3. تعليم تقني \ مهني
   4. دبلوم
   5. بكالوريوس
   6. ماجستير
   7. دكتوراه
4. **عدد سنوات العمل في الشركة (سنوات الخبرة):**
   1. أقل من 5 سنوات
   2. 5 – 10 سنوات
   3. 11 – 15 سنة
   4. 16 – 20 سنة
   5. 21 - 25 سنة
   6. أكثر من 25 سنة
5. **المهام الوظيفية:**
   1. مدير الموارد البشرية
   2. مدير الجودة
   3. مدير العمليات الخضراء
   4. مدير عام
   5. غير ذلك، الرجاء التحديد: _____

القسم الثاني: ممارسات إدارة الجودة الشاملة

يرجى وضع علامة عند المستوى الذي تراه مناسب مع كل من العبارات التالية حول مدى تنفيذ ممارسات إدارة الجودة الشاملة:

العبارة	غير موافق بشدة	غير موافق	محايد	موافق	موافق بشدة
البعد 1: التركيز على العملاء					
1. تحدد الشركة احتياجات العميل ورغباته.					
2. تتابع الشركة شكاوي العميل ثم تعمل على حلها.					
3. تراعي الشركة آراء العملاء عند تطوير منتجات جديدة.					
4. تبذل الشركة المزيد من الجهد لتحديد احتياجات العميل وتوقعاته.					
5. تقدم الشركة منتجات متميزة تتناسب مع التوقعات.					
6. تعمل الشركة من أجل كسب ولاء العملاء وثقتهم.					
7. عند اكتساب عملاء جدد ، يظل الاهتمام بالعملاء الحاليين كما هو.					
البعد 2: نظام الجودة					
8. لدى الشركة دليل جودة (أي مستند يوضح سياسة الجودة ويصف نظام الجودة للشركة).					
9. لدى الشركة إجراءات مكتوبة (أي طريقة محددة لأداء نشاط).					
10. لدى الشركة تعليمات عمل (أي وثائق عمل تفصيلية يمكن أن توجه الناس في القيام بعمل معين).					
البعد 3: التحسين المستمر					
11. تمتلك الشركة مجموعة من السلوكيات والحوافز التي تعزز التحسين المستمر.					
12. الإدارة العليا للشركة لديها اتصالات منتظمة مع الموظفين لتحديد احتياجات التحسين المستمر وتشجيع المشاركة.					
13. توفر الإدارة العليا للشركة باستمرار فرصًا تدريبية لتحديث المهارات والمعرفة في التقنيات والأدوات المستخدمة في التحسين المستمر.					
14. يدرك مديرو الشركة العوائق المحتملة والعوائق التي تحول دون تنفيذ التحسين المستمر.					
15. تعترف الإدارة العليا وتكافئ الموظفين على جهودهم وأعمالهم المتعلقة بالتحسين المستمر في جميع مجالات الشركة.					
البعد 4: علاقة الموردين والإدارة					
16. لدى موردي الشركة نظام فعال لضمان جودة منتجاتهم و / أو خدماتهم.					
17. في اختيار الموردين، تهتم الشركة بالجودة وأداء التسليم أكثر من السعر					
18. يشارك موردينا في تدريب الجودة لدينا.					
19. تعمل الشركة بشكل وثيق مع الموردين لتحسين مهام بعضهم البعض.					
20. ينخرط الموردون بنشاط في عملية تطوير المنتجات الجديدة للشركة.					

العبارة	غير موافق بشدة	غير موافق	محايد	موافق	موافق بشدة
البعد 5: إدارة وكفاءة العمليات					
21. تصمم الشركة العمليات لتكون "مقاومة للأخطاء - mistake-proof " لتقليل فرص الأخطاء.					
22. تستخدم الشركة التقنيات الإحصائية لتقليل الاختلافات في العمليات.					
23. تقدم الشركة وثائق واضحة وشاملة وموحدة حول أساليب العمل وتعليمات العملية الوظيفية للموظفين.					
البعد 6: التخطيط الاستراتيجي					
24. لدى الشركة رسالة "a mission statement" تم توصيلها في جميع أنحاء الشركة ويدعمها الموظفون.					
25. تقوم الشركة بتطوير وتنفيذ استراتيجياتها وخططها بناءً على البيانات المتعلقة بمتطلبات العملاء وقدرات الشركة.					
26. تقوم الإدارة بمشاركة استراتيجيتها وأهدافها للموظفين.					
27. تُؤخذ احتياجات العملاء في الاعتبار عند تحديد الأهداف.					
28. تُؤثر استراتيجيات الجودة الخاصة بالشركة على جميع المجالات التنظيمية والأنشطة الإدارية.					
البعد 7: القيادة					
29. تنظر الإدارة العليا للشركة إلى التحسين في الجودة كوسيلة لزيادة الأرباح.					
30. الإدارة العليا للشركة لديها أهداف لأداء الجودة.					
31. يتم تقييم أداء الجودة للإدارة العليا للشركة.					

القسم الثالث: ممارسات الإدارة الخضراء

يرجى وضع علامة عند المستوى الذي تراه مناسب مع كل من العبارات التالية حول مدى تنفيذ ممارسات الإدارة الخضراء:

العبارة	غير موافق بشدة	غير موافق	محايد	موافق	موافق بشدة
البعد 1: الرضا الأخضر للعملاء					
32. يمكن أن يؤدي تقديم المنتجات الخضراء لعملائنا إلى تعزيز رضا العملاء.					
33. يُقدر العملاء تقديمنا للمنتجات الخضراء كوسيلة أساسية لإظهار مسؤوليتنا الأخلاقية والاجتماعية.					
34. يتيح شراء المنتجات الخضراء للعملاء الشعور بأنهم يساهمون في حماية البيئة والتنمية المستدامة.					
البعد 2: اختيار وتنفيذ مشروع التحسين الأخضر (سواء كان مشروعًا جديدًا أو مشروعات تطوير أو مشروعات توسعية)					
35. تقوم الشركة بتحليل المخاوف البيئية قبل اختيار وتنفيذ أي مشروع.					
36. تختار الشركة المشاريع التي تؤدي إلى تحسين الأداء البيئي.					
37. توفر الشركة للموظفين الموارد اللازمة والوقت الكافي لتنفيذ المشاريع التي تؤدي إلى تحسين الأداء البيئي.					
البعد 3: التدريب الأخضر					
38. توفر الشركة التدريب لخلق الوعي البيئي بين الموظفين.					
39. توفر الشركة التدريب للموظفين لإنتاج تحليل أخضر لمكان العمل.					
40. تطبق الشركة التناوب الوظيفي لتدريب المديرين الأخضر في المستقبل.					
41. توفر الشركة فرصًا للجميع للتدرب على جوانب الإدارة البيئية.					
البعد 4: التعاون الأخضر بين الموردين والعملاء					
42. تتبع الشركة المعايير البيئية في اختيار الموردين.					
43. عند الشراء ، تطلب الشركة من الموردين تقديم شهادة اختبار لمطابقة المنتجات الخضراء.					
44. تطلب الشركة من الموردين من الدرجة الثانية الحصول على شهادة الممارسات الصديقة للبيئة.					
45. تطلب الشركة من الموردين الحصول على شهادة ISO14000.					
46. تحث الشركة الموردين على اتخاذ الإجراءات البيئية.					
47. توفر الشركة للموردين المواصفات التي تشمل المتطلبات البيئية للعناصر المُشتراة.					
48. تتواصل الشركة مع العملاء لجعلهم يدركون أهمية المنتجات الصديقة للبيئة.					

العبارة	غير موافق بشدة	غير موافق	محايد	موافق	موافق بشدة
البعد 5: إدارة النفايات الخضراء					
49. يمكن للشركة إعادة استخدام أو إعادة تدوير المواد الخام المُشتراة.					
50. التغليف مصنوع من مواد مُعاد استخدامها أو تدويرها.					
51. تعيد الشركة استخدام التغليف.					
52. تقوم الشركة بإعادة تدوير المنتجات المستعملة التي يتم الحصول عليها من العملاء.					
53. تقوم الشركة بإعادة استخدام أو تدوير النفايات الناتجة عن الإنتاج.					
54. تقوم الشركة بتنقية وإعادة استخدام مياه الصرف الناتجة عن جميع المنشآت.					
55. تقوم الشركة بإدارة المخلفات الناتجة عن كافة الإخفاقات الداخلية والخارجية (.internal and external failures).					
البعد 6: استراتيجيات التصنيع الخضراء					
56. يركز تخطيط ومراقبة الإنتاج في الشركة على الحد من النفايات.					
57. يركز تخطيط ومراقبة الإنتاج في الشركة على تحسين استغلال المواد.					
58. يركز تصميم العمليات في الشركة على تقليل استهلاك الطاقة في العمليات.					
59. يركز تصميم العمليات في الشركة على تقليل استهلاك الموارد الطبيعية في العمليات.					
البعد 7: تقنيات نظام التصنيع الأخضر					
60. تركز الشركة على الكيمياء الخضراء (أي تصميم العمليات والمنتجات الكيميائية الصديقة للبيئة).					
61. تركز الشركة على الهندسة الخضراء (أي تصميم العمليات والمنتجات التي تقلل من توليد التلوث والمخاطر على صحة الإنسان والبيئة).					
62. تتبنى الشركة تصميم عمليات بحيث يكون آمن بطبيعته (أي استخدام كميات أصغر من المواد الخطرة وطرق رد فعل بديلة أو ظروف عملية).					
63. تتبع الشركة ممارسات التصنيع الجيدة (أي الطرق والمرافق والضوابط المستخدمة في التصنيع والتي تهدف إلى منتجات عالية الجودة وقابلة لإعادة الإنتاج تستوفي اللوائح والمعايير المناسبة).					
البعد 8: التزام أصحاب المصالح الخضراء					
64. تدرك الشركة الاحتياجات البيئية لأصحاب المصلحة.					
65. تبذل الشركة قصارى جهدها لتقليل التأثير البيئي السلبي المحتمل على أصحاب المصلحة.					
66. المساهمون / أصحاب الشركة غير مهتمين بالقضايا البيئية التي تؤثر على أصحاب المصلحة.					
67. يتردد العملاء في قبول فواتير أعلى لحماية البيئة.					

القسم الرابع: الأداء التنظيمي

يرجى وضع علامة عند المستوى الذي تراه مناسب مع كل من العبارات التالية حول الأداء التنظيمي في شركتكم:

العبارة	غير موافق بشدة	غير موافق	محايد	موافق	موافق بشدة
البعد 1: الاداء العملي					
68. جودة منتجات الشركة عالية.					
69. موثوقية منتجات الشركة عالية.					
70. تقدم الشركة المنتجات في الوقت المحدد للعملاء.					
71. تمتلك الشركة مرونة في الإنتاج.					
البعد 2: الأداء المالي					
72. ارتفع العائد على أصول الشركة.					
73. نمت أرباح الشركة.					
74. نمت مبيعات الشركة.					
البعد 3: أداء الموظف					
75. الالتزام التنظيمي للموظفين عالية.					
76. الأداء الوظيفي للموظفين مرتفع.					
77. غياب الموظفين منخفض.					
78. معنويات الموظفين عالية.					
79. معدل دوران الموظفين منخفض.					

عزيزي المشارك ، إذا كان لديك أي تعليقات أو اقتراحات أو ملاحظات أخرى أو أي فكرة ذات صلة ترغب بمشاركتها مع الباحث ، يرجى إضافتها أدناه.

شكراً جزيلاً

Appendix V: List of survey and interview questions arbitrators

#	Arbitrator Code	Arbitrator Background	Arbitrator title	Arbitrator experience (Years)
1	Arbitrator A	Academic	Associate Professor	10 years
2	Arbitrator B	Academic	Assistant Professor	16 years
3	Arbitrator C	Academic	Assistant Professor	14 years
4	Arbitrator D	Food industries	Quality Assurance Manager	12 years

Appendix VI: Distribution and Characteristics of Interviewees

#	Company Code	Location	Food Sector	Interviewee title	Interviewee experience
1	Company A	Bierzait	Manufacture of wheat flour and grain products	Quality Assurance Manager	7 years
2	Company B	Ramallah	Confectionery industry	Quality Management Engineer	6 years
3	Company C	Jerusalem	Meat products industry	Quality Management Manager	13 years
4	Company D	Nablus	Vegetable oils and fats industry	Production Manager	3 years
5	Company E	Hebron	Manufacture of other food products	Quality Management Engineer	5 years
6	Company F	Jericho	Confectionery industry	Production Manager	5 years
7	Company G	Hebron	Manufacture of other food products	Factory Manager	12 years
8	Company H	Ramallah	Meat products industry	Production Manager	7 years
9	Company I	Beitunia	Animal feed industry	General Manager	13 years

Appendix VII: Data Analysis output using SPSS Program

Normality Test

Table 1: Normality Test

Practices	Shapiro-Wilk		
	Statistic	df	Sig.
Customer focus	0.794	250	0.000
Quality system	0.772	250	0.000
Continuous improvement	0.837	250	0.000
Supplier relationship & management	0.920	250	0.000
Process management & efficiency	0.912	250	0.000
Strategic planning	0.837	250	0.000
Leadership	0.926	250	0.000
Green customer satisfaction	0.873	250	0.000
Green improvement project	0.864	250	0.000
Green training	0.932	250	0.000
Green cooperation	0.944	250	0.000
Green waste management	0.848	250	0.000
Green manufacturing strategies	0.896	250	0.000
Techniques of green manufacturing	0.918	250	0.000
Green stakeholders commitment	0.937	250	0.000
Operational performance	0.900	250	0.000
Financial performance	0.873	250	0.000
Employee performance	0.936	250	0.000

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

الملخص

بسبب التدهور السريع للبيئة في البلدان النامية نتيجة ممارسات شركات التصنيع غير المسؤولة وعدم وجود دراسات كافية يمكن أن تساعد شركات التصنيع على مواجهة هذه المشكلة، يهدف هذا البحث إلى دراسة العلاقة الأساسية بين إدارة الجودة الشاملة (TQM) ومستوى تطبيق ممارسات التصنيع الأخضر في شركات تصنيع الأغذية الفلسطينية. يدرس البحث أيضًا كيفية قيام ممارسات التصنيع الأخضر (GM) بالتوسط في العلاقة بين إدارة الجودة الشاملة والأداء التنظيمي (OP) في شركات التصنيع. تم جمع 9 مقابلات شبه منتظمة و 250 استبيان باستخدام منهجية مختلطة متسلسلة لجمع البيانات من كبار مدراء الجودة ومديري الموارد البشرية في شركات تصنيع الأغذية الفلسطينية. أشار تحليل البيانات الإحصائية إلى وجود علاقة إيجابية ذات دلالة إحصائية بين ممارسات إدارة الجودة الشاملة ومستوى تنفيذ ممارسات التصنيع الأخضر ، وعلاقة إيجابية مماثلة بين ممارسات إدارة الجودة الشاملة والأداء التنظيمي للشركات. علاوة على ذلك ، فإن ممارسات التصنيع الأخضر لها علاقة إيجابية بتحسين الأداء التنظيمي للشركات. أخيرًا ، ممارسات إدارة الجودة الشاملة لها تأثير كبير غير مباشر على الأداء التنظيمي بوساطة ممارسات التصنيع الأخضر. تعتبر هذه الدراسة التجريبية بمثابة الدراسة الأولى التي تبحث في تأثير ممارسات إدارة الجودة الشاملة على تنفيذ ممارسات التصنيع الأخضر وتأثيرها التكميلي على الأداء التنظيمي في فلسطين ، مما يضيف قيمة كبيرة إلى الأدبيات من خلال الاستجابة لدعوات مواجهة القضايا البيئية في سياق البلدان النامية.