Exploring the Application of Total Quality Management (TQM) in Curriculum Development and Evaluation in the Ministry of Education in the Sultanate of Oman

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Abstract

The Ministry of Education (MoE) in Oman continues to improve the quality of education in response to the Omani labour market requirements, and to achieve global education standards, by making ongoing improvements to various components of the education system, such as curriculum development and evaluation, which is the main core of this study. The curriculum development and evaluation processes in the Directorate General of Curriculum (DGC) have received their share of attention and development due to their importance as one of the main elements in education.

The Total Quality Management (TQM) philosophy is based on principles that help institutions to develop their performance to achieve the highest possible quality productivity and services. Quality in education should reach all of the institution's processes in order to establish continuous improvement mechanisms for all of the education system's processes to improve their performance, which is reflected in the learning through which students are able to achieve educational excellence.

A number of studies and global reports highlight that there are several components in the Omani school curriculum that could potentially have a negative effect on the educational system. This arises from an imbalance in the overlapping processes in the work of the DGC in the MoE, because the quality of curriculum content is associated with the quality of curriculum development and evaluation work processes. The main aim of this study, therefore, is to investigate the application of TQM principles in the curriculum development and evaluation work in the DGC in the MoE in Oman. The key question is whether the curriculum development and evaluation work undertaken in the DGC is based on TQM principles because the quality of curriculum content is associated with the quality of curriculum development and evaluation work processes.

The study focuses on current DGC staff practises in order to highlight the strengths and weakness of curriculum development and evaluation work, and to gain an understanding of the perspectives of the DGC staff in respect of the application of TQM, examining the potential benefits and obstacles of applying TQM principles in the curriculum development and evaluation work in the DGC, and proposing solutions and suggestions.

The current literature relates to TQM in general. In this study, TQM in education and curriculum development and evaluation is analysed to design the study instruments. The research

methodology literature was then reviewed to identify the appropriate methods and instruments to use. A mixed methods approach involving both qualitative and quantitative methods was used to fulfill the main aim of the study. A questionnaire and semi-structured interviews were used for data collection. Quantitative data was collected from 147 participants from the staff of the DGC in the MoE by means of an online survey, and then SPSS (V. 22) was used for quantitative data analysis. Qualitative data was obtained from the semi-structured interviews with 10 participants, and open-ended questions in the questionnaire and then analysed thematically.

The results from both the quantitative and qualitative data show that there is no systematic application of TQM principles. However, there are some strengths in curriculum development and evaluation work, such as the leadership in the DGC being convinced of the importance of change and development for quality, theoretically, through open discussions between the different levels and the positive personal relationships among DGC staff. The findings of the study also highlight various weaknesses associated with leadership practices, employees' involvement, continuous improvement, technical work, and staff satisfaction. The study has found an overall agreement among the participants that implementing TQM is urgent to create a quality culture in the organization of work, which will positively reflect on the quality of the curriculum content. This study also indicates the potential obstacles of applying TQM principles in the curriculum development and evaluation work in the DGC relating to financial, administrative, technical, and strategic issues. Finally, this study proposes potential solutions. Recommendations based on the findings are made that might provide the necessary information to the DGC to identify the strengths and weaknesses in the current approach to improve the standard of future work, and to encourage the DGC to fully adopt the philosophy of TQM in curriculum development and evaluation work.

Key words

TQM, quality, curriculum development and evaluation quality, school education quality, Oman

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Abbreviations

BE	Basic Education
DGC	Directorate General of Curriculum in the Ministry of Education (Sultanate of Oman)
EFQM	European Foundation of Quality Management
IBE	International Bureau of Education
ISO	International Organization for Standardization
MoE	Ministry of Education (Sultanate of Oman)
NCSI	National Centre for Statistics and Information (Sultanate of Oman)
OECD	The Organisation for Economic Co-operation and Development
PE	Post Education
TQME	Total Quality Management in the Education Sector
TQM	Total Quality Management
TQMSE	Total Quality Management in the School Education Sector.
UNESCO	United Nations Educational, Scientific and Cultural Organization
ZDI	Zero Defects Industry

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Author's Declaration

I declare that, except where explicit reference is made to the contribution of others, this dissertation is the result of my own work and has not been submitted for any other degree at the University of Glasgow or any other institution.

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Signature:

Chapter One: Overview

1.1 Introduction

The Total Quality Management (TQM) philosophy is based on principles that help institutions in different sectors to develop their performance in order to achieve quality productivity (Subrahmanyam, 2017). The concept of TQM can be summarized as a leading method that establishes a systematic philosophy and culture within the structure of an organization and helps to achieve the highest possible quality of goods and services. The success of TQM depends on the conviction and principles of the organisation's members and whether they continuously seek to achieve both internal and external customer satisfaction (Williams, 1999; Jablanski, 1991).

Herman and Herman (1995) indicate that quality in education should reach all of the institution's processes. The aim is to be able to develop an education service that will result in the delivery of those high-quality services in a manner that will create maximum satisfaction in society. Thus, the objective of Total Quality Management in Education (TQME) is to establish continuous improvement mechanisms for all processes of the education system to improve their performance which is reflected in the learning through which students are able to achieve educational excellence (Cowles and Gilbreath; 1993; Cruz et al, 2016). This might be achieved by instilling a common culture of quality at all levels of administrative, technical, and managerial work.

In the Omani context, the Sultanate of Oman, the location of this study, has continued to improve the quality of education in response to the many cultural and economic requirements which emerged following the qualitative shift in Oman when His Majesty Sultan Qaboos bin Said took the reins of power on July 23, 1970. Today, the Ministry of Education (MoE) exists to improve the quality of education by continuing to make ongoing improvements to various components of the education system, such as curriculum development, training and qualification of teachers, school buildings, and improving the performance of administrative workers (MoE, 2001 and MoE, 2008a).

Specifically, the curriculum development and evaluation processes in the Directorate General of Curriculum (DGC) have received their share of attention and development due to their importance as one of the main elements in education, because these processes are also about the development of society in general through their link with the national strategy for development stemming from the general goals of the Sultanate. Subsequently, curriculum evaluation and development work in Oman

has developed according to the priorities and requirements stages of educational growth, from starting to spread education quantitatively to focusing on quality that will be shown in detail in Chapter Two, section 2.3.1. Despite this development, it must be recognised that there are still many obstacles and difficulties facing the development of the education sector in general, and the processes of curriculum development and evaluation in particular (MoE, 2008a and MoE, 2019a).

Therefore, this study is essential for the Omani education system as it investigates the application of TQM in curriculum development and evaluation work in the DGC. This study could potentially open the door to increase understanding and spread awareness of the current situation in curriculum development and evaluation work, assuming that the application of TQM principles in curriculum work will provide a fertile ground for the establishment of a quality culture of work that will positively affect the quality of the final product, the Omani curriculum, which may motivate both the DGC leadership and DGC employees to work as a team in order to begin the processes of improvement and development, due to the quality of curriculum content being associated with the quality of curriculum development and evaluation work processes. In other words, the quality level of the DGC work will reflect positively or negatively in the Omani school curriculum which can affect Omani students in particular, and the Omani education sector in general.

1.2 Research dilemma

It can be argued that the rise of the modern Omani renaissance over the past 49 years has enabled the Omani citizen to become a key partner in the comprehensive development of the education sector. Thus, the MoE in Oman has implemented an education strategy which has grown from the future vision of the Omani Economic Conference (Oman, 2020). This was aimed specifically at preparing a generation of graduates who are educated to such a standard that they can drive the economic and social development of society. This strategy also aims to develop the life practices of the younger generation, as well as promote positive attitudes (MoE, 2001a).

The MoE has undertaken the process of optimising teaching and learning processes which include providing additional human resources in educational institutions; ensuring school buildings are more appropriate, and have the necessary equipment to facilitate learning; assessing and improving the quality of the curricula and assessment items, and introducing a range of modern technological instruments into institutions that are able to cope with demands and meet the needs of the younger generation of learners within the community (MoE, 2016).

The school curriculum is one of the most important elements in the education system in Oman and as such, this curriculum needs to be relevant and suitable for the Omani community. Thus, the processes used to develop and evaluate the curricula in Oman are important responsibilities for the MoE. More specifically, the DGC, through its five departments, namely the Human Sciences Department, the Applied Science Department, the Individual Growth Skills Department, the Curricula Evaluation Department, and the Production of Textbooks and Teaching Materials Department, is responsible for ensuring that all departments furnish schools with the required materials, ensuring that quality and standards are maintained, and ensuring that they are kept abreast of scientific and educational developments, as well as global changes.

All the aforementioned processes pass through several overlapping stages for the curriculum to be implemented. These planning stages comprise the pre-authoring stage (planning and preparing for formation), authoring and editing stage, art direction stage, experimentation and adoption stage, and finally the printing and distribution of the students and teachers book stages (MoE, 2015). This is explained further in Chapter Two.

In order to improve the operations of work and quality of services, and thus, to achieve the desired standards in the educational system, in 2012, the MoE adopted the quality system, ISO 9001, in some of the directorates of its headquarters and governorates (MoE, 2012). The ISO 9001 system is based on six standards which focus primarily on the needs of the beneficiaries, effective leadership, self-assessment and performance improvement, making constructive and factual decisions, measurement and analysis so as to emphasize that improvement and development is an ongoing process, and collective responsibility to ensure that quality is maintained throughout all areas of education (MoE, 2013).

Subsequently, in order to take advantage of its prior experience in the application of the ISO 9001 in some directorates of the Ministry, in the academic year 2016/2017, the MoE decided to gradually expand the application of ISO 9001 to the rest of the Ministry's directorates, including the DGC (Education Council, 2019). The MoE aims to build a clear quality framework for the work processes which is based on TQM, because there is no other published framework in respect of organizing the work of the DGC. This framework is supposed to require an action plan that includes several stages, requiring a substantial amount of human and financial resources.

The researcher is an employee and scholarship student from the DGC at the MoE, which is also the participants' place of work. His aim for this study is for it to be a step in exploring the application of TQM principles in the current work processes of the DGC, targeting all of the DGC staff curriculum at various stages of their work. The role of the researcher as an insider researcher is explained further in Chapter Six, Section 6.12.

This decision is supported by many of the reports and studies that have highlighted the issues related to the preparation of the school curriculum in Oman that might affect students' learning. The MoE (2011) states that due to the speed of the preparation of the curricula, the authors are not given enough time for the revision and application of the curricula, which has led to a situation where the majority of teachers suffer as a result of using textbooks which are not adequate and do not match the education level of the learners, nor support their abilities and needs, which thus might negatively affect their educational achievement.

According to the MoE and the World Bank (2012), several teachers and educational supervisors have highlighted that there are several scientific and linguistic errors in the school curriculum. This coupled with the delay in the arrival of textbooks, which often arrive after the students at the beginning of each school year, could potentially have a negative effect on the educational system in Oman. This arises from an imbalance in the overlapping processes, and the non-participation of teachers and supervisors in the preparation of the curricula.

In order to address the issue of frequent administrative and technical problems in the curriculum, Al-Jardani et al. (2012) suggest that a TQM framework should be formulated which could facilitate the development and evaluation of the curriculum. Similarly, Al Shidi (2010) recommends the wider dissemination of the quality culture among MoE employees in the various sectors and levels in order to bring about the desired changes in the nature and quality of functional practices.

Thus, when considering all of the above issues, the research problem started to take shape to explore the application of TQM in curriculum evaluation and development processes of the DGC in the MoE to answer the following questions.

1.3 Research questions

Bearing the above in mind, the research problem is further investigated by answering the following main question:

- What is the current application of TQM in curriculum development and evaluation in the DGC in the MoE in the Sultanate of Oman?

Hence, the research aimed to answer the following specific questions:

1. To what extent is TQM applied in the curriculum development and evaluation work of the DGC in the MoE in Oman?

2. What are the strengths and weaknesses of the work processes of the curriculum development and evaluation of the DGC?

3. What is the perspective of the DGC staff on the application of TQM to improve the curriculum development and evaluation processes in the DGC?

4. What are the potential benefits of applying TQM to the curriculum development and evaluation work processes in the DGC?

5. What are the potential obstacles in the application of TQM in the curriculum development and evaluation work processes in the DGC and proposed suggestions and solutions?

1.4 Aims of the research

The main aim of the study is to explore the application of TQM in curriculum development and evaluation in the DGC in the MoE in the Sultanate of Oman. Thus, specific objectives were identified which were designed to:

1. Establish the extent to which the curriculum development and evaluation processes in the DGC are based on the principles of TQM.
2. Identify the strengths and weaknesses of the work processes of the curriculum development and evaluation of the DGC.

3. Know and understand the perspectives of the DGC staff in respect of the application of TQM for the purpose of improving the curriculum development and evaluation processes.
4. Examine the potential benefits and obstacles of applying TQM principles in the curriculum development and evaluation work processes in the DGC, and proposed suggestions and solutions.
5. Provide recommendations to decision makers, directors, and experts in the DGC in the MoE which may help to improve the curriculum development and evaluation processes in the DGC.

1.5 Significance of the research

The significance of the present study is that, as far as the researcher is aware, this is the first study that addresses the application of TQM principles in curriculum development and evaluation processes in the DGC in the MoE in Oman. Hence, it will contribute to improving the work of curriculum development and evaluation in the MoE. Moreover, the study's results and recommendations may help decision-makers to develop the work system in the Ministry's directorates to ensure its work is associated with curriculum development and evaluation.

This study will also add to TQM literature in education, with information associated with the application of TQM in curriculum evaluation and development work. Furthermore, the study lies in the provision of an overview of the current status of the DGC's work, and will also provide an original contribution to Omani educational literature on TQM related to school curriculum work in Oman, and its effect on curriculum content.

Finally, this study should open the door for further research related to the employment of TQM principles in the curriculum development and evaluation processes.

1.6 Limitations of research

There are various factors which have impacted and limited the scope of the study:

- **Locative limits**: the application of the study's instruments was limited to the DGC in the MoE as the main aim of study was to explore the application of TQM in curriculum development and evaluation in the DGC in the MoE in the Sultanate of Oman.
- **Human limits**: the study was limited to the technicians and administrative staff in the DGC. It did not involve the decision and/or policy makers who are at the top of the hierarchy of the education

system, or their work associated with the DGC works. The study focuses on staff who work directly and daily on curriculum development and evaluation processes, whose opinions may influence the decisions made by decision and policy makers.

- **Instrument limits:** this study uses two kinds of research instruments, namely the questionnaire and semi-structured interviews. Each of these instruments has its own advantages and disadvantages. Furthermore, there are many instruments which could be used in this study, however, the questionnaire and semi-structured interviews were used because they were the most appropriate instruments to fulfil the purpose of providing data to answer the study's questions and to achieve the study's aims.

Despite these limitations it can be argued that the study has generated rich data which has helped to achieve the objectives of the study.

1.7 Methodology

The methodology adopted in this study to answer the research questions and to achieve the aims of study was a process involving many steps. The starting point was the review of the TQM literature in general, and the TQME in particular. This specifically looked at the relationship with curriculum development and evaluation work, so as to determine the appropriate principles of TQM relating to curriculum work processes.

The research methodology literature was then reviewed in order to identify appropriate methods and instruments that could be used. A mixed methods approach involving both qualitative and quantitative methods was used to fulfill the main aim of the study. A questionnaire and semi-structured interviews were used for data collection. Finally, the most suitable tests and procedures were applied to data analysis to obtain the results. This is explained further in Chapter Six - Research Methodology.

The final part of this chapter provides an outline of the thesis.

1.8 Outline of thesis

This thesis is structured into three parts. The first part is the introduction which has two chapters, namely Chapter 1 - Overview and Chapter 2 - Education in Oman. The second part is the literature review which consists of three chapters, namely Chapter 3 - Total Quality Management, Chapter 4 - Total Quality Management in Education, and Chapter 5 - Curriculum Development and Evaluation. The

third part includes five chapters, namely Chapter 6 - Research Methodology, Chapter 7 – Quantitative Data Analysis, Chapter 8 – Qualitative Data Analysis, Chapter 9 – Discussion, and Chapter 10 - Conclusion. Further details of each chapter are provided below.

Chapter 1 presents the introduction of the current study. It focuses on the research dilemma, questions, aims, significance, limitations, methodology, and overview of the thesis.

Chapter 2 explores the context of the study, the Sultanate of Oman. It reviews the development of education in Oman, the philosophy of education, and the role of the MoE in the application of quality. Finally, this chapter looks at the work of the DGC relating to the role of the DGC, the organizational structure, and the development and evaluation stages of the Omani curriculum.

Chapter 3 focuses on defining quality, the historical development of quality, the philosophy of TQM, the leading thinkers of TQM, the principles of TQM, and the models of TQM.

Chapter 4 points to definition of quality and TQM in the education sector, and then discusses the application of the TQM principles in education. Following this, the benefits of TQM for Education and TQM principles in education are discussed. Finally, this chapter reviews the previous studies of TQM in school education in Oman.

Chapter 5 concentrates on the definition of the curriculum, curriculum development, curriculum evaluation, and quality in the curriculum context.

Chapter 6 provides a detailed description of the research philosophy and methodology, such as paradigm, methods, and instruments. After this, the chapter presents the data collection procedures in terms of the design of the research instruments, population and sampling, process of piloting, reliability and validity, language of data collection, data collection process, and ethical considerations.

Chapter 7 presents the results of the data analysis arising from the questionnaires.

Chapter 8 presents the results of the data analysis arising from the interview and the open-ended questions from the questionnaire.

Chapter 9 contains a discussion of the main findings of the study in relation to the research questions, and the context of the study.

Chapter 10 provides a summary of the findings, contribution and implications, recommendations, suggestions for further research, and reflections on the personal development of the researcher.

1.9 Conclusion

This chapter has described the background of the study with a focus on the research dilemma, aims and questions of the research, significance and limitations of the research, methodology used, and overview of the thesis. The next chapter outlines the contextual setting for the study. A background about Oman in terms of geography, history, climate, population, and economy is presented. Following this, the development of education in Oman is reviewed, and then the work of the DGC is explained.

Chapter Two: Education in Oman

2.1 Introduction

The aim of this chapter is to provide a theoretical background of Oman and its education system in order to contextualize the study. Firstly, the chapter focuses on general information about Oman and presents some basic facets of its geography, climate, population, history, and economy in order to present a background about Oman, the place of this study, and the impact of these elements on the Omani school system. Building on this, the chapter then outlines a clear picture of the development and philosophy of education in Oman, also looking at the application of quality in the MoE. Furthermore, this chapter highlights the work and structure of the DGC. Following this, the chapter then addresses the development and evaluation stages of the Omani curricula. Finally, the chapter presents a general summary by discussing some of the issues and details arising throughout this chapter that explain the curriculum development and evaluation work system which affects curriculum quality in Oman.

2.2 The Sultanate of Oman

The Sultanate of Oman is one of the Gulf countries, located in the South-East region of the Arabian Semi-Peninsula. The Sultanate coastline extends from Hormoz in the North to the Yemen Republic in the South and is open to three seas, namely the Arabian Gulf, the Oman Gulf, and the Arabian Sea. The Sultanate borders the UAE and Saudi Arabia in the West, the Republic of Yemen in the South, the Hormuz Strait in the North, and the Arabian Sea in the East. This location has given Oman the opportunity to have a significant role in international and cultural communication (MoI, 2015). The sea route between the Arabic Gulf and the Indian Ocean is where Oman has controlled the oldest and most important maritime trade routes in the world. Thus, this sea route was the link for caravan routes between the East, West, North, and South of the Arabian Peninsula were the connection from this position. The map below illustrates the location of Oman.

Figure 2.1: The location of the Sultanate of Oman (Ministry of Defense, online)

Oman has been formed throughout history, and has had interaction with the centres of civilization in the ancient world, such as the Persian civilization, the Chinese civilization, the Egyptian civilization, the Indus civilization, and the Sumerian civilization. Oman was one of the vital centres on the 'Silk Way' between the East and West, and was also a commercial and nautical center in the Indian Ocean until the second half of the 19th Century. It then spread its ties to various international forces, such as the British, Portuguese, Dutch, Persians, and Americans, which still affects its current international relationships and continuity of culture at both regional and international levels (MoI, 2015). In other

words, the geographical location of Oman made it a centre of civilization which, in turn, enabled it to connect with other nations. This has had a positive impact on the diversity of Omani culture dating back to ancient times through to the present day.

The organisation of the Omani government is hereditary royal. The current sultan, Haitham bin Tariq Al Said, assumed power on January 11, 2020, following the death of Sultan Qaboos bin Said bin Taymur Al Said. The Council of Ministers is entrusted with the implementation of the general policies of the State. Furthermore, the Majlis Oman (Oman Council) which consists of Majlis Al Dawla (State Council) and Majlis Al Shura (Consultative Council), provide assistance to the government in implementing development plans, contributing to consolidating the inherent values of Omani society, preserving its achievements, and affirming the principles stipulated in the basic statute of the state (Ministry of Legal Affairs, 2020). It can be argued that the general policy of the state affects determining the educational policy in the Sultanate of Oman because the Omani general objectives of education are derived from the comprehensive developmental and national goals of the state. In terms of the educational leadership in Oman, there is flexibility and space to achieve these goals, which ultimately achieves the development of the educational system according to the available educational staff, and the budget allocated to the education sector. This bodes well regarding the application of quality in educational work in general, and the application of the results of this study, especially as the Oman 2040 Vision emphasizes the application of quality. More details regarding the relationship of the study and its results with the Oman Vision 2040 are highlighted in the Conclusion chapter, Chapter 10, Section 10.7 - Reflections.

The Majlis Al Dawla consists of a Chairman and members whose number, inclusive of the Chairman, shall not exceed the total number of members of the Majlis Al Shura, and whom shall be appointed by virtue of a Royal Decree. While Majlis Al Shura consists of elected members representing all the Wilayat of the Sultanate (cities), the number of members of the Majlis Al Shura shall be determined so that each Wilayat shall be represented by one member if that Wilayat has a population not exceeding 30,000 on the commencement date of candidature, or two members if the Wilayat population exceeds that limit on the same date (Ministry of Information, 2020).

The current population of Oman is 4,675952 (National Centre for Statistics and Information, 2019). Its spans a total area of approximately 309,500km², making it the third largest country in the Arabian Peninsula. Administratively, by Royal Decree No. 114/2011, Adoption of the administrative division of

the Sultanate, the Sultanate is divided into 11 governorates, which are in turn divided into 61 wilayats (cities). The capital of Oman is Muscat (NCSI, 2015).

The regions in Oman vary in climate. The weather is hot and humid in the coastal areas in the summer, and in the interior regions it is hot and dry, with the exception of the high mountainous areas which have a moderate climate. On the other hand, the Dofar governorate in the south of Oman has a different climate from other parts due to the monsoon season between June and September. Generally, the Sultanate has little and irregular rainfall (MoI, 2015; NCSI, 2015). Thus, most of the regions in Oman experience mostly warm weather throughout the year which has a direct effect on education in respect of the number of hours spent in school, and the amount of school days per year. In addition, the climate impacts on the quality of the extra-curricular activities that the students practice outside the classroom as part of the school curriculum. This hot weather may also affect the quality of GDC staff performance, as well as productivity, especially during the summer months, despite the presence of air conditioners. Table 2.1 below shows the number of school days, and hours per day, in Oman.

Table 2.1: Actual school days and times in Oman (MoE, 2019b)

Grades	**Grades 1-4**	**Grades 5-12**
Actual School Days (First Semester)	101	111
Actual School Days (Second Semester)	74	96
Annual Actual School Days	175	207
The Length of The School Day	7:10am – 12:40pm	7:10am – 1:25pm

The evolution of the annual gross domestic product (GDP) per capita in Oman increased by about 2.5 per cent between 1990 and 2017, reaching a total of 36.290 USD (United Nations, 2018). The main source of income for the national economy in Oman is oil, which generates 84 per cent of the government's revenue. As a result, the Sultanate has set in motion preliminary preparations to deliver its future vision, 'Oman 2040', which aims to diversify the sources of national income, and reduce dependence on oil as the primary source of income (MoI,2015).

2.3 Philosophy of Education in Oman

The Omani education philosophy is a set of principles, beliefs, and concepts which have been identified in an integrated and coherent form to act as a guide for educational effort. Thus, the educational philosophy represents the intellectual reference for educational work in the Sultanate, and the first sources which are relied upon in the development curricula (MoE, 2017).

The principles that represent the philosophy of education in the Sultanate are aimed at achieving the integrated development of every individual, maintaining the originality and identity of Oman, to promote the modernisation of society, ensuring it is fully able to deal with modern technology. Also, further principles include - to adopt a scientific method of thinking in life, to keep abreast of international developments and adapt to the on-going changes in the future, continuing education, to promote diversity in teaching methods, and to facilitate economic development and vocational preparation. Finally, there is a focus to maintain unity and a national affiliation with the Gulf and the Arab world, to uphold national pride, to ensure social emancipation, to continually demonstrate a concern for the environment and the population, and to promote international peace and understanding (MoE, 2017).

The education philosophy document also stressed that the education system in Oman strives to achieve the following objectives (MoE, 2017):

- to build the character of every Omani citizen and ensure they are always capable of positive interaction
- to achieve the comprehensive development of Omani society
- to emphasise keeping up with contemporary changes and to participate in their manufacture; and
- to promote the adoption of a scientific approach to thinking in all areas of life for Omani citizens and provide them with the necessary skills for dealing with the science and technology era.

According to the Education Council (2014b), there is an urgent need to identify approaches and procedures in order to ensure the application of the education philosophy. In general, the Sultanate of Oman's Philosophy of Education document is important for unifying the vision and practices in the education sector, from educational foundations through to principles and theories. This represents the

general framework that guides education towards improvement and development, which are inevitably reflected in the quality of educational outcomes.

The Philosophy of Education document should, therefore, be regarded as a principal reference for educational policymaking and planning in the Sultanate, and an important driver towards the achievement of the main objectives and targets for all stages and levels of education. This document covers aspects relating to the comprehensive development of the learner (intellectual, social, and physical), aims to reinforce concepts such as citizenship and Omani identity, and promotes awareness of religious, social, and legal obligations in relationships with themselves and others. The document's comprehensive and contemporary nature means that a solid foundation is provided for the attainment of a high-quality education system that includes appropriate programmes and pathways, and encourages the development of skills and competencies relevant to the achievement of sustainable development (Education Council, 2020).

2.4 Development of Education in Oman

A good education is possibly the best investment for any nation, to enable that nation to prosper and remain internationally competitive. When His Majesty Sultan Qaboos bin Said took the reins of power in the Sultanate of Oman on July 23, 1970, he pledged to support and encourage the advancement of education in Oman, and considered education to be one of the major areas of investment for the country. In one of his speeches in 2010 he stated:

> We are paying the bulk of our attention to education - striving to develop, to improve, and to upgrade it; to update, deepen, enrich, and adapt current knowledge of the ever-changing world according to the importance the Sultanate gives to the development of human resources, the consolidation of approaches to scientific-thinking, the composition of the educated generation involved in the development process and deal with local and global changes with efficiency and professionalism. (MoI, 2010, P476).

The state statute refers to Article (13) which states that education is a fundamental element for the progress of society. The state seeks to spread this message with the aim of a good standard of education being provided to all citizens so as to raise the general level of culture, develop scientific thinking, raise the prevalence of research, meet economic and social plans, and create a strong generation. Moreover, Article (12) confirms that justice and equal opportunities in education should be available to all Omani citizens (UNESCO and MoE, 2015; MoLA, 2011).

The Sultanate of Oman is one of the signatories on the UNICEF Children's Rights Convention in 1999, which outlines in Article (28) that basic education must be compulsory and available free to all, as well as to provide material aid when the need arises (MoE and UNESCO, 2015). According to the Global Human Development Report 2018, the Sultanate of Oman is among one of the many countries internationally achieving the Millennium Development goals in respect of progress made in the fields of education and health. These goals were achieved through clear and specific programmes in both the deployment and provision of free education for both sexes, universal access to basic, technical, vocational, and higher education, and the right of children to enjoy a healthy life, free from disease (United Nations, 2018). Thus, it not surprising to note that the future vision of the Omani economy (Oman 2020) stipulates working on the provision of free basic education for all citizens through a system which is characterized by efficiency and quality (MoSD, 2010).

2.4.1 Phases of the development of school education in Oman

From the second half of the 19th Century, the field of education has achieved significant development in a variety of scientific subjects internationally. Oman was unable to keep up the pace with this development due to the recession of the Omani economy following the opening of the Suez Canal in 1869, which had a negative impact in Oman so that global caravan routes did not pass through Oman, which negatively affected the economy. Subsequently, the cruelty of the Omani Geography which adversely impacted with the economic recession on the spread of the modern education system (Morsi,1989). The following figure and paragraphs below detail the journey of education system’s development in Oman.

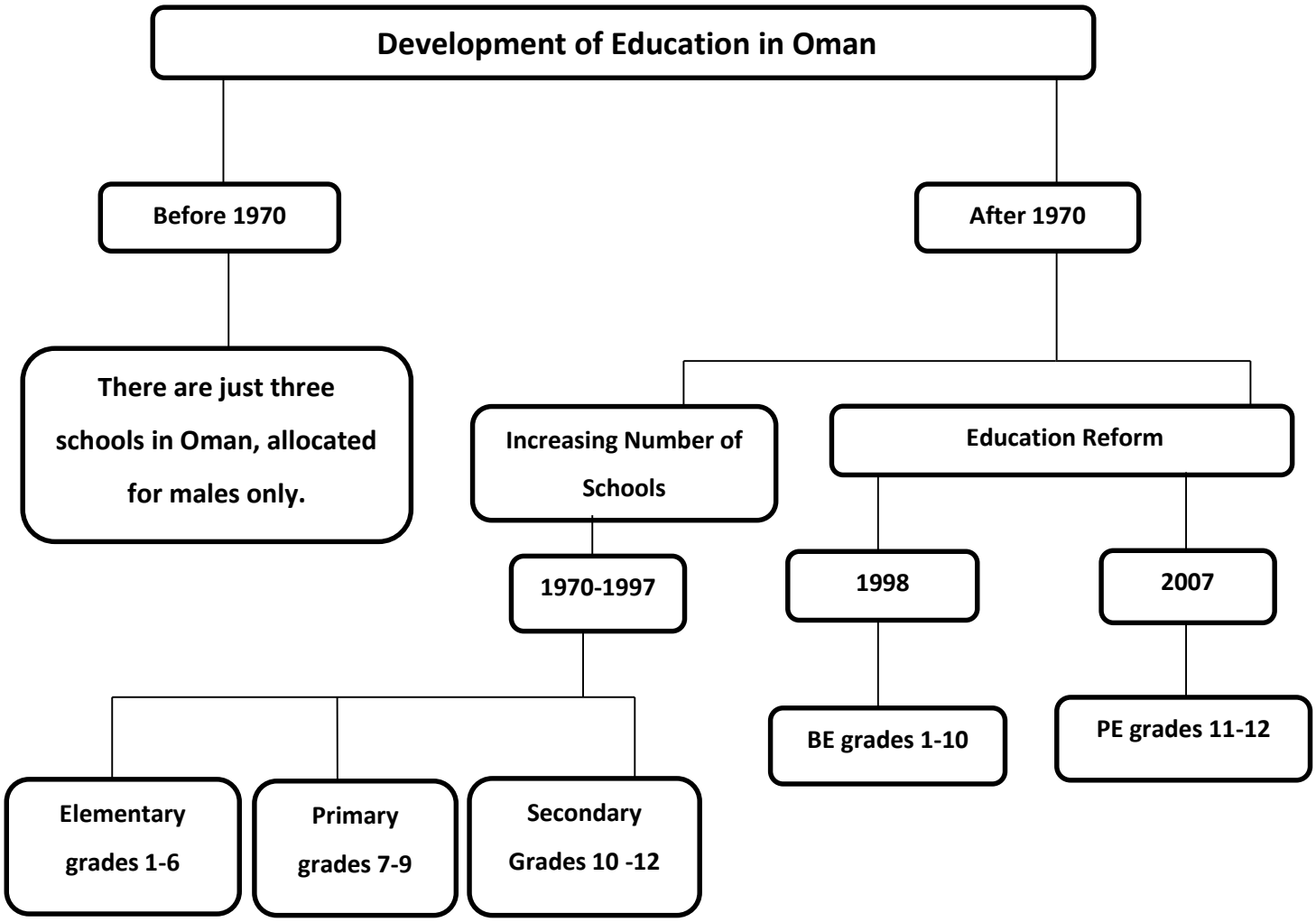

Figure 2.2: Development phases of school education in Oman (By researcher)

The first educational phase (Before 1970)

Prior to 1970 there was no formal education system in Oman. The education scheme that was widespread in this period was limited to learning the Quran, the science of religion, and learning Arabic in mosques, the homes of religious scholars, and under the trees. Following this period, various other subjects, such as science, mathematics, health and social studies, were introduced. Up until 1970 there were only three schools for boys in Oman, with approximately 990 909 students from pre-school and Grade Six levels (MoE, 1985; MoE, 2003a; Morsi, 1989).

The second educational phase (1970-1975)

Once His Majesty Sultan Qaboos Bin Said took the reins of power in Oman in 1970, education became a priority for the modern renaissance of Oman. Thus, this first phase preceded the process of the

scientific planning of the education system in Oman and saw the rapid spread of education across the country, according to the possibilities available. In some cases, where schools were housed in rented buildings due to a lack of funds, the government began to allow residents to build their own schools. However, the Ministry of Education adopted the responsibility to provide the basic necessities to these schools. After a period of five years, this phase came to an end. At this point, the number of Omani students had reached approximately 55,752 and consisted of both male and female students, studying in 207 schools. The number of teachers, who mainly came from Arabic countries, had reached about 2,230 across the country (MoE, 1985; MoE, 2003a; Morsi, 1989).

The third educational phase (1976-1980)

The 'Education Movement' is associated with the second stage with the five-year development plan, which included goals related to education, and was linked to comprehensive development in Oman by the diversification and specialization of education. After five years, this phase came to an end. The total number of Omani schools had now reached 370, including 95,376 students of both genders. In addition, the number of university students had reached approximately 939 students who studied abroad throughout 1980/1981, due to the lack of universities at that time (MoE, 1985; MoE, 2003a; Morsi, 1989).

The Higher Education Institutions in the Sultanate started to emerge in the early 1980s with the establishment of the Banking Institute of Oman in 1983, to provide the necessary human resources to join the banking sector. In 1984, the College of Teachers was established to provide the Sultanate with diploma graduate teachers to participate in the education of the rising nation. In the same year, 1984, the Industrial Technical College was inaugurated to meet the needs of the local market. The same period also included the establishment of various Health Institutes for the preparation of Omani nurses to work in government hospitals. Nevertheless, the Institute of Forensic Justice, Preaching, and Guidance was established in 1986 to prepare qualified judges and preachers. The educational march culminated in the inauguration of the Sultan Qaboos University in 1986. Both governmental and private universities and colleges were then distributed geographically among the regions and governorates of the Sultanate providing a variety of programs at all levels, such as diploma, bachelors, and masters, covering a wide range of specializations in the professional, technical, and administrative fields, with the aim of meeting the needs of the comprehensive development and labour markets (Education Council, 2020).

The fourth educational phase (1981-1985)

The fourth phase concerned the quality of education, with a specific interest in school buildings and the standard of facilities. In addition, a greater level of attention was given to teachers and their ongoing training and development in order to raise their competency and skill levels. At the end of this phase, there were approximately 221,694 Omani students across 606 schools, and the number of teachers had reached about 10,130 throughout the country (MoE, 1985; MoE, 2003a; Morsi, 1989).

The fifth educational phase (1986-1990)

The plan for the fifth stage was to achieve the principle of balance between the quantity and quality of education, and ensure ongoing commitment to the overall development requirements through the completion of educational projects, the improvement of the quality of education, and to provide extra attention to people with additional support needs. By the end of the year 1990 and at the beginning of 1991, the number of students had reached 360,066 students, who studied in 805 schools, institutes, and colleges. The number of teachers had reached 15,587, including 4,379 Omani teachers who had graduated from the first university in Oman, Sultan Qaboos University, established in 1986 (MoE, 2003a; Morsi, 1989). Currently, Omani teachers are being prepared for all disciplines and stages of education in the colleges of education in the Sultanate. Moreover, professional development for teachers in-service training is considered to be one of the major aspects of the education reform (Education Council, 2020).

The sixth educational phase (1991-1995)

The aim of the sixth phase was to achieve specific goals, such as replacing inappropriate school buildings with more suitable structures for the specific purpose of education, and to increase the number of Omani teachers, and also to raise their competency levels and interest in education technology and educational research. At the end of 1995, and the beginning of 1996, the total number of students had increased to 490,482, studying in 965 schools. The total number of teachers had reached 22,504, which included 12,030 Omani teachers (MoE, 2003a). The table below shows the number of schools, students, and teachers pre-1970, compared with 2018/2019.

Table 2.2: Number of schools, students, and teachers pre-1970 compared with 2018/2019 (Education Council, 2019)

Years	Pre-1970	2018/2019
Number of Schools	3	1,124
Number of Students	909	579,024
Number of Teachers	30	56,385

School Education Reform Phase from 1996

This phase focused heavily on the need to develop education in Oman, both in accordance with the requirements of the times and aspirations for the future, and also in response to recommendations made at many educational conferences, including the Future Vision of the Omani Economy Conference, Oman 2020, (MoNE, 1997). New education systems, known as the Basic Education (BE) System and Post-Education System (PE), were introduced in the Sultanate. BE was then extended to become a 10-year programme of study, divided into two cycles. Cycle One runs from grade one until grade four, and Cycle Two runs from grade five to grade ten (MoE, 2001a; MOE, 2008a). The education system in Oman gradually evolved, step by step, in accordance with the priorities required for each stage. The initial concern was with expanding education then subsequently the focus was on the quality of education. It can be argued that the education system in the Sultanate of Oman has witnessed many stages throughout contemporary history, and that His Majesty Sultan Qaboos Bin Said has been a very important role in the development of education in a very significant way, which has resulted in a great development in various fields in Omani society, as well as the prosperity of the country

The PE consists of two years of study and includes the 11th and 12th grades, as shown in the following figure.

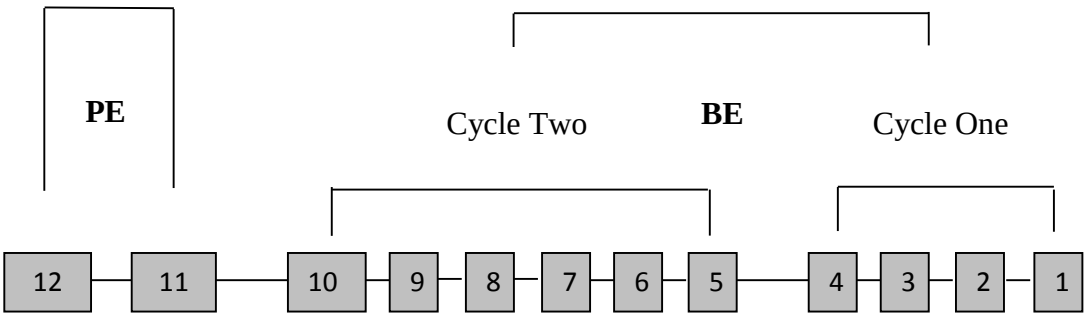

Figure 2.3: Educational ladder in the Basic Education System and Post-Education System (by researcher)

Both the BE and PE systems came into effect in the academic year 1998/1999 and replaced what was known as public education. Public education was divided into the usual grades: elementary, preparatory, and secondary school. In the context of a comprehensive development plan, the application of this new educational system aimed to achieve a shift in the process of education in the Sultanate by focusing on qualitative expansion in the provision of educational services so as to achieve progress in the quality of these services.

The BE and PE system was designed to tackle the insufficiencies and challenges of the existing education system which effected the quality of the Omani education system. For example, on issue is that the Omani curriculum that did not take into account individual differences between students, which focuses on the theoretical aspect and neglects the practical and higher thinking skills. Also, the education system was not aligned the Omani labour market skills. The assessment and evaluation system for student has also been a challenge as the end-of-semester exam was the only instrument in place that measured student performance while neglecting other instruments, such as the continuous assessment. Furthermore, the examinations only allow success through memorization. Another drawback is that teacher preparation is not adequately focused on pedagogical skills development. In other words, teachers need a repertoire of pedagogical skills, which can be developed and refined to the teaching of classroom activities through in-service training. Finally, reforming and modernizing of the school infrastructure and technical areas were identified as urgent needs, which proved to be a challenged for achievement of quality in the Omani educational system (UNESCO, 2001).

The same report indicated that the Omani school education indicators of current performance quality pointed out that there is a mismatch between school education output and Labour Market, need to

focus on the foundation curriculum such as Math, Science, Arabic and English; and equipping the school with the appropriate equipment to achieve the aims of education.

Thus, it can be summarized that the most significant developments resulting from the application of the BE system and PE system are as follows (MoE, 2001a; MOE, 2008a).

- change the school curricula to be based on the principle that the student is central to the learning process
- introduce new subjects to meet the needs of current and future students and the community
- start teaching English language from grade one
- allocate a greater amount of time to teach science and mathematics
- expand the recruitment of information technology [teachers] and diversify learning sources
- increase the length of the school day and school year؛
- develop a continuous assessment system to be based on the principle of student performance, and
- introduce continuing professional development for various educational staff

It can be explained that the development of education in Oman arose in response to changes in the Omani culture. The diversity of income sources, reduction in the dependence on oil as a key resource, the reduction in foreign labour and reliance on qualified national labour, especially in the private sector, all led to education being linked to the labour market.

The MoE was fully committed to facilitating these fundamental changes to the Omani education system to keep the pace in respect of implementing new developments and was driven to achieving excellence in all of the processes that were introduced into schools and other educational institutions. The MoE has continued to work to improve the quality of education by making ongoing improvements to the various components of the education system, such as the development of the curriculum for all grades, the introduction of the foundation of educational assessment, the development of a number of support functions for teachers, and making improvements to school buildings and learning environments as a whole (MoE, 2001; MOE, 2008a and UNESCO, 2016).

2.4.2 Horizons of Education in Oman after 2015

Through a comprehensive evaluation* of all elements of the education system in Oman, the Ministry of Education’s current and future plans remain with the purpose of improving the quality of education, in

particular the quality of the curriculum content, the effectiveness of the educational assessment and evaluation system, and the quality of teacher qualifying and training programmes. The MoE aims to improve the calibre of Omani citizens so that they are able to better serve their community and country and can interact positively with international communities. This corresponds with 'The Future Vision of the Omani Economy (Oman 2020)' and 'The National Strategy of Education in the Sultanate of Oman (2040)', and the results of national and international studies that have been conducted on the educational system in Oman (Consultative Council, 2016).

As a result of the above, the ninth Five Year Plan for Education in Oman (2016-2020) was based on a diagnosis and performance measurement of the present educational system. The plan was anchored on two strands, firstly, institutional capacity, efficiency, and the effectiveness of education, and emerging from this area of the plan - management accountability, financial and human resources, information technology and data management, partnership of community, curriculum, evaluation and supervision, the teacher and the learner. These areas are included in the general objectives, one of which is the adoption of a technical and administrative quality system, including all MoE sectors (Consultative Council, 2016).

Despite efforts to develop and improve education in Oman, the MoE should be aware that there are challenges still facing the process of educational development which adversely affect the desired level of quality being achieved. These challenges are related to the financial, administrative, and technical aspects that reflect on and affect the development of students, and then the Omani society. One of the examples of financial challenges is the unclear mechanism for distributing financial resources to all elements of school education, according to the importance and priorities of each component. The challenges related to managing the school education sector are represented in the unavailability of accurate and up-to-date statistical data and indicators for making educational policy decisions, in addition there is no strategic planning for education according to scientific studies. As for the technical challenges there is no real assurance quality system of education and associated with the qualification and development of teachers and the design of curriculum that focus on the skills of the twenty-first century, which will be reflected positively in linking students to the needs of the Omani labour market (MoE, 2014). Thus, the next stages require concerted efforts and constant cooperation between the

* Ministry of Education and EOUoNZ, (2013) Evaluation of the Education System in the Sultanate of Oman for Grades (1-12), Ministry of Education and The World Bank (2012) The National Report of the Sultanate of Oman: Education in Oman, the Drive for Quality, SQU and MoE (2004) Evaluation Study of Cycle One of the Basic Education System, Feedback of field visits reports.

authorities within the MoE and beyond to meet these challenges.

However, the researcher feels optimistic about developing and improving the work of the Ministry of Education in the coming years, based on the National Strategy of Education in the Sultanate of Oman 2040, which focuses on education management and development of quality in education, through defining the roles, responsibilities and aspects of the relationship for the specialized councils and education stakeholders, so that the entire educational system can effectively achieve its national goals and also upgrade the quality of the educational system, to keep pace with international levels, which contribute to building high-quality students that support the Omani labour market (Educational Council, 2020). Furthermore, the priorities of the Oman Vision 2040 include education, learning, scientific research, and national capabilities by achieving inclusive education, lifelong learning, and scientific research that leads to a knowledge-based society and internationally competitive skills and abilities (National Committee of Oman Vision 2040, 2019).

2.5 The Role of the Ministry of Education in the Application of Quality.

Whether the administrators of the education system in Oman want to achieve the national aims of education and global education standards for its young people, it is essential to adopt good educational policies and provide the means and methods of processes which are in compliance with the concepts and principles of quality, and associated with best practice. However, the transition into this standard of education faces difficulties and necessitates the implementation of strict procedures and guidelines by educational institutions so that they may experience success and see real, tangible results, taking into account the continuous assessment of the work stages by using appropriate measurement instruments, for example, evaluation studies. For its part, the MoE is paying increasing attention to upgrading the level of quality instruction systems. In addition, the MoE continues to take the required measures and provide the necessary resources in order to enable education services to live up to the performance levels which are sought at every stage of the work. Subsequently, a review of the most prominent features of the MoE experience in the development of a quality education system is summarized in the figure below.

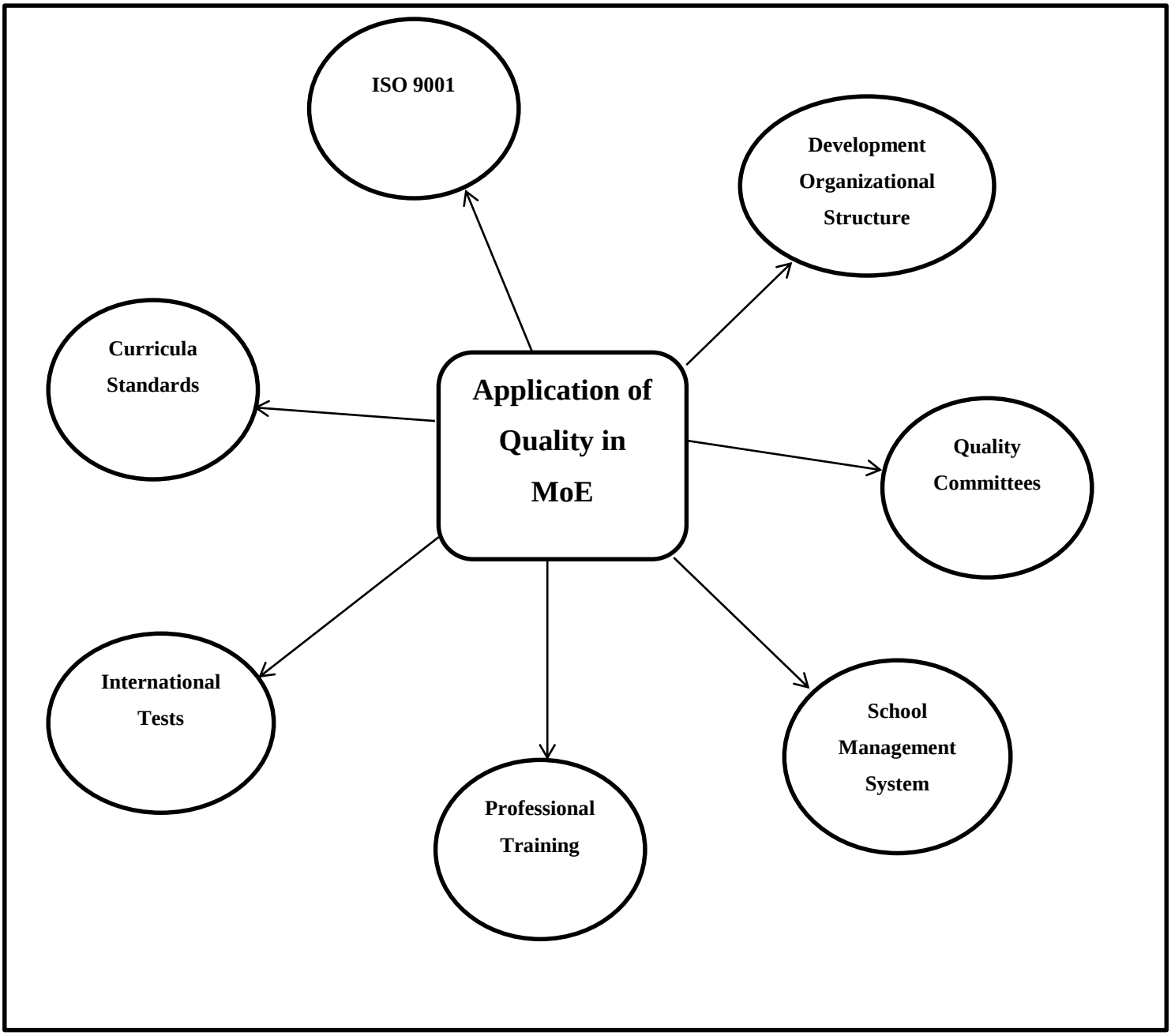

Figure 2.4: The Role of the Ministry of Education in the Application of Quality (by researcher)

From time to time, the Ministry of Education makes changes to its organizational structure so as to ensure that the education system can effectively manage and deliver the tasks and functions associated with the completion of development plans and programmes, to the highest possible levels of efficiency and quality. The most recent modification made to the MoE organisational structure was driven by the decision to implement the 'self-evaluation principle' as a way of improving work procedures to shift from the central evaluation system to a decentralized evaluation system. This restructure was manifested by the introduction of units and sections which were specifically responsible for evaluating the numerous administrative directorates in the Ministry, such as the Technical Office,

the Development of School Performance Department, the Training Evaluation Department, the Curriculum Evaluation Department in the GDC, and the Quality Department in the General Directorate of Planning and Quality Control, which is discussed in more detail later in this chapter (MoE, 2008b).

Furthermore, the MoE set up several quality committees, such as the Main Committee for Educational Policy and Education Development which is chaired by the Minister of Education, the Central Technical Committee, the Follow-up of Students Achievement Committee, and the Research and Educational Studies Committee. The remit of each of these committees is to take the necessary steps required to support the MoE's efforts to improve the quality of education services provided to both students and society as a whole, as well as to monitor the functionality of the education systems, identify weaknesses, and make recommendations for improvements (Al Shidi, 2010).

Among the most prominent efforts of the MoE are the following: the application of a set of management systems in schools, such as school performance development and the school management system, the adoption of in-service professional training plans and programmes for teachers, upgrading learning environment specifications through the provision of school buildings which contribute to the implementation of classroom practices (MoE, n.da). Further prominent efforts also include improving students' achievement levels by involving them in international tests that provide indicators of the level of education quality in Oman, and help the MoE to identify the weaknesses of their pupils in order to develop their performance, such as The International Studies of Mathematics and Sciences (TIMSS) and The International Studies for Reading Measures (PIRLS) (MoE, 2016).

Currently, the MoE, represented by DGC, is undertaking projects related to curriculum development based on the measurable educational standards which accurately and clearly determine the performance indicators of students. The result of this project will be a reference document aimed at helping curriculum specialists with curriculum development, and also aimed at helping teachers with applying this curriculum within the classroom, determining the accompanying educational materials, and preparing assessment and evaluation instruments. Furthermore, this document will provide a clear vision for the community of what the curriculum should achieve, and what the learner should achieve. The document will also be consistent with the global expectations of what the learner must acquire in terms of knowledge, skills, and values (MoE, 2015). Also, the MoE has started applying the international curriculum in science, mathematics and English language to Grades 1-11 in the school year 2017/2018, with the aim of creating a qualitative shift in the curricula in terms of scientific preparation, presentation, use of modern technologies, benefiting from recent trends and theories,

technical development, and accelerated progress in science and mathematics education, and to raise the level of educational competencies for students in the Sultanate in mathematics and science (MoE, 2017). In addition, the MoE has applied ISO 9001, which is discussed in more detail below when outlining the work of the Quality Department.

2.5.1 Quality Department and Application of ISO 9001

The Quality Department at the Directorate General of Planning and Quality Control consists of three sections, namely, Quality Standards, Economics of Education, and Projects Evaluation. The most important roles of these sections are as follows:

- Cooperation with the concerned authorities in the MoE to determine the quality specifications required of the educational system in light of the objectives and policies of education in the Sultanate؛
- Coordination with stakeholders to develop the quality measurement tools of the educational system Follow-up to the application of quality measurement tools in the divisions of the MoE
- Employ the results of the application of quality specifications in the educational system
- Take advantage of the results of studies which relate to quality in the development and modernisation of the education system
- Study the development projects which are proposed by the Directorates of MoE, and express an opinion in light of quality specifications
- Assess the qualifications and foundations laid for the selection of teachers and the technical jobs associated with them, and
- Follow scientific developments in the quality control field and draw what can be used to determine the quality specifications (MoE, 2008b)

This department manages the applications associated with the International Standard Organization ISO 9001 in various Headquarters and Governorate Directorates of the MoE in order to adopt a recognized global management system which leads to the award of the 'Tribute Certificate'. The ISO is a non-governmental, non-profit organisation located in Geneva, which first began its work in February 1947. One of the missions of this organization is to develop specifications and standards to ensure the continued control, assessment, and management of the level of service quality. The MoE adopted this system in order to adjust its procedures and operations, detect weaknesses, and work to avoid them, increase awareness, improve the level of performance among workers, and motivate them to take

responsibility for the quality of their work, improve and increase the amount of services provided by the beneficiaries trust, minimize errors, and ensure that schools take advantage of the range of services available to them, based on international standards (MoE, 2013; Al sawafi, 2012). Figure 2.4 below shows the structure of follow-up the application ISO in the MoE (MoE, 2013; Al sawafi, 2012).

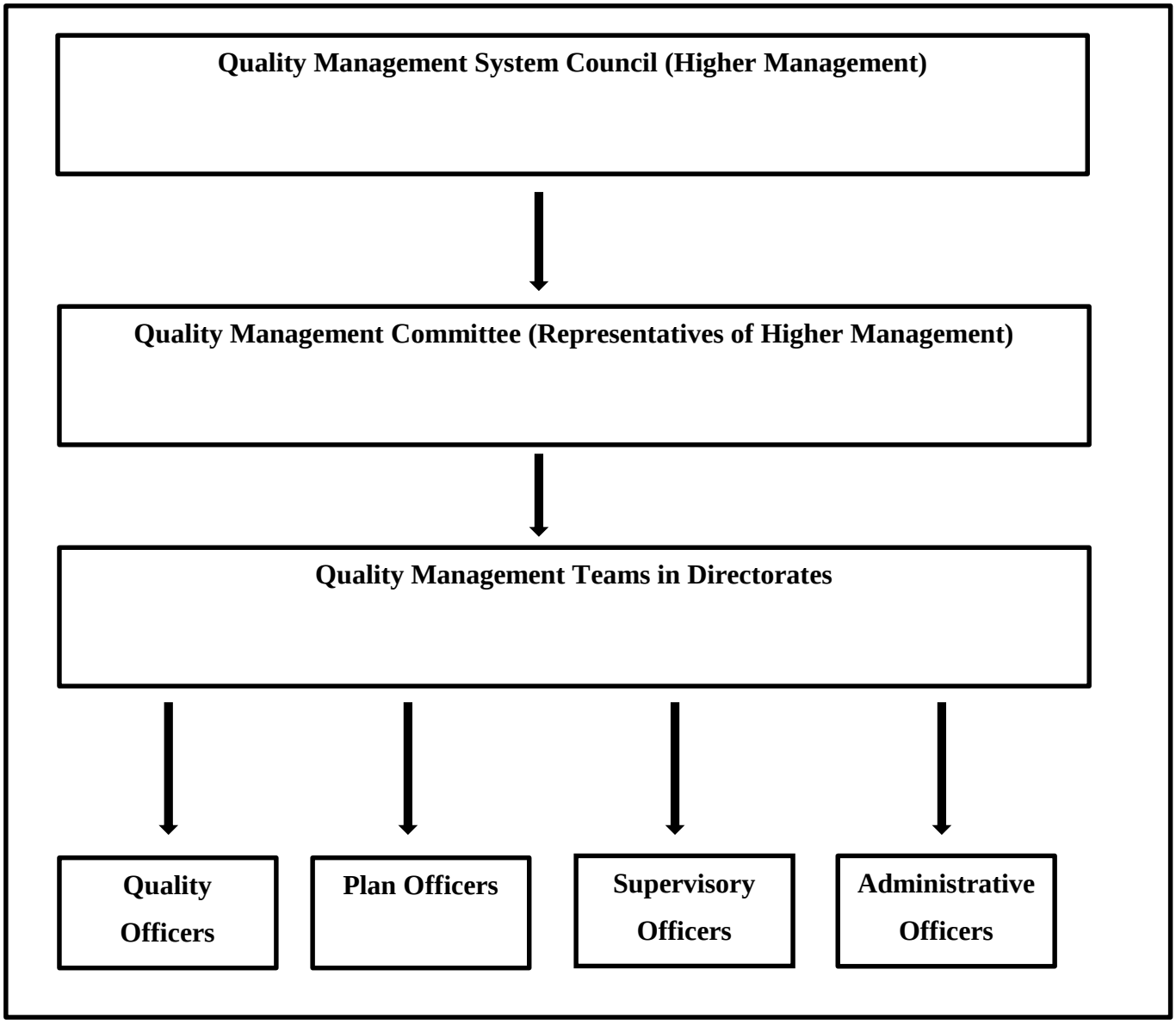

Figure 2.5: Structure of follow-up of the application of ISO in the MoE (by researcher)

2.6 Directorate General of Curriculum (DGC)

The site for this research is the DGC, which is one of the technical directorates in the MoE in Oman. According to the MoE (2008b), the roles of the DGC are to develop future curriculum strategies, plans, and policies, develop and establish curriculum standards, evaluate and develop the school curriculum, student textbooks and teacher's guides, and design and produce educational materials and

technologies that serve the school curriculum. The DGC organisational structure consists of a number of technical departments (MoE, 2008b), as illustrated in the following figure (MoE, 2008b).

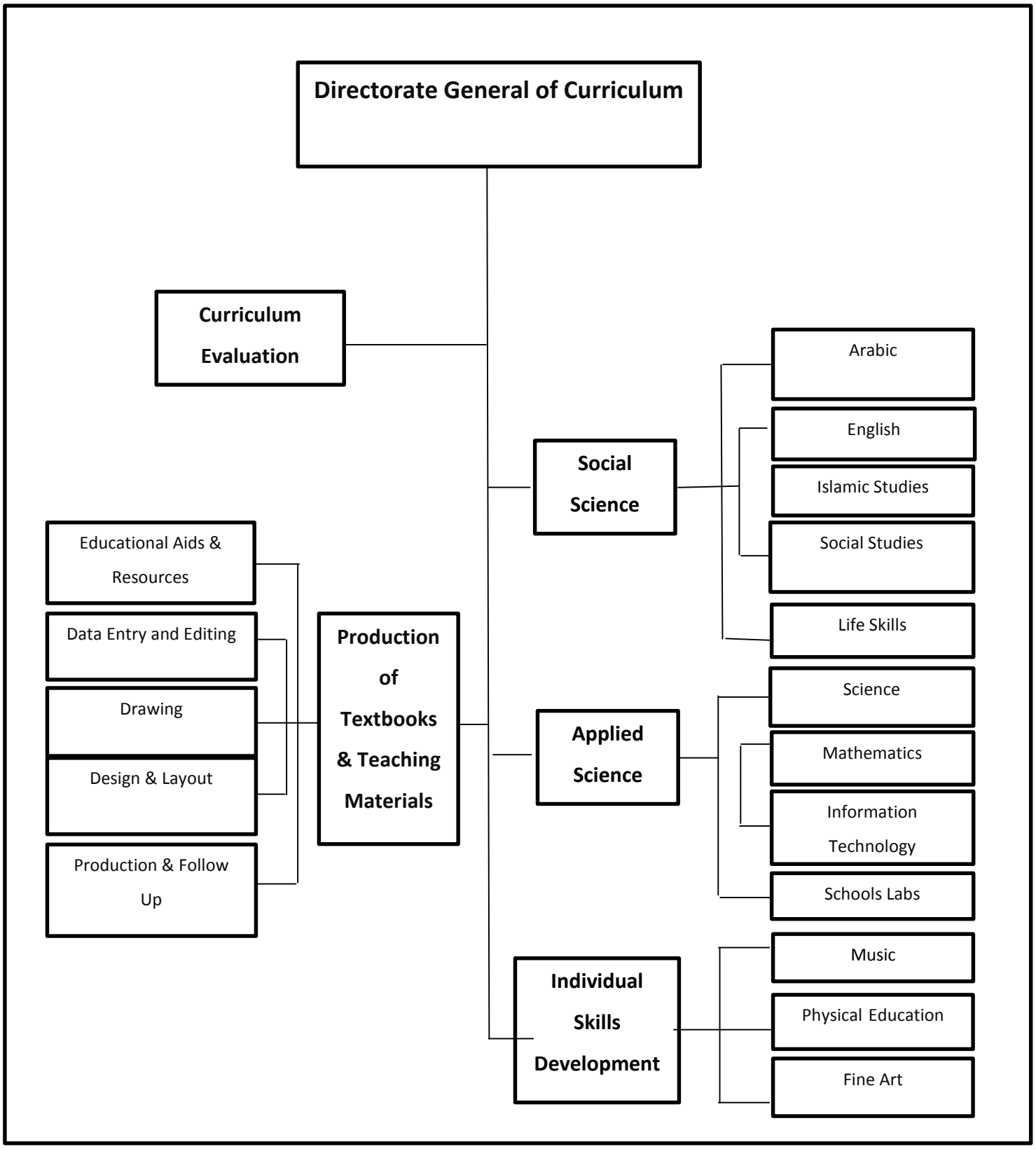

Figure 2.6: Directorate General of Curriculum Structure (by researcher)

2.6.1 Development and Evaluation Stages of the Omani Curricula

In the Sultanate of Oman, the process of developing and evaluating the curricula is one of the main responsibilities of the DGC in the MoE. The MoE defines the curriculum as "a series of processes, skills and attitudes that transcends the prescribed teaching curricula and is disseminated through classroom activities and out of class activities" (MoE and The World Bank, 2008)**.** The student textbook and teacher guide are the most important primary sources of information in the education process in Oman. Indeed, in conjunction with other activities and additional programs, the MoE depends on these books for the purpose of delivering knowledge and enabling students to acquire the skills, values, and attitudes that they require. In other words, the student textbook, educational aids, and the teacher's guide are the most important tools used to translate the contents of the curriculum documents to achieve the educational policies and goals set by the MoE.

2.6.1.1 Documents that guide/underpin development of textbook

The documents that guide the textbook authors and reviewers are based on clear standards and controls, as follows:

The general standards of the curricula document

This document contains the philosophy of education in the Sultanate, the general goals of education, and the principles and approaches that build and organise the curriculum. This document is also a reference for the construction of all the curriculum documents for all subjects (MoE, 2008c).

Subject standards documents

These documents are related to all the curriculum standards, forming the basis on which to build subjects. The documents include detailed subject aims, key principles, and outcomes for each cycle and grade; moreover, they provide a simple explanation of each component. The documents are binding for all curriculum experts, authors, and reviewers during the development of the curriculum (MoE, n.d b).

Study Plan

The study plan is the distribution of the number of lessons required for each subject and for each grade at each of the different stages of growth, and in accordance with the learner's needs. This distribution should be consulted on prior to commencing the development of the textbook in order to determine the appropriate amount and level of knowledge to be included in the textbook (MoE, 2014).

2.6.1.2 Stages of the student textbook and teacher's guide development

This an important guide which details all the developmental stages throughout the textbook and teacher's guide, starting from the stage that precedes the authoring process to be generalized and applied in schools. These stages form the basis of the curricula development and evaluation work that are carried out in this study. An important factor to consider is the usual period of time allocated for textbook preparation, which is usually takes 12 months, from the commencement of the planning and configuration stage, to when the textbook is applied in schools (MoE, 2015). These stages are explained below:

2.6.1.2.1 Pre-authoring stage (planning and preparing)

According to the MoE (2015, pp 16-17), the authoring process for the student textbooks and teacher's guide precedes a range of theoretical and practical procedures which contribute to the production of a textbook to a high specification standard. The first procedure determines the reasons and justifications for authoring. The justifications for textbook development are determined by a combination of factors, such as national strategic directions, results of evaluation studies, and future outlook, which are expected to impact on the learner, the environment, society, global trends, and educational science.

The second procedure is the formation of authoring, reviewing, and technical support teams. The promulgation of a ministerial decree to develop and review the student textbook is the basic premise of the procedural steps used to initiate the action of the development and reviewing processes. It is through this decree that the members and functions of the authoring team, reviewing team, and the technical support team are determined. The support team consists of a designer, painter, proofreader, specialist of educational aids, and a follow-up officer for textbook production (MoE, 2018).

2.6.1.2.2 Authoring stage

The type of authoring required varies depending on the different development objectives, as well as the level and nature of those who support it. According to the MoE (2015, p 30) there are two types of development, namely, comprehensive change, and modification. Comprehensive change is the total deletion of the previous programme and its affects more than 40% of the textbook element. The second development, modification, includes less than 40 per cent minor changes to the textbook elements. This stage includes the preparation of the textbook scheme (schematic structure), characterization of figures, images and drawings, and review (MoE, 2015, pp 36-37).

2.6.1.2.3 The directed stage

The directed stage involves several steps that should be implemented during the production of the student textbook and teacher's guide. These steps are data entry, proofreading, entering figures, images and drawings, design, layout, review of the final draft, and print. The authoring, review, and support teams work together i order to carry out these steps (MoE, 2015, pp 77-79).

2.6.1.2.4 Textbook pilot stage

The textbook pilot stage is a field test where the suitability of the textbook is measured by assessing the scientific content, teaching strategies, and activities. Thus, this stage can suggest any new activities for inclusion or modification of any of the existing content. In addition, this gives an indication of the validity of the textbook and identifies the extent to which it translates the goals of the curriculum. Furthermore, this field test provides the guidelines for the training programmes required for teachers that will accompany the teaching of the new textbook. Following the initial adoption of the textbook, a group of schools are selected to trial the textbook (one unit per school) for a period of 3 to 4 weeks, overseen by the review team. At the end of this stage, the review team prepares a report outlining the results of the pilot stage, which is then discussed with the authoring team, who will implement any changes and modifications (MoE, 2015, pp 86-87).

2.6.1.2.5 Final adoption stage for the textbook and teacher's guide

According to the MoE (2015, pp 88-89) there are several parties involved in the final review and adoption process of the developed textbook, such as the Curriculum and Evaluation Committee and the Educational Policy Committee.

2.6.1.2.6 Tendering stage for printing the books and supplying them to schools

Following the adoption of the textbook and teacher's guide by the Educational Policy Committee, the Textbook Production Department at the DGC liaises with the Procurement Department who then tenders the books to publishers in Oman for printing and supplying to schools (MoE, 2015, p 90).

2.6.1.2.7 Teacher training stage and evaluation of the textbook

After the textbook and teacher's guide arrive at the schools, the authoring team and review team, in consultation with the supervisors and trainers, implement training programmes for teachers, such as in-service training, on how to teach the developed textbook, and how to use the teacher's guide (MoE, 2015, pp 95-96).

The process of curricula development does not stop at a certain point but is a continuing cycle. Although the stages of curriculum development have been presented sequentially and in detail, these stages do not occur separately but they are, in fact, overlapping stages, therefore, the curriculum needs to be continually reviewed and will undergo an ongoing comprehensive evaluation. Thus, after the first six months of the application of the developed curriculum, it will then begin to be evaluated by educational researchers in the Curriculum Evaluation Department of the DGC. This evaluation is carried out by field visits to schools, and also via the curriculum evaluation studies which use a variety of tools to gather information, such as direct classroom observations, questionnaires and interviews with teachers and students, as well supervisor's reports

Yek and Penney (2006) emphasized that, in general, many challenges that remain facing the development of the education sector, including dealing with the curriculum. Thus, there must be a firm focus on education and training with a constancy of purpose, continued commitment and support for publicly funded education, continuous professional development of staff, and the adoption of praxis as a way forward. Therefore, the DGC must take into account all levels of work processes to improve and develop its work. Figure 2.7 below summarizes the curriculum preparation stages.

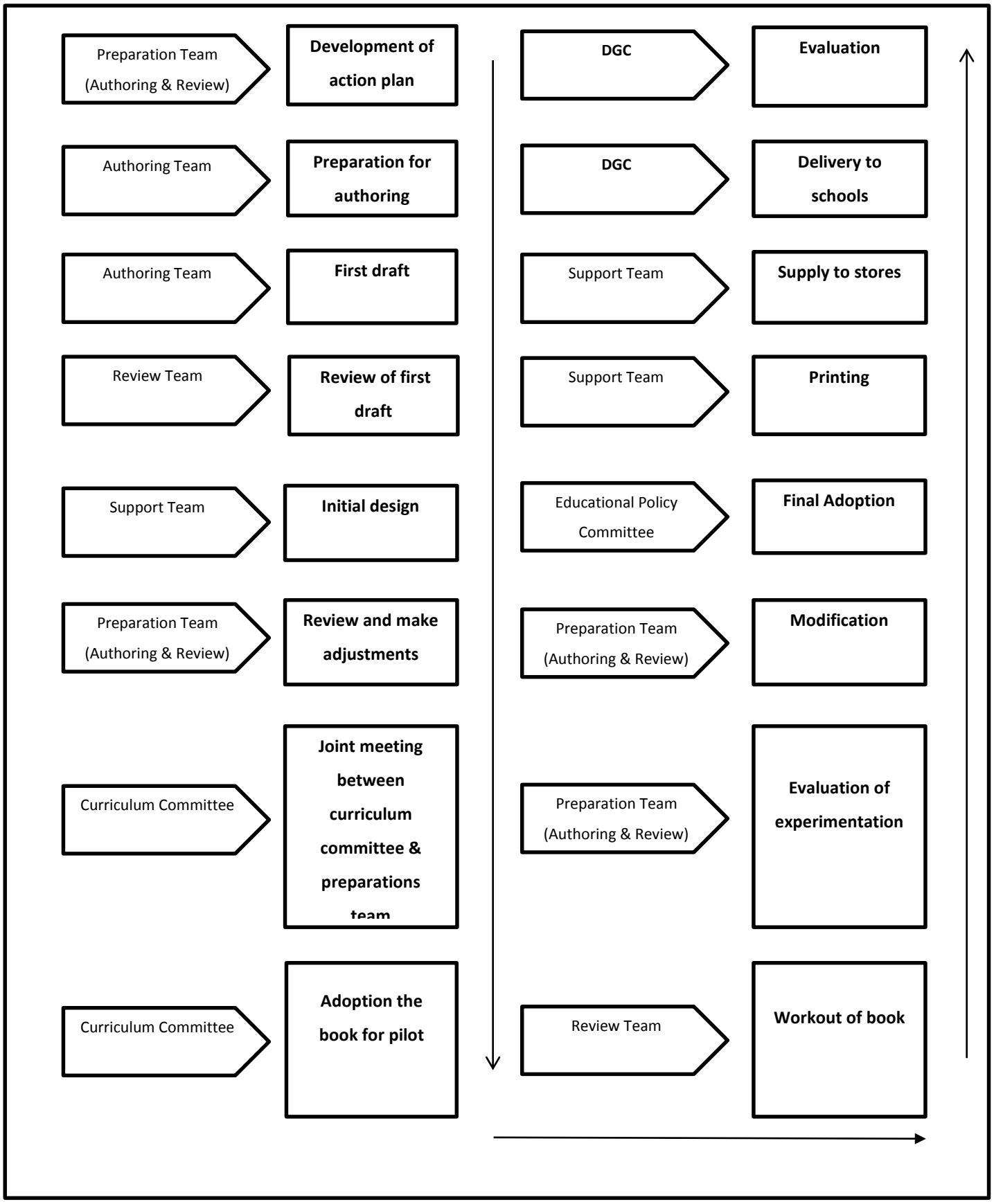

Figure 2.7: Curriculum Preparation Stages (MoE, 2015, P 29)

2.7 General summary and implications

The reality of the current Sultanate of Oman's education system leads us to recognize the progress that has been made in education, and acknowledges the improvements which have taken place over the past 50 years. This reality also leads us to acknowledge the MoE's efforts to overcome many physical, geographical, and technical difficulties, in introducing new and effective policies and procedures to upgrade the quality of education in the Sultanate, and by taking measures to provide the necessary resources to improve the quality of performance levels in the administrative and technical work implemented in the different aspects and stages. All of the above have served to achieve tangible results through all stages of the development of progressive education that have been identified in this chapter.

This fact also leads us to recognize the MoE's efforts, represented by the DGC, and the systematic and sequential steps made in respect of the preparation and evaluation of the advanced Omani curricula, which has emerged in Omani society, culture, customs, and cultural heritage. In addition, this highlights the country's responses to global developments through the sophisticated organizational structure of the DGC, as well as the specialist Omani technical staff. However, this poses a very important question, namely - have these policies and procedures and the efforts of the MoE achieved the desired level of quality in both the administrative and technical work in general, and the development and evaluation of the curriculum in particular?

The education system is an integrative and participatory system of all the different elements, starting with the student and including the community, teacher, curriculum, evaluation, and school building. Hence, in order to ensure quality assurance in educational work, quality must be included in all of the elements that make up the process of development. For instance, the curricula cannot be developed without the development of the evaluation system, or without the training and qualification of teachers to teach the curriculum, or without the provision of the necessary materials supplied to the school environment. Moreover, the aims of the policy should be translated into concrete and realistic measures which are committed to by the decision-makers and implementers through specific and clear standards.

When it comes to the work of the DGC, there is currently no confirmation that the administrative and technical practices and procedures relating to the development and evaluation of the curriculum, and the various above-mentioned stages, are based or not based on the principles of TQM. Although there are tremendous efforts being made to improve the process of curriculum development, there are

various important aspects of the work of the DGC that need to be further studied and undergo more detailed scientific research and investigation in order to determine their strengths and weaknesses. The most important of these points include the total vision of the development and evaluation work of the curricula system, positive communication between the departments of the DGC, the motivation moral and material for the technical cadres which rely on accurate data emerging from the results of studies and research which, in turn, serves to formulate decisions and actions relating to curriculum development, qualifying the technical and administrative personnel to meet the development requirements and quality assurance at work, and the time period for the development and evaluation of curricula.

The international reports, studies, and working papers which are reported in the notes, and the recommendations made regarding the quality of the curriculum content, and the quality of the educational system in general, necessitate a holistic view of the aforementioned points, and any other aspects that may affect the processes of curricula development and evaluation, which will inevitably affect the contents positively or negatively, and thus the learning outcomes. According to the MoE and the World Bank (2012) there is an unexplained weakness in the performance and outcomes of Omani students in English, Mathematics, and Science. They recommend that a comprehensive search for factors negatively affecting the curriculum development and evaluation work is required. The same report also recommends that the DGC should ensure that enough time is allocated for the preparation of the curricula, which should involve greater participation from members of the wider community, as well as teachers and students (Ibid, 2012).

The report also found that Omani teachers suffer as a result of some of the content in the student textbook, prepared for Grades three and four. The report specifically noted that some topics in these grades are not well presented, and are not interesting or attractive, with inappropriate language being used for the targeted group of students (MoE, 2011). Furthermore, the class activities in some cycles the grades do not vary in terms of individual and collective skills, and do not contribute to the development of students' self-study skills and abilities (MoE, 2007). As a result, students might develop a negative attitude towards the study.

Furthermore, the essential skills, teaching strategies, and curriculum content are also not helping students to improve their skills, and are often characterized by repetition, which may be due to problems in the curriculum preparation planning (Al Najar, 2016). More specifically, some of the texts, pictures, and illustrations in the English textbooks do not link to the students' culture (Emenyeonu, 2012; Al-Issa;

Al-Bulushi, 2011). In other words, the English textbooks do not reflect the Omani culture and customs, which may be a negative factor that discourages students from learning English. Thus, all these factors may impact indirectly on the students' motivation to learn English.

On the other hand, Al-Jardani (2007) claims that the annual authoring of the curricula for BE and PE find linguistic and scientific mistakes which arise as a result of the pressure and speed of authoring. This, in turn, leads to the late arrival of student textbooks at the beginning of each year. Al-Jardani (2007) suggests that a clear strategy for the development and evaluation of the curricula should be set in order to provide curriculum officers with enough time to develop and evaluate the textbooks, and avoid these recurring problems.

The Education Council (2014a) states that one of the major challenges facing the process of curricula development is the lack of training programs for the curriculum experts and officers, as well as the intensity and pressure of work. Therefore, the quality of the curriculum content relates wholly to the quality of the curriculum production processes, so the focus of efforts should not only be applied to the content without taking into consideration the administrative procedures, regulations, and laws that affect them (Reid, 2012).

In general, the main challenge facing the Education sector in the Sultanate is achieving the required quality in learning outcomes of the students. This might only be achieved through the application of quality in the daily work practices of all involved in the educational development process. Although the MoE makes a concerted effort to apply quality in administrative and technical work, with the latest approach being the implementation of the ISO 9001 system, it is still not clear whether there is a comprehensive strategy in place to manage these efforts, or a clear evaluation procedure designed to take and act on feedback (Gonzalez et al, 2008; Rassekh, 2004). This is probably one of the factors that contributes to the weakness in the performance evaluation procedures in the educational system in Oman currently, with another factor being the lack of educational research carried out in this area, despite the ongoing efforts of the Education Council (Al Hajri, 2014).

As a pedagogical technique, the New Zealand Education Consortium Report emphasizes the appropriate application of all the development projects which are implemented by the MoE that will positively reflect the improvement of the quality of the Omani education system. This report also recommended allocating key accountabilities and responsibilities for educational policy development in an efficient and effective manner (New Zealand Education Consortium and MoE, 2017). The global

education quality index issued by The Global Competitiveness Report in Davos revealed that for the academic year 2017/2018, the Sultanate of Oman ranked 78th out of 137, and rated 3.9 out of 7, in the education quality field globally (World Economic Forum, 2017), compared to ranking 73rd out of 140, and rating 3.8 out of 7 globally in 2015/2016 (World Economic Forum, 2015). According to the MoE and World Bank (2012), the initiatives undertaken by the MoE are still new, and its results will not be clear and concrete anytime in the near future. However, the very important question is - when will the initiatives undertaken by the MoE be clear and concrete?

In contrast, the Education Council (n.d) emphasize that the most important theme of the National Strategy for Education 2040 is to develop a quality management system for educational institutions and encourage scientific research. However, the future educational goals should be more clearly defined and realistic (UNESCO, 2016), and require all the components of society to be involved in the development of an education system capable of achieving quality elements (Education Council, 2014b).

From another angle of this argument, educational management quality is the primary way to retain efficiency as nobody wants to work in a place characterized by poor management; thus if the working atmosphere is characterized by collaboration and ambition, this will lead to improvements in the efficiency of staff, which will ultimately improve the institution (Barber, 2014). So, in order to obtain the global trends of education reform, a re-structuring of the education system as a whole is required, emphasizing education quality standards and accountability, and building empowered leadership teams at all levels (Chang, 2010). Strong partnerships within the administration teams in education are also required to overcome the conventional bureaucratic styles in the work processes (Davis, 2010).

The development of the post-2015 steps requires the implementation of major changes in terms of how to understand and measure progress (Raikes, 2014). In particular, the Omani education system needs to emphasize the adoption of the MoE's comprehensive system for TQM that will contribute to overcoming the existing administrative problems, such as weak communication between directorates, lack of financial and moral incentives, the exclusion of various sectors both from within and outside the MoE from making decisions relating to educational policy in Oman, and the lack of appropriate training and rehabilitation of Omani cadres, technically and administratively (Al-Nabhani, 2009). This was supported by Al Shidi (2010) who recommended expanding the deployment of quality culture among the employees of the MoE, and the need for more effort to be made when characterizing staff work tasks accurately, outlining staff performance indicators through the MoE, and the dependence on

professional and clear standards for the different functional fields, especially teaching, administrative, and technical.

Al Sawafi (2012) confirmed that if the MoE wants a radically positive shift in its administrative and technical systems, it should consolidate the quality of work which is based on the planning, implementation, monitoring, commitment, with a focus on the beneficiaries, and continue the internal and external evaluation. Thus, there is an urgent need for more effort to improve the quality of all educational levels, especially after the escalation of claims to raise the level of education outputs to a rank that corresponds with the actual needs of the labour market, both locally and internationally (Supreme Council for Planning, 2012).

The overall conclusion of this discussion is that there are many administrative and technical problems hindering the MoE's efforts to implement quality in the education programs in general, and curriculum development in particular. In addition, most of these efforts and initiatives are characterized by erratic behaviour which could be due to the absence of a comprehensive strategy, and the lack of educational research that underpins them. Thus, this could necessitate an urgent need for the application of TQM. As a result, the present study has been conducted in order to discover the extent of the application of TQM in the development and evaluation of curriculum practices in Oman. This study aims to contribute to an understanding of the true reality of the practices and highlight the current strengths and weaknesses. Subsequently, the results of this study will determine the starting point for the application of TQM at the DGC in the MoE in Oman.

2.7 Conclusion

This chapter has presented a background of Oman in general, and the Omani education system, with the Omani school education development also being highlighted. The role of the MoE in application of quality was then described. After that, the curriculum and evaluation work in the DGC was explained. Finally, the general conclusion was discussed. Thus, the next three chapters discuss various TQM theories in general, the application of TQM in education, and various curriculum preparation theories, to find a suitable approach to explore the current situation of the application of TQM in curriculum development and evaluation work system in the DGC in the MoE in the Sultanate of Oman and so contribute to the enhancement of this area.

Literature Review

This part of the study is devoted to the literature review associated with the study. This section consists of three chapters that have been derived from the title of the study, so that this literature is linked to the key words of the study. These chapters are, respectively, total quality management and total quality management in education, curriculum development, and evaluation. The approach adopted by the researcher adopted is the inverted triangle method. Thus, the first chapter of the literature review focuses on total quality management in general, then in the second chapter goes on to discuss total quality management in the education sector, with some specificity in school education, as this study takes place in an educational institution, the DGC. In the last chapter of the literature review, the focus has been narrowed to look at the processes of curriculum development and evaluation, while discussing previous Omani studies that focus on quality, and the extent of their relevance or difference from the current study due to the study being applied exactly in the DGC.

Regarding the process to obtain materials used in the literature review, much reliance has been on databases, such as ERIC and EBSCO, as well as journals such as the Research Journal of Social Science and Management, Total Quality Management and Business Excellence, The TQM Journal, and the International Journal of Educational Management. There is also a focus someone various original books relating to the TQM philosophy, such as Deming's book, Out of the Crisis, and Crosby's book - Quality is Free. This stage of the research relies on key words such as quality, TQM, and TQME, quality in education, quality management in Oman, the philosophy of TQM, educational curriculum and curriculum development and evaluation. Consequently, the researcher gathered nearly 760 diverse references associated with the literature review. The inclusion criteria were the proximity of the source to the initial sub-headings of each chapter and the novelty of the source, as much as possible, with the knowledge that many very old sources were relied upon that are original sources in the philosophy of TQM and the education curriculum. More than 300 sources have been relied upon in the chapters of the literature review from books, edited books, journal articles, theses, dissertations, and conferences papers.

The method used by the researcher to write these three chapters now follows. At the beginning, the organization involves creating three files, with each file containing the associated books, studies, article papers, and theses. The main challenge here was the huge amount of information and knowledge relating to the topics of these chapters. Therefore, it was imperative to define the sub-headings for each chapter, with the focus being on what is related and very close to the current study. The

researcher has also included a mixture of original sources in the literature review chapters that can be considered as the basis of TQM, in addition to new books and studies.

Another point was associated with evaluation issue is the quality and relevance of literature accessed. The researcher took many factors and aspects into account that relate to the selection of literature, including the literature being extensive enough to provide and cover data, evidence, and information on the study's topic. This is embodied in the extensive presentation on the application of the principles of TQM in general and their implementation in the educational sector in particular and its connection to the process of curricula evaluation and development. Also, the main ideas and key points of the research title, questions, aims, and theoretical framework should be clearly addressed, as well as achieving a balance between sources supporting and opposing a particular issue of the study such as shown in the discussion chapter such as. In addition, there was focus on the leading thinker's literature relating to TQM and curriculum development and evaluation as a philosophy and base for the study with the current literature as a sequential development of the research subject such as sources of TQM leading thinkers, Deming, Crosby and Juran.

The critical review of the literature in this study is useful for two basic purposes. Firstly, it describes the conceptual and theoretical framework of research by defining the main research concepts, placing them in the areas of research, and justifying their importance and relevance to the title, objectives, and overall research questions. Secondly, this review has provided the researcher with a great amount of knowledge and information relating to the subject of the study, which has enabled the design of the study instruments later, in the data collection phase as detailed in Chapter Six.

Chapter Three: Total Quality Management

3.1 Introduction

The application of TQM is not simply an economic philosophy; on the contrary, it has become a practical reality that is applied to many service sectors. It is not surprising that industrial and technological progress has led to intense competition among institutions seeking to provide the best outputs, which has resulted in an increasing focus on quality in industry, commerce, information, business, and services. TQM has become a global philosophy helping governments and private institutions to achieve high levels of performance, which has led to a positive effect on productivity (Kanji and Sa´, 2007; Nawelwa et al., 2015; Subrahmanyam, 2017). This philosophy is based on a set of principles and standards that enable organisations to utilise all human and material resources to achieve the best results, by enhancing the skills of workers and investing in their intellectual abilities at various work levels. In this sense, TQM may be considered as a unifying philosophy and culture for all employees. Upon reviewing TQM literature, it can be seen that the development of the TQM concept has evolved through several stages at the hands of a group of leading thinkers and founders of an international quality system.

This chapter will discuss several aspects relating to TQM in the context of this study. First, a broad understanding of the definition of quality and TQM will be provided, as well as the highlights of TQM's historical development. Next, leading TQM thinkers will be identified. Then, the principles of the TQM philosophy will be presented along with a discussion on quality awards and models, in order to focus on key areas upon which to build the study's instruments. Finally, the chapter will conclude with a summary relating to TQM philosophy, and the role of TQM thinkers to develop this philosophy, which will provide the researcher with a wider horizon to be aware of all aspects relating to the study's questions, and to enable him to design the study instruments accurately.

3.2 Defining Quality

It can be argued that attention to quality was present in early management thinking. However, the issue of quality did not find much attention initially in civil sector except with Japanese organisations. This was because after entering the Second World War, the USA enacted legislation to help gear the civilian economy to military production. During this period, quality became an essential component of the

American army production. Those interested in quality, such as Deming and Juran, who had become frustrated with the American military management approach when their work contracts were terminated once the war came an end in 1945. So, after defeat in the Second World War, Japan concentrated its efforts on developing the economy and avoiding future wars. Subsequently, the Japanese then found the opportunity to attract the American quality experts, such as Deming and Juran, to be lecturers and experts to improve the economy. Those experts focused on issues associated with the responsibilities of management, leadership, employees, planning, organisation, and how they all participated in achieving quality (Drummond, 1992; Beckford, 2002).

Quality as a concept is difficult to interpret and define because of the multiplicity of meanings according to the desired goals and expectations of specific contexts. Thus, there can be different understandings of the term *quality,* in other words, there is no universally accepted definition of quality. To obtain a broad understanding of the concept of quality, a number of different definitions will now be analysed.

According to the online Oxford English Dictionary (2016), *quality* is "the standard of something as measured against other things of a similar kind" and "a degree of excellence or worth." These definitions limit quality as a unit of measurement, as indicated by the words "standard" and "degree". Furthermore, these definitions do not clarify whether the service provider or the service receiver defines such standards and degrees, or when they should be used for the processes of work or for the output or both. The problem with adopting a dictionary definition is noted by Knowles (2011, p.10) who observed that "the dictionary definition of quality is interesting but does not really help in studying the area as it is too vague."

According to Feigenbaum (1984, p. 9), quality is "based on the customer's actual requirements for the product, stated or unstated, conscious or merely". In his definition, Feigenbaum indicated that quality could apply to a product or service. Consequently, the quality of a product or service is related to customer satisfaction. In other words, the quality of a product or service is realised by the extent of the client's attitude, particularly if it exceeds his or her expectations. Similarly, Crosby (1979, p. 9) defined quality as "conformance to requirements." This definition also focuses on the importance of the customer in determining the quality of a product. In this sense, when the product is in conformity with a customer's requirements, quality is achieved. These requirements may be pre-determined as a formal contract or law, or declared and defined as specifications. Thus, if the requirements of the system or institution are in alignment with those of the customer, then the product is characterised by quality.

Juran (1992, p. 9) also linked quality with the customer when he defined it as "the fitness for use." He believed that when a product is suitable for a customer, it would be marked by quality. For example, price, on-time delivery, smooth service, and easy maintenance are important factors affecting a customer's choice of a specific product or service. In his book *Out of the Crisis*, Deming (1986, p. 5) emphasises that "quality should be aimed at the needs of the customer, present and future." In other words, the customer measures and determines the degree of product quality. If a product meets the customer's needs, it is characterised by quality. Hence, a product or service should reflect the interests and tastes of the customer.

Although the concept of quality has always focused on customer satisfaction, it has evolved to become a comprehensive concept that begins with the first stages of development and continues until the product or service reaches the customer. This is confirmed by TQM experts in the new phase of the development of this concept - the early 1990s. According to Oakland (1993, p.5 & p.9), "quality is simply meeting the customer's requirements", and "it must involve everyone in the process and be applied throughout the organization." Similarly, Jackson and Ashton (1993, p.12) observed that "quality focuses on the needs of a group on which every business entirely depends – the customers." In addition, Aguayo (1990, p.33) stated that "quality is anything that enhances the product from the viewpoint of the customer. Furthermore, Hus et al. (2019, p.44) emphasized that " quality is a collection of metrics designed to meet the needs of higher-satisfaction in outputs of companies."

Therefore, quality should be the central concern of any business. Thus, from an inclusive perspective, "any definition of quality must include meeting/satisfying/conforming to agreed/negotiated/customer needs/requirements/wants/expectations" (Choppin, 1995, p.48). In short, in order to achieve all of these requirements and ensure customer satisfaction, quality must be the responsibility of all workers, management, processes, and work levels.

From the previous definitions, it can be concluded that quality is associated with the perspective of the beneficiary, who compares the actual performance of the product or service with their own desired expectations. Hence, the quality of a product or service is determined by the beneficiary (customer). If a product or service meets the beneficiary's expectations, it has achieved quality. Quality requires seeking constantly to understand the needs of the beneficiary, and can only be achieved through quality performance during the production processes, where the product must match the pre-defined specifications. In summary, "quality can be defined only in terms of the representative; who is the judge of quality?" (Deming, 1982, p.168). Sixteen years later, Wilkinson et al. (1998) answered this question:

"the customer is the judge of quality." The figure below summarizes the definitions of quality. The diagram below shows the leading thinkers' definitions of quality.

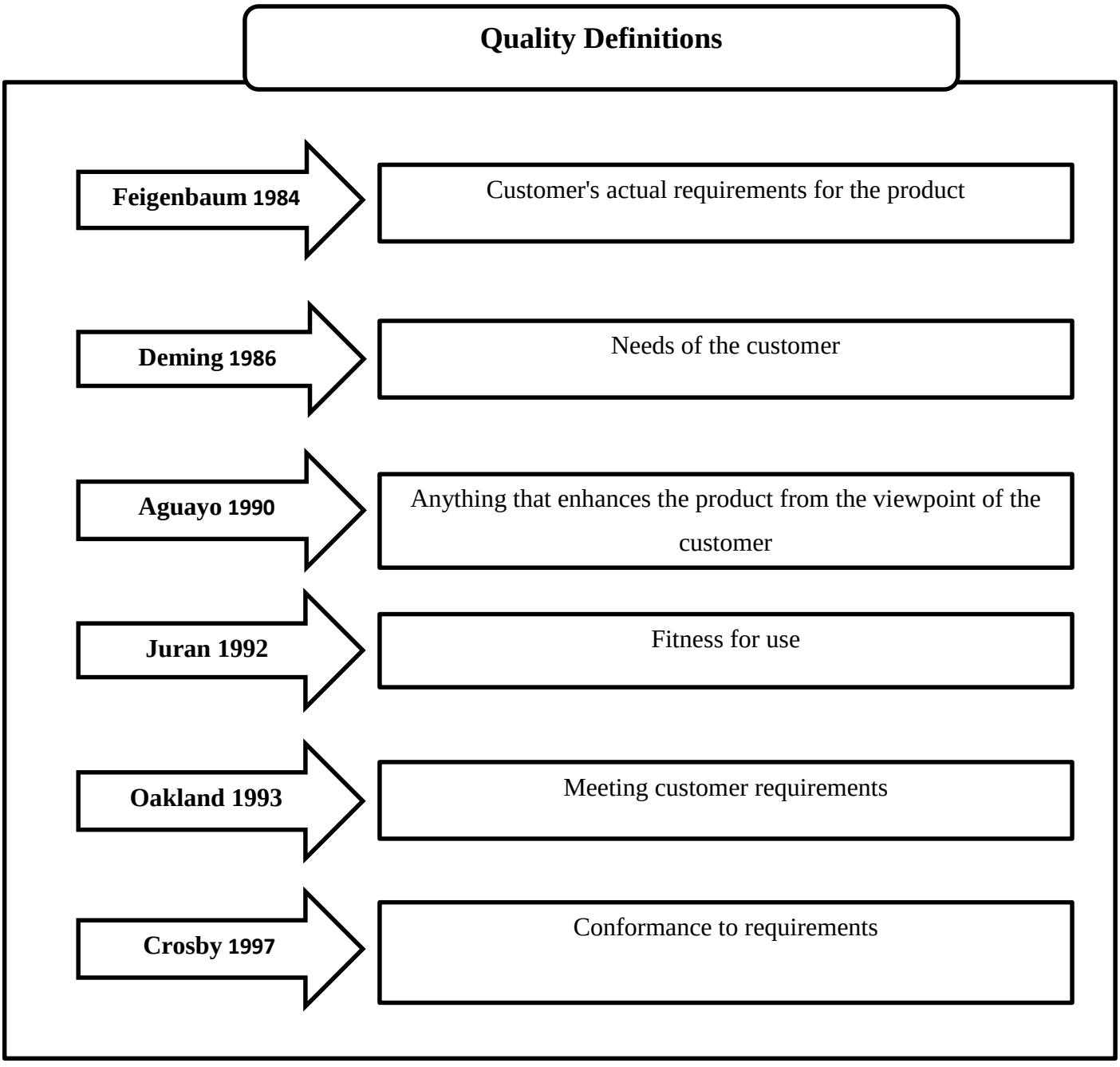

Figure 3.1: Definitions of Quality (by researcher

In short, it can be argued that quality in general is the result of all laws, legislations, standards, and procedures that aim to continuously improve work operations resulting in a product or service that matches the aspirations and satisfaction of the beneficiary.

3.3 Historical development of quality

By tracking theoretical literature on the intellectual and management development of quality, it can be observed that the evolution of quality did not occur in the form of quick leaps. Rather, the concept of quality evolved through stable development and constant reflection on the development of production and process complexity, beginning in the early 20th Century. The quality practices established in the industrial sector were applied to service categories, such as health and education (Kiran, 2017). It is difficult to define these practices precisely in terms of the beginning and end of each stage. Instead, there were sequential phases marked by overlapping characteristics, including the inspection stage, quality control stage, quality assurance stage, and the total quality management stage, as illustrated in Figure 3.2:

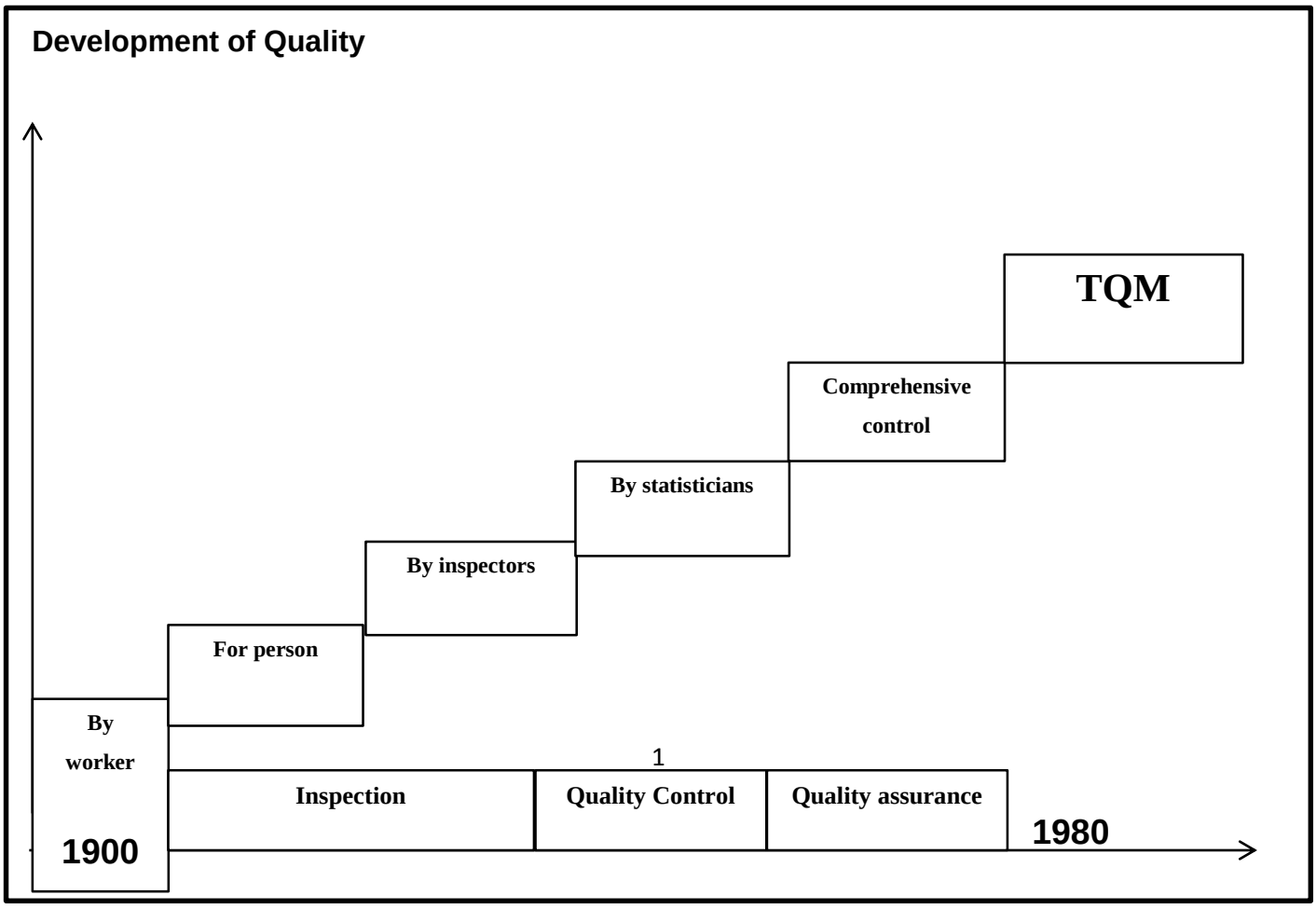

Figure 3.2: Development of Quality (by researcher)

3.3.1 Inspection stage

The essence of quality control is that the worker or craftsperson scans the item that they have produced and is thus entirely responsible for the product manufacturing. It can be argued that Taylor, at the beginning of 20th Century, was among the first to study the importance and impact of working time in productivity. He established the framework for the inspection systems in factories in order to increase working efficiency and productivity (Schachter, 2010; Boje and Winsor, 1993). At the beginning of the 20th Century, particularly before the First World War when manufacturing systems became more complex and the concept of modern factories emerged, developments led to a significant increase in the number of factory workers. Every group of workers had a leader who monitored them and assumed responsibility for the quality of their work and their production. This control method was based on comparisons between the original form to the produced part (Teboul, 1991). To achieve the quality control process goals, these two parts must be in alignment. The aim for this stage is for the product to reach the consumer without flaws. Realistically, however, this stage is unable to prevent the occurrence of defects in production (Feigenbaum, 1957).

3.3.2 Quality control stage

In seeking to bring the world to a complex manufacturing level before the beginning of World War II, industrial companies realised that the individual inspection process had become useless. According to Feigenbaum (1957), performance quality control was implemented in an effort to prevent and correct errors in production, for example, controlling the raw materials used in manufacturing, and controlling the machinery, registration, and monitoring processes. This phase was characterised by the use of statistical methods in the provision of data and information to develop and monitor product quality (Teboul, 1991). For instance, control panels and select sampling of products were used rather than comprehensive tests (Teboul, 1991; Feigenbaum, 1957). Quality control evolved through the use of scientific control methods as a result of the great competition in the manufacturing world between various countries during that period. The control stage basically refers to inspections during all stages of production.

3.3.3 Quality assurance stage

The interest in quality assurance, based on inputs from the approaches of quality management, is more remote and deeper than that of the previous stages. Here, the concept of integration and coordination

between management programs is introduced, and for the first time it is confirmed that all administrative levels must be involved in quality planning and control (Teboul, 1991). In other words, the responsibility for quality is not only limited to a specific department or section but is also a collective responsibility of the management and workers, and there must always be coordination between them. During this stage, the competition between industrial enterprises around the world highlights the importance of high quality of products by focusing on performance (Wilkinson et al., 1998; Teboul, 1991). This stage is characterised by the achievement of production free of defects. In 2018, Alholiby underlined the importance of achieving quality assurance objectives for quality continuation. According to Maxwell (2020), the strategy for quality assurance is the policies and practical procedures to ensure that evidence is collected and used systematically in order to monitor the quality of the institution system, as well as evaluate and improve it.

3.3.4 TQM stage

TQM philosophy is generally attributed to Deming, the American who took the message of quality to Japan (Kiran, 2017). According to Omachonu and Ross (2004), TQM is a systems approach that considers every interaction between the various elements of an organisation. In his book *Quality Management*, Knowles (2011, p.11) stated that "TQM is the approach and process for getting quality." Thus, this stage is where quality has become a comprehensive philosophy of leadership and operations and is linked to all activities in the organisation to ensure long-term success and continuous improvement. In addition, the customer is more comprehensively defined as the consumer, the workers in the company, administrators, suppliers, and residents of the neighbouring areas. In other words, the customer is society as a whole. The TQM philosophy was established over a series of steps and phases by a number of thinkers, such as Deming, Juran and Crosby. The philosophy is a set of principles that can be adopted by an organisation in order to achieve the best performance and productivity. In this stage, the international standards of quality also evolved to ensure the highest degree of conformity to the specifications required for the customer. This included the creation of awards and new international standards. Quality is no longer viewed as expensive; on the contrary, quality is pursued in an effort to reduce costs by reducing effort, time, and money with a commitment to better products and services (Wilkinson et al., 1991). The different aspects of this stage related to the TQM definitions, thinkers, principles, and models are considered in the following sections.

In the light of the above, it can be observed that the development of the TQM philosophy began with traditional instruments and evolved as a result of the industrial renewal in the 20th Century, and the

newfound complexity of manufacturing processes. This led to a focus on finding new ways to improve product quality to ensure survival in the face of worldwide competition. This development began with conformity and evolved into performance monitoring, with a focus on performance and continuous improvement.

3.4 Total Quality Management (TQM)

TQM is one of the most modern management and economic concepts that has emerged, mainly as a way of working to improve the performance and services of institutions and companies, thus enabling them to achieve maximum profits. As a result, under the globalisation umbrella, the world has become a smaller village, which has led to increased global competition. This competition is reflected in profit making and service organisations, with the need for them to provide the best services and products to customers. Consequently, the consumer has become the master of the situation and the market leader, as everyone seeks to satisfy their customers through the application of TQM. According to Singh and Singh (2014), in this world of hard competition and globalization, the application of TQM has become the necessity and the requirement of every stakeholder. So, to win the competition, it must maintain quality in production. Consequently, TQM implementation is an important factor to gaining the beneficiaries' satisfaction. In other words, TQM has been created to improve business performance and has received considerable attention in recent research. It has also been used by a growing number of organizations as a strategic foundation for generating a competitive advantage and improving an institution's performance.

Today, TQM is considered to be an effective way to make radical changes in the philosophy and method of working so as to achieve the highest quality. The concept of TQM is different, according to the angle of view, in sense, according to the type of sector and service or product provided. However, the virtual difference in the TQM concept is almost identical in the intended content. In other words, it revolves around the goal that the organization or institution seeks to achieve, which is consumer satisfaction (Jablanski, 1991). The following paragraphs focus on the virtual contrast and symmetry associated with achieving the goals outlined in the TQM definitions.

Much of the literature in this area defines TQM as a philosophy. According to Drummond (1992, p.13) "Total Quality Management is basically a business philosophy founded on customer satisfaction." In addition, Mansir and Schacht (1989, pp 1-3) state that TQM is "a philosophy that has occurred in our

lifetime than all of the principles and practices that represent preceding history. The same will be true for the foundation of continuously improving the lives of our children and grandchildren."

In contrast, there are some scholars who consider TQM to be an approach. For example, Oakland (2000, pp.18-19) mentioned that TQM is "…an approach to improving the competitiveness, effectiveness and flexibility of a whole organization. It is essentially a way of planning, organizing, and understanding each activity and depends on each individual at each level." Similarly, Al-Amri (2012, p.8) points out that TQM is "…an approach to continuous improvement that is focused on responding to customer needs, basing decisions on data, and allowing everyone to participate in the process."

To contrast further, others have described TQM as a culture, such as Kreitner (1995, p. 110) who stated that "TQM is defined as creating an organizational culture committed to the continuous improvement of skills, teamwork, processes, product, and service quality." Dean and Evans (1994, p. 25) on the other hand, defined it as an effort, and stated, "TQM is a comprehensive effort involving everyone in an organization to meet customers' needs and continuously improve products and services."

From the above it is clear that all of the previous definitions of TQM differ ostensibly in the way it is described, that is the philosophy, approach, culture, and effort. However, there is a consensus that TQM is the process used in achieving the goals of an organisation and the following phrases appear throughout, namely - continuously improving, improving the competitiveness, continuous improvement, continuous improvement of skills, effectiveness and flexibility; depends on each individual at each level, allowing everyone to participate, teamwork, involving everyone in an organization; and customer satisfaction, responding to customer needs, service quality, to meet customer needs.

It can be concluded that the aforementioned interpretations of the concept of TQM refer to the three pillars of TQM, as identified by Jablanski (1991), which are consumer satisfaction, the contribution of the organization's employees and the continuous improvement and improvement in quality. Thus, TQM is not a specific track but is an endless voyage to improve and develop quality; therefore, it cannot achieve full quality but only attempt to achieve the highest possible quality in production.

According to Lo and Sculli (1996), TQM as defined by Feigenbaum, stresses the word "total", that is, it must have an organization-wide impact, involving all staff at all levels of the organization. So, it is an obligation for all, and therefore it will succeed when all members of the organization are committed, and it will fail when individuals do not show their commitment and determination in applying its

principles (Omachonu and Ross, 2004; Al-Jalahma, 2012; Youssef, 2006). Also, Assarlind and Gremyr (2019) referred to the importance of starting to adopt TQM as an iterative process.

In short, the concept of TQM can be summarized as a leading method that establishes a systematic philosophy and culture within the structure of an organization and helps to achieve the highest possible quality of goods and services. The success of the concept of TQM depends on the conviction and principles of the organization's members, and whether they continuously seek to achieve both internal and external customer satisfaction (Vinni, 2007; Williams, 1999; Jablanski, 1991). The following section will focus on the leading thinkers of TQM, and the most important key points of their philosophies.

3.5 The Leading Thinkers of TQM

There are many quality leaders in both the industry and service domains. However, this part of the chapter focuses on three leaders, namely, Edward Deming, Philip Crosby, and Joseph Juran. When following the theoretical literature of the TQM evolution it can be argued that their philosophies are the foundation and basis for the origin and development of TQM. In addition, the educators, thinkers, consultants, and experts who later wrote about quality, relied entirely on the philosophy of these three leaders. The following section focuses on their philosophies and concludes by identifying their similarities and differences.

3.5.1 Edward Deming

Deming was born in 1900 in the United States. He was a university professor, author, lecturer, and consultant. Deming became famous for production development during the Second World War and was known as the 'father of quality' due to his contribution to the science of quality and management. Through his work in the United States, Deming discovered the importance of statistical control in the quality control of work and production. Following World War II, and at the request of some Japanese companies to help them to improve their products, Deming moved to Japan where he concentrated all his experiences and energies into the reconstruction of Japan. He found that Japan welcomed his ideas and philosophy on quality which encouraged him and his great desire to adapt and apply his ideas to support the Japanese. He subsequently presented lectures and provided advice to organizations regarding industry control, which contributed immensely to the rapid development of the Japanese economy (Drummond, 1992; Beckford, 2002).

3.5.1.1 Deming's philosophy

Deming's quality philosophy is based on 14 points, as shown in Table 3.1 below. These points later became the elements adopted by senior management, not only in Japan, but in most industrialized countries in the world.

Table 3.1: Deming's Fourteen Points (Deming, 1986, pp 23-24)

Point 01: Create constancy of purpose toward improvement of products and services.
Point 02: Adopt the new philosophy.
Point 03: Cease depending on inspection to achieve quality.
Point 04: End the practice of awarding business based on its price tag.
Point 05: Continually improve the production and service systems.
Point 06: Implement on the job training.
Point 07: Ensure effective leadership.
Point 08: Drive out fear so that everyone in the company may work effectively.
Point 09: Break down barriers between departments.
Point 10: Eliminate slogans, exhortations and targets for the work force asking for zero defects and new levels of productivity.
Point 11: Eliminate work standards and management by objectives or numerical goals.
Point 12: Remove barriers that rob people of their right to take pride in their work.
Point 13: Institute a vigorous program of education and self-improvement.
Point 14: Ensure everybody in the company works to accomplish transformation**.**

According to Washbush (2002); Rungtusanatham et al. (1998); Anderson et al. (1994); Aole and Gorantiwar (2013); Zairi (2013); Suarez (1992); Drummond (1992); Price (1990); Rosander (1991); Aguayo (1990); and Knowles (2011), Deming's 14 points can be explained as follows:

- The first point emphasizes that quality is the first requirement in production. To achieve the highest quality of product it is necessary to set goals that lead to improving product and service quality and ensure continuity and survival in the market.

- The second point explains that the new philosophy must adopt a common decision which is the responsibility of every individual in the company. Without the joint effort and enthusiasm for improving the quality of the company or organization, the desired and expected results will not be achieved in the long term.

- The third point focuses on preventive censorship which is aimed at preventing errors by learning from past mistakes in quality and production.

- The fourth point is based on eliminating the practice of evaluating work on the basis of profit or sales price alone. Profitable work cannot ignore the sale price, however, it must also consider the suppliers who depend on the quality of their products and focus on nurturing and strengthening third party relationships in conjunction with the sale price, which should be prioritised at a later stage.

- In his fifth point, Deming stresses the importance of continually monitoring and improving performance as the level of quality applied today must be the basis for improvements in the future. Fixed and unchangeable standards are one of the major causes leading to the collapse of companies.

- In the sixth point, Deming explains that staff training is vital and should be made available to include all staff at all levels within the organisation. Employees must be trained in the best way to perform their duties and fulfil their responsibilities, with intensive training being applied in production.

- The seventh point describes effective leadership as one of the most important factors of quality. An effective leader is an assistant and supporter who is keen to improve the performance and skills of their sub-ordinates, who instils trust amongst their staff, and strives for continuous improvement. Their good behaviour and performance leads their sub-ordinates towards achieving the organization's goals. Effective leadership is the natural product of continuous creativity, hard work, and the ability to motivate others.

- The eighth point focuses on the level of quality implemented by employers in their approach to managing their employees. This point stresses that employers should provide an element of stability for their staff, in order to ensure that they feel safe within the company or organization that they belong to. Employers should also eliminate any obstacles of fear and provide a mechanism for employees to express their views freely and frankly. As well as creating feelings of organisational loyalty and a sense of belonging for employees, these actions will ensure that their staff are more productive and work more effectively.

- The ninth point aims at removing barriers between departments and seeks to prevent and resolve existing conflicts between employees and/or departments. With the aim of satisfying and exceeding customer expectations, this point again highlights the main goal of quality with the focus being on promoting working as one team, with all striving to achieve one common goal. This point stresses the importance of promoting cooperation between all staff which is vital in order for the appropriate levels of quality to be achieved across the organisation as a whole.

- The tenth point highlights the need to eliminate the use of slogans and tips. Such motivational methods kill quality because attention is focussed on wanting to do something, rather than on how it works. It is best to reduce advertising and quantitative goals that concern the quantity without the quality, because they offer no useful strategies to demonstrate how to master the work.

- For its part, the eleventh point claims to limit the directives that require the achievement of specific results annually, or for a particular employee, but to focus on a 'one team approach' within the company or institution. Exceeding the expectations of the client in terms of quality has a long-term value, which ultimately exceeds the expectations attributed to the amount of manufactured production.

- The twelfth point emphasizes that a negative evaluation of an employee can destroy any desire that they may have to improve their performance. Most employees want to do their work well and do not want to be judged inaccurately or be subjected to unfair criticism; at the very least they expect and deserve to be treated fairly.

- The thirteenth point directly links to the sixth point, relating to the provision of continuous development programs, focusing on the process of development, self-improvement, and acquiring new knowledge and skills. It essential for employees to have a strong foundation and receive

updated information and knowledge because the tools, techniques, and information are constantly changing and evolving.

- Finally, the fourteenth point consolidates the previous points. It reiterates the importance of the unity and the continued commitment required from all members of the company, from the most senior managers to the most junior workers in the system. It highlights the importance of setting realistic goals without the use of glamorous slogans. In view of the above, it is possible to categorise Deming's 14 points into three areas:

1. Stability of the target

This category is represented by points 1, 4, 10 and 14. Deming strongly emphasizes that the stability of any organization or firm depends on the positive stability of standards, principles, and tasks at all levels of work. For example, Deming advises companies to build solid, long-term relationships with suppliers. Suppliers will only remain as a result of good practice and positive experience, as well as the assurance that effective policies will not change, unless a particular manager is changed.

2. Continuous improvement

This category is represented by points 2, 3, 5, 6, 7, 12 and 13. An overview of Deming's philosophy of these points can be summed up in his call for administrators to learn to make continuous improvements, rather than to accept existing error rates. Thus, he suggests that organizations should identify the cause of errors and categorize them into two areas. First are the common causes of errors, such as those associated with periodic maintenance. Second are the special causes which are associated with a lack of training. Instead of assigning such learning and training to a small group of professionals only, Deming promotes the philosophy of education for all.

3. Common cooperation

This category is represented by points 8, 9 and 11. The first step necessary for building the cooperation and support of different functions, in Deming's view, is to ensure that each member of the system understands their role and responsibilities, and knows exactly what work is required of them. This should be cemented by positive relationships between the management and the employees. Cooperation must be encouraged and employed across an organization as a whole; in other words,

each individual, each team, and each department must operate as a whole in order to achieve the institution's goals.

According to Rinezo (1993), these points are not a set of procedural steps that are directly executable; they are a set of principles and values that guide the world towards quality. In order to implement his philosophy in practice, Deming developed the Shewhart Circle, which was later named in Japan as the Deming Cycle, as illustrated in the following figure:

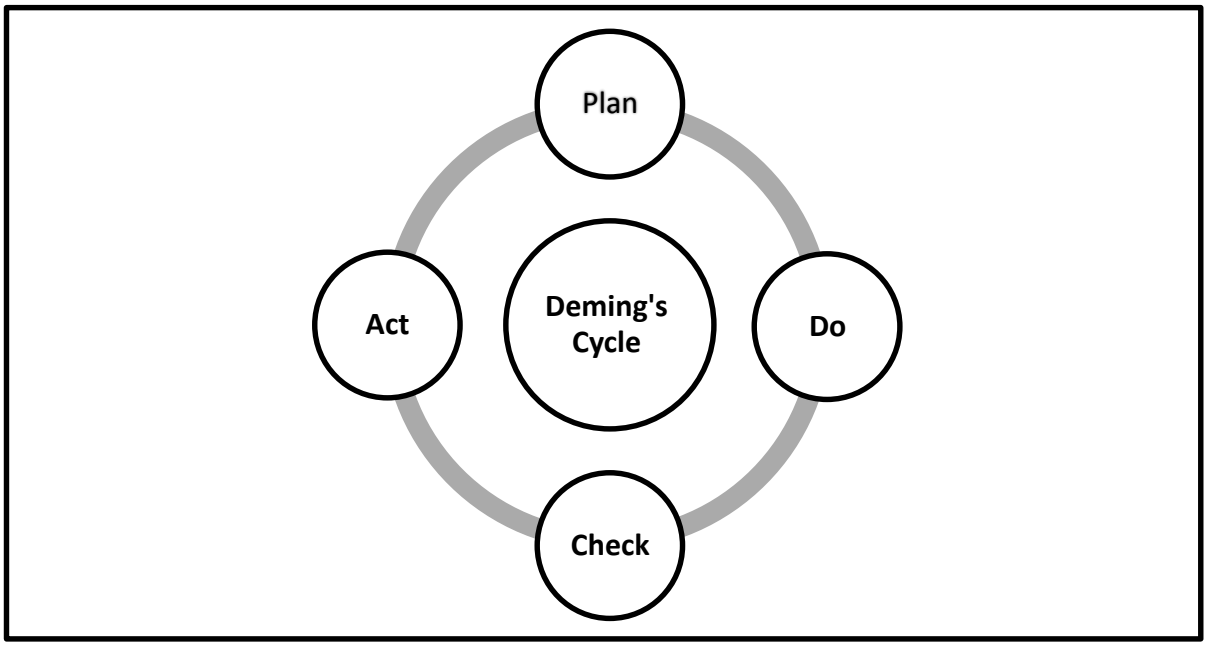

Figure 3.3: Deming Quality Cycle PDCA (Beckford, 2002, p. 67)

The Deming Cycle (PDCA) is a series of steps to improve the outcome of manufacturing processes, and to obtain a product of quality. The first phase (Plan) begins with the data collection stage to identify the problem and develop appropriate procedures that lead to positive results that meet quality requirements. The second phase is (Do) is where the planned actions from the previous stage are carried out in with the monitoring of the implementation processes undertaken in the third phase, which is (Check).

The data and information collected from the previous stage are used to compare what is planned and what is actually carried out in order to address the negatives and enhance the positives, in order to achieve the desired goal. Finally, the (Act) phase comes in to play, where errors are corrected and work is improved to conform to the work plan (Suarez, 1992; Beckford, 2002 and Anderson et al. (1994). Thus, upon reaching this phase, the work will be fully stable. The Deming Cycle can therefore

be used to manage and develop projects to access quality products through the implementation of Deming's 14 Points.

In short, Deming's chain reaction focuses on "Improve quality - productivity up - cost down – price down - markets increased - stay in business - more jobs, and better return on investment" (Deming, 1986, p. 3). This means adopting certain management principles in order to improve product quality and reduce costs, thus increasing customer loyalty at the same time. This philosophy should be inclusive throughout the whole institution. In other words, every part or section of the institution is complementary to the other, rather than independent of each other.

3.5.2 Joseph Juran

Joseph Juran was born in 1904 in Romania and moved to the United States in 1912. He worked as a Professor at New York University, and at the same time worked for the Hawthorne Company. Similar to Deming, Juran failed to be recognised by the government and companies in the USA as most programmes for quality control were terminated after the Second World War. He was invited to Japan in the early 1950s by the Union of Scientists and Engineers. His lectures focused on the administrative dimensions of planning, organization, control, and the use of statistics in quality control, continuous improvement of each product quality area, and the importance of emphasizing the responsibility of management in achieving quality (Zairi (2013); Beckford, 2002; Suarez, 1992).

3.5.2.1 Juran's philosophy

Juran's philosophy of quality improvement is based on formulating a method to create a customer-oriented company. He believes that the focus on quality for the customer must be at the heart of every process and every system in the company. Consequently, Juran introduced his philosophy of quality in the so-called Juran's Trilogy which shows that the enterprises that want to adopt the quality thought and system must achieve this through three steps of interdependence, integration, and continuity (Greasley, 2008). These steps are quality planning, quality control, and quality improvement (Greasley, 2008), as shown in the following figure.

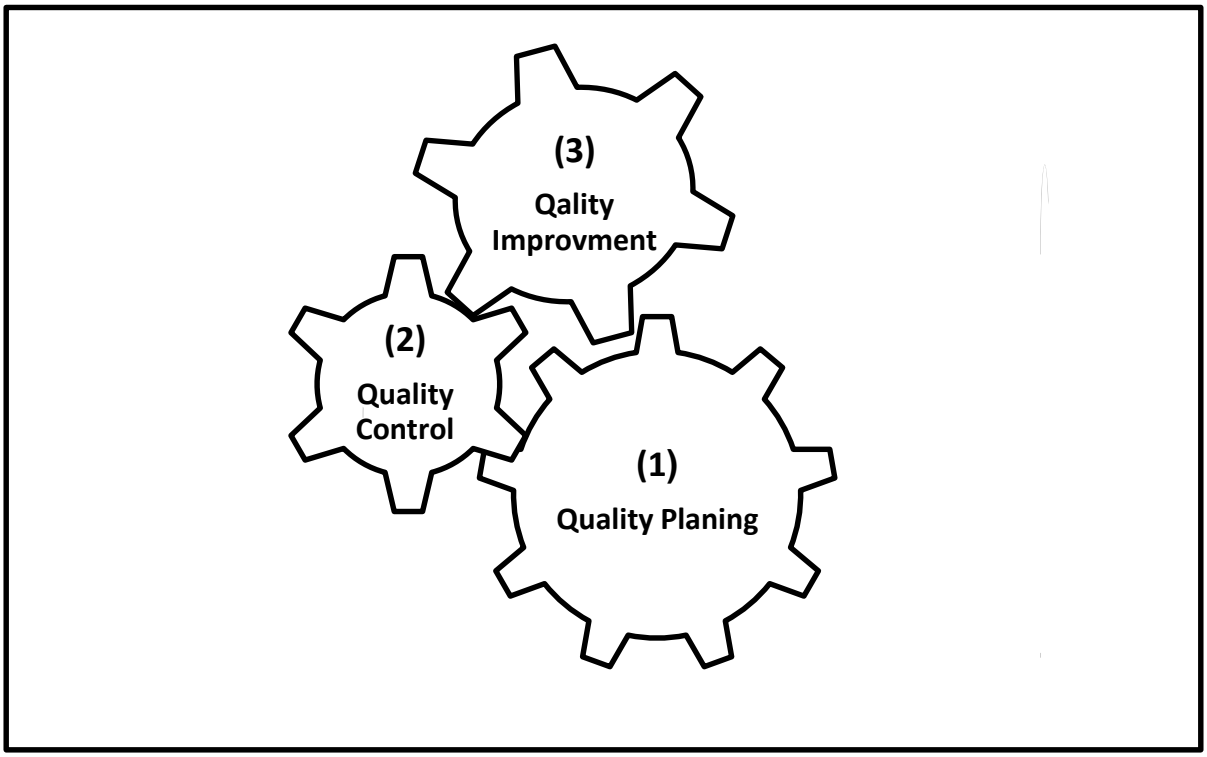

Figure 3.4: Juran's Trilogy of Quality (by researcher)

Juran's Trilogy of Quality can be explained as follows:

- The first stage is quality planning (QP) through the development of an operational plan that achieves the quality of the target product. This plan includes defining the customer's needs and requirements, then translating these into specific standards which align with the organization's processes (Juran, 1992; Juran, 1993; Juran and Godfrey, 1999). In other words, this stage is for designing processes and defining their characteristics and requirements.

- The second stage is quality control (QC). During this stage the oversight is supposed to be comprehensive, credible, appropriate, and easy to understand in the sense that it represents the stage preceded by quality planning by selecting appropriate measurement tools to measure the real performance that was actually achieved in order to determine the results (Juran, 1993; Juran and Godfrey, 1999; Jalal, 2011). Specifically, this stage consists of three steps, namely, evaluating the performance of the processes, comparing the performance with the goals set and finally, acting according to the outcomes of this comparison.

- With regard to the final stage, quality improvement (QI), Juran focuses his attention on his belief that continuous improvement processes are the heart of TQM; it is not limited to the quality of the product or service alone, but also includes improved processes. This improvement is applied through the study and diagnosis of the causes and the development of the appropriate and continuous treatments and solutions Juran, 1992; Juran, 1993; Juran and Godfrey, 1999). Like Deming, Juran asserts that the obstacles to achieving quality are not caused by workers but are mainly caused by management, especially top and middle management. These obstacles can be classified as either urgent problems that must be resolved quickly, or chronic problems where attempts to solve these are made by using a long-term strategic plan (Aole and Gorantiwar, 2013). This includes:

    - Creating awareness of the need to improve quality by setting realistic and achievable goals for quality improvement
    - Building an organizational structure to achieve objectives by selecting effective managers and assigning work teams
    - Training all staff;
    - Monitoring implementation and reporting on progress
    - Establishing a reward program, and finally
    - Maintaining the continuity of improvements.
    -

In short, Juran's quality philosophy is to implement a quality improvement program. Quality improvement and management efficiency have been linked to the so-called Juran's Trilogy which consists of good planning, effective quality control, and continuous improvement. He focuses on the fundamental role of management. He also stresses the need to solve problems in a scientific way by collecting the necessary information, identifying the cause of the problem, developing appropriate evaluation methods, and choosing the best solution which is the least negative and the most positive.

Nevertheless, Juran's philosophy faced some criticism. According to Beckford (2002) Juran’s philosophy disregards the contributions of those working for improvement and assumes that the interests of management are the interests of individuals. This means it ignores the objectives of the workers, their security, and their psychological needs. He also stresses that Juran's method of data collection is a traditional method. This means that it does not point out the technological methods that help to improve employee performance but concentrates on the use of statistical methods that most managers may not realize.

3.5.3 Philip Crosby

Crosby began his career as an engineer and is one of the world's top-quality leaders. He was best known in 1979 for his book "Quality is Free", which focused on quality improvement and cost reduction and was one of the bestsellers of the time. He was the first to present the idea "Zero defects industry" and on this basis he urged enterprises to constantly strive to achieve the ultimate goal of quality and zero percentage of errors. In his book "Quality", Beckford (2002) said that Crosby's approach is a combination of his comprehensive professional background in quality, and his strong personality charisma.

3.5.3.1 Crosby's philosophy

According to Crosby (1984), the key to quality improvement is the proper understanding of quality concepts, rather than the development of a complex system. Thus, his philosophy centred on three points, which are ‘quality is free’ ("Quality is free; it's not a gift, but it is free") (Crosby, 1979, p. 1); ‘Prevention’ ("Prevention is not hard to do – it is just hard to sell") (Crosby, 1979, p. 29) and ‘Management’ ("Quality is not a manufacturer problem, it is a management issue") (Crosby, 1989, p. 209).

The use of the word ‘free’ does not mean that applying quality does not need costs, it means cost neutral. This was explained by Bomtaia (2002, pp 2-8) who said, "Quality is free could be a misguiding phrase because when an organization plans to have a TQM programme it could spend in many areas, such as training and developing procedures, and it may require new machinery or new computer software, etc. Applying TQM may not be as free as Crosby suggested in his book." However, it may mean that the quality of the product makes it flawless so that the quality is not expensive, but it is free.

In terms of prevention, TQM prevents mistakes being made from the outset which will consequently reduce losses. This, according to Crosby (1979, p. 29), means that "ZDI is the process of defect prevention and ‘doing the job right the first time." Thus, the application of quality management should start specifically with high level management, and filter through to lower level employees.

Crosby identified four fundamentals of quality management, as shown in Figure 3.5 below: (Crosby, 1979; Crosby, 1989 and Suarez, 1992).

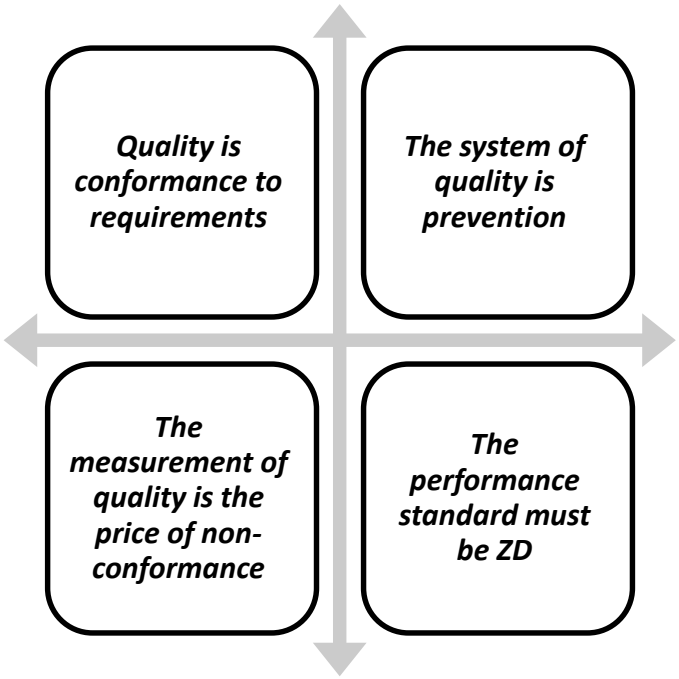

Figure 3.5: Crosby's four fundamentals of quality management (by researcher)

The above fundamentals show that they are all linked to Crosby's zero defects principle. So, the concept of preventing any error from occurring depends on understanding the process that needs to be ‘zero errors’ by focusing on the location of the potential opportunities where errors may occur. In his book "Quality without Tears" Crosby (1984) shows that errors are caused by two factors, namely, lack of knowledge and lack of attention. Lack of attention is an attitudes problem, "attitudes are really what it is all about" (Crosby, 1971, P. 54). A lack of knowledge can be overcome through education, training, and rehabilitation, whereas a lack of attention has to be individually addressed by the person in question. This can either be carried out in isolation, through a careful personal reassessment of ethical values, or collectively, through the creation of friendly relationships with members of the institution. If errors are not prevented, costs will inevitably occur. In other words, there must be management and control for all stages of any work being carried out.

According to Beckford (2002) and Suarez (1992), the cost of quality is divided into two parts, namely, the price of mismatches and the price of conformity. The price for a mismatch is the cost incurred when processes are carried out incorrectly; the price of conformity is the cost associated with the effort needed to correct mistakes. Therefore, the erroneous labour costs, the correction of the product during the manufacturing process, and the re-doing of the work will lead to financial costs for the institution. Moreover, preventing errors requires the continuous transformation of information from person to person, with the common language among the company's management and employees being quality.

Like Deming, Crosby developed 14-points for quality improvement with the purpose of transacting mainly with the application issues, as illustrated in the following table.

Table 3.2: Crosby's 14 Points (Crosby, 1979, pp. 132 - 139)

1. Management commitment
2. Quality improvement team
3. Quality measurement
4. Cost of quality evaluation
5. Quality awareness
6. Corrective action
7. Establish an ad hoc Committee for Zero Defects Programme
8. Supervisor training
9. Zero defects day
10. Goal setting
11. Remove the cause of error
12. Recognition
13. Quality councils
14. Repeat action

Crosby's 14 points can be classified into three themes:

1. ***Theme of planning, support, and decision making***
   This theme is represented under points 1, 2, 3 and 4.

2. ***Theme of education, training, and rehabilitation for all members of the institution***
   This theme is represented in points 5, 8 and 13.

3. ***Theme of implementation, application, and supervision***
   This theme is represented in points 6, 7, 9, 10, 11, 12 and 14.

In summary, Deming, Juran and Crosby are among the most important leaders of TQM who, through their philosophies, have contributed to defining the basic features of quality management and the ways to improve it. These philosophies have had a profound impact on TQM experts who have followed in their footsteps. Although there have been some slight variations made to the structure of their

philosophies, they still complement each other, and agree on the key foundations of quality. This agreement and the similarities all confirm that quality is a continuous process which is necessary to meet the requirements of customers. Furthermore, they have all stressed the importance of senior managers and their commitment to quality which comes before the responsibility being placed with lower level employees.

There must be a positive shift in the culture of institutions towards quality in order for them to prosper in today's global economy. It can be argued that there is no perfect path for the application of quality, however, choosing the most appropriate path depends on the goals of the institution which could entail adopting the principles of multiple philosophies. The next part of this chapter discusses in detail the principles of TQM, and reflects on the philosophies of quality thinkers, led by Deming, Juran and Crosby.

3.6 TQM Principles

As previously identified in this chapter, there is no specific definition of quality and there is no specific definition of TQM; thus, there is no integrated philosophy of quality that is valid for all sectors, all institutions, and all contexts. This also applies to the principles of TQM. Although there are no specific principles agreed upon by quality experts, Deming, Juran, and Crosby, as described in section 3.5 of this chapter, agree on common key elements; namely, top management, customer focus, the relationship between management and employees, processes management, product design, and quality improvement.

Dean and Bowen (1994) and Morrow (1997) state that the primary TQM principles are customer focus, continuous improvement, and teamwork. Abrunhosa and Moura E Sa´ (2008) state that customer focus, people's involvement, and continuous improvement are the main principles of TQM. Furthermore, Arcaro (1995, pp. 29-32) pointed out that the main TQM pillars are customer focus, total involvement, measurement commitment, and continuous improvement.

Seven principles of TQM have been determined in the ISO 2015 version as a framework towards the improved performance of institutions. These principles are customer focus, leadership, engagement of people, process approach, improvement, evidence-based decision making, and relationship management (ISO, 2015a). In light of the above, the TQM principles can be categorized into four key themes, as shown in the figure below.

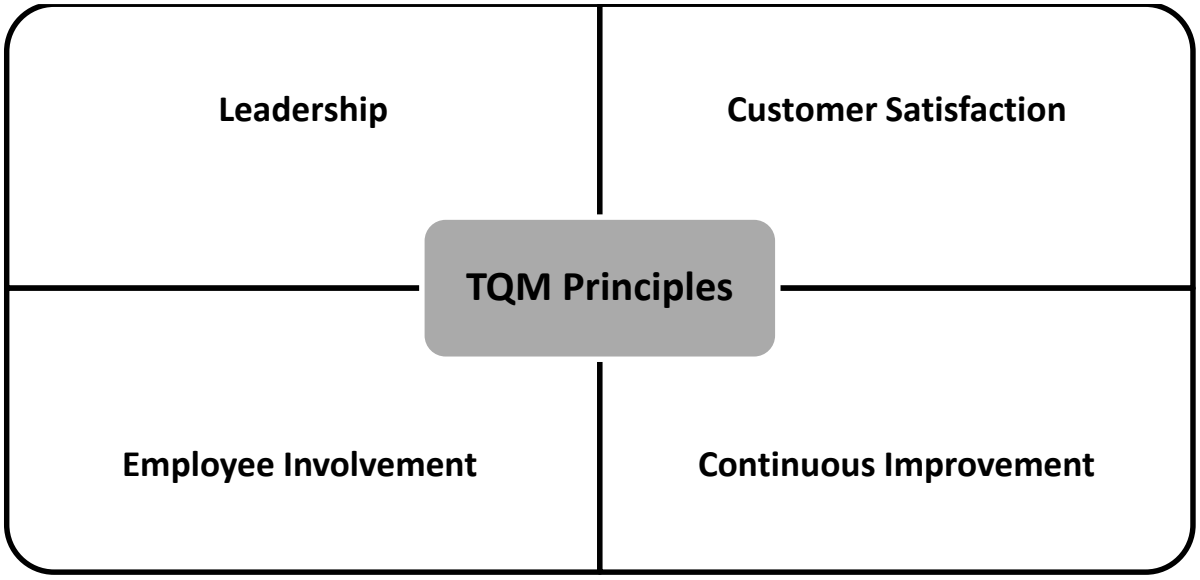

Figure 3.6: The Principles of TQM (by researcher)

3.6.1 Leadership

Leadership theories are essentially related to management theories, and both are closely linked to quality management (Dean and Bowen, 1994). Hence, successful management is always associated with a successful leader. In his book, 'Out of the Crisis', Deming (1986, p. 248) stated "…actually, most of this book is involved with leadership." Therefore, management, and in particular, top management, must recognize the importance of quality. Quality is everyone's responsibility; however, the ultimate responsibility lies with leaders.

It can be argued that leadership is a social structure which has relevance to quality. According to Jabnoun and Al-Jhasyah (2005), leaders play an important role in the application of TQM. There are dimensions where leaders can influence and positively affect the functioning of institutions, namely, intellectual stimulation, charisma, empowerment, contingent reward, and active management. The primary competencies associated with leadership are knowledge, skills, and abilities. For instance, Mateos-Ronco and Mezquida (2018) state that the amount of financial resources that a leadership has is not always a positive variable that it can control. Because the key point is the correct budget distribution that serves the interest of the institution, based on knowledge and skills. Leaders have three roles to play - defining direction, aligning people, and motivating and inspiring people (Al-Jhasyah, 2005). Therefore, excellent leadership skills are not only essential to facilitate formal organizational change, they are also essential for modifying behaviour and changing people's attitudes (Das and Uma

Kumar, 2011). Jaeger and Adair (2016) emphasized that managers should be aware of the cultural values confirmed in the organization because of their influence on TQM practices and performance.

The involvement and commitment of management towards quality should begin at the planning stage and continue throughout the implementation stage right through to the production phase. According to Soltani (2005, p. 463), "…top management commitment is essential for successful TQM implementation." Thus, 'excellence in quality' becomes a part of the work strategy. As such, leaders should pay attention to both external and internal customers, strengthen the communication and cooperation of employees, and provide adequate resources, training, and an appropriate working environment to help them carry out their functions and uphold the principle of commitment to quality. In doing so, this would most certainly have a positive effect on all work stages.

Whenever leadership, especially senior leadership, is characterised by efficiency, it is then able to achieve the objectives of TQM, and consequently has the ability to produce high-quality products. Therefore, the principle of leadership commitment to applying TQM is the first fundamental principle for the successful implementation of these standards (Soltani, 2005; Das and Uma Kumar, 2011). Thus, the DGC leadership should be committed to creating a quality culture in the work environment. In his study, Mosadeghrad (2014) analysed 54 TQM empirical studies in 23 countries, 28 studies were reported in developed countries and 26 in developing countries, from 1980-2010. The most frequently mentioned reasons for TQM implementation failures include deficient leadership, lack of a quality-oriented culture, and lack of a plan for change.

Increased performance is more likely to be achieved when decision-making circles are consistent and in line with planned requirements. Indeed, it is here when the role of leadership has a positive impact on increasing the confidence, awareness, and interest of individuals or groups and encourages them to grow and achieve. As a result, this enables staff to be an integral part of the organisation (Lakshman, 2006; Luria, 2008; Latham, 2014). In short, leadership involves the social relationship between the manager and members of the group.

3.6.2 Customer Satisfaction

TQM, by definition, is a philosophy oriented to meet customer requirements (Deming,1986; Juran, 1992; Crosby,1979). The customer is always right. It is believed that management needs to constantly identify their customers' requirements because their expectations are constantly changing. This

continuous identification is achieved through the constant evaluation of their requirements and to improve the organization's quality systems and implementation practices. According to Abrunhosa and Moura E Sa´ (2008), TQM is essentially an administrative approach that creates an organizational culture aimed at customer satisfaction through continuous improvement. It must be standard practice for managers to ensure that the systems implemented within their organizations ensure that, at the very least, the products and/or services meet the requirements of their customers, but aim to exceed their expectations. Ismail (2012) who was conducted his study in the United Kingdom, and Jordan came up with the that the benefits of TQM implementation are that the staff skills, processes and procedures, and the service provided to customers are sure to improve, which will result in internal efficiency and customer satisfaction and retention, which are extremely important.

Breja, et al. (2016), and Mendes and Jesus (2016), explained that TQM implementation results in improvement in work processes and in propelling organisations to higher performance levels. They suggest that TQM-based quality improvement programmes are good options for public organisations wishing to enhance organisational commitment. Also, public institutions wishing to embark in a TQM-based strategy will be able to raise employee commitment and satisfaction. In addition, it is also important for public organisations to improve employees' perceptions of TQM-based human resources management practices through training and development opportunities, teamwork, and motivation-based initiatives, and thus meet their expectations. Moreover, TQM practices have a positive effect on service quality, and service quality has a positive effect on customer engagement and customer loyalty, and customer engagement also has a positive effect on customer loyalty (Harimurti and Suryani, 2019).

3.6.3 Employee Involvement

People are the most important assets of any institution. Quality always comes from the people, via thinking, planning, implementing, and operating, with the primary aim of meeting the requirements of the beneficiaries. The goal of quality is achieved through the partnerships between management and employees, and their agreement regarding the implementation of the requirements of this objective. This partnership provides all employees with the broad space needed for innovation and responsibility in decision making (Dale et.al, 2016). According to Wibowo and Sukmawati (2018) teamwork consisting of a leadership team and staff team is considered good because team members develop favourable team behaviour and work collaboratively, both in making and implementing plans. This can only be achieved through the sustainability of education and training to acquire the knowledge and skills that enable them to participate actively.

On the other hand, this partnership is also represented by the development of incentive plans and programmes for employees, which create an atmosphere of interaction and cooperation. For example, the development of specific and measurable standards that reward and encourage employees, and the development of a managerial and financial management structure which gives them the opportunity for career and financial progression. All of this is likely to have a positive impact on the quality goals of the institution being achieved. Blankstein (1999) emphasised that if TQM fails to achieve quality, this may be due to the fact the employees are unable to participate in making appropriate decisions at the right time to achieve quality in the outputs sought by the institution.

Here lies the importance of the quality of human capital and social capital for the innovation of institutions to achieve TQM. The key components of human capital include knowledge, professional skills, expertise, educational background, and ethics. High-quality human capital leads to excellent innovative capabilities (Tseng et al., 2014). In contrast, social capital is an essential complement to human capital in achieving TQM.

According to Hammer et al. (2013), a quality management system is basically a philosophy consisting of a set of interactive activities, methods and procedures used to monitor and improve the quality of work, that are fundamentally dependent on the ability of employees to translate policies and procedures into reality by collective management. In other words, the quantity and quality of interpersonal relationships both within and outside the institution, known as social capital, is a fundamental measure of the success of TQM implementation. The cohesion of members within the group creates a cohesive environment, thus facilitating the achievement of the objectives of the group effectively and efficiently. In his study, Alruwaili (2012) found that negative workplace relations presented a challenge to the success of the TQM initiatives, which generate an unhealthy working climate, a tangible conflict, and sometimes, disturbing competition. Furthermore, Valmohammadi and Roshanzamir (2015) found that a lack of employee involvement, followed by a lack of resources, are the most important obstacles of TQM.

3.6.4 Continuous Improvement

Continuous and comprehensive improvement within an organization to achieve quality includes customer focus, process understanding, and quality commitment (Stone, 1997, and Dale et.al, 2016). According to Fisher and Harricks (1993, p. 346) "TQM is the management philosophy that seeks continuous improvement in the quality of part or all the processes, products, and services of an

organization." Continuous improvement requires an environment that continually encourages institution members to innovate, reduces fear of failure by providing the tools that enable them to do this, and creates the possibilities that make the organization adhere to quality standards. In other words, improvement comes from looking for alternatives that cause the product or service to exceed the expectations of the customers, with the implementation of procedures based on training and appropriate qualification, and continues to measure and evaluate the stages of work towards achieving the aim of quality.

These principles are not separate but are in fact principles that are interdependent and integrated with each other. Moreover, they are also linked to detailed procedures and standards; for example, through the above presentation, leadership is linked to the management of employees, and the need to meet the requirements of customers through continuous improvement. In this sense, these principles could be integrated as a circle.

The next chapter discusses in detail how to employ these principles in order to achieve quality in the education sector. The final part of this chapter reviews two examples of TQM models, namely ISO 9001 and the European Foundation of Quality Management (EFQM).

3.7 TQM Models

It can be argued that the key principles and philosophies of TQM have been clarified by TQM thinkers globally and have subsequently been applied successfully in many private and government institutions, as well as in various industrial and service sectors. As a result, many international quality awards and models have appeared in the present age, such as ISO 9001 and EFQM. There are two reasons for the focus on these two models in the current study; firstly, they are widely applied in Europe, America, and the Middle East and secondly, the Ministry of Education in Oman desires to apply ISO 9001 in the DGC, as mentioned in Chapter Two of this study.

3.7.1 ISO 9001 and ISO 21001: 2018

According to ISO (2016, p. 3), "ISO 9001 is an International Standard that gives requirements for an organization's quality management system. It is part of a family of standards published by the International Organization for Standardization (ISO) and is often referred to collectively as the 'ISO 9000 series' or the 'ISO 9000 family'." ISO 9001 delivers a set of standards that an organization needs

to meet in order to achieve customer expectations. The TQM model ISO 9001, 2015, is based on seven principles, as follows: (ISO, 2015a; ISO, 2015b)

- customer focus;
- leadership;
- engagement of people;
- process approach;
- improvement;
- evidence-based decision making; and
- relationship management.

The ISO 9001 was revised in 2015 in order to make it more relevant and responsive to the needs of enterprises in today's climate. This model is based on an administrative framework and encompasses all the major new management system standards (clauses) as shown in Figure 3.7. This helps to maintain consistency, harmonize the different management system standards, match sub-items with core items, and create interconnectivity between all standards (ASQ, 2017; ISO, 2016; ISO, 2014). These standards are implemented under the umbrella of the cycle Plan-Do-Check-Act (PDCA) which is the operating principle of ISO 9001. This model is applied to all of the processes and the quality management system as a whole (ISO, 2015c). The following diagram shows how standards (clauses) 4 to 10 of ISO 9001 can be grouped in relation to PDCA.

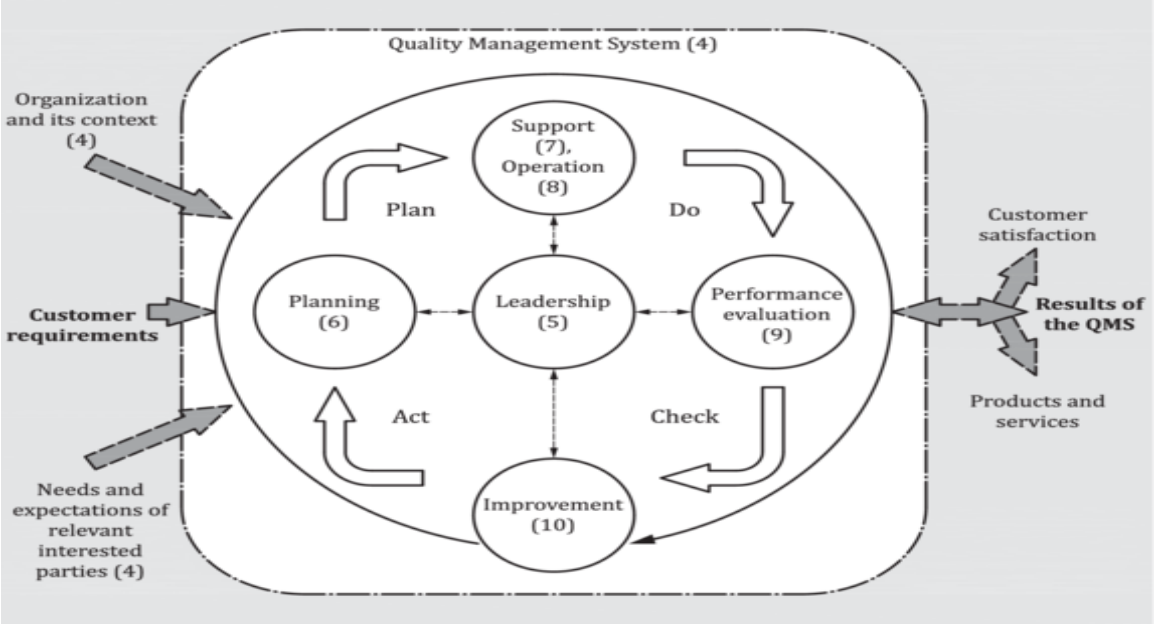

Figure 3.7: Relationship between the international standard and PDCA cycle in ISO 9001 (ISO, 2015c, p. viii)

In 2018, the International Organization for Standardization (ISO) issued the new standards document for educational institutions known as the ISO 21001: 2018. "It is a document that provides a common management tool for organizations providing educational products and services capable of meeting learners' and other beneficiaries' requirements" (ISO, 2018, P Vi). According to ISO (2018, P Vi), the benefits of ISO 21001 are “better alignment of objectives and activities with policy, enhanced social responsibility by providing inclusive and equitable quality education for all, more personalized learning and effective response to all learners and particularly to learners with special education needs, distance learners and lifelong learning opportunities, consistent processes and evaluation tools to demonstrate and increase effectiveness and efficiency, increased credibility of the organization, a means that enables educational organizations to demonstrate their commitment to effective educational management practices, a culture for organizational improvement, harmonization of regional, national, open, proprietary, and other standards within an international framework, widened participation of interested parties and stimulation of excellence and innovation.”

The ISO 21001 document is "a stand-alone management system standard, aligned with ISO 9001. It focuses on the management systems of educational organizations as well as the impact of these on learners and other relevant interested parties" (ISO, 2018, P Vi). The principles of ISO 21001 are similar to the principles of ISO 9001, except there are four more principles known as social responsibility, accessibility and equity, ethical conduct in education, and data security and protection (ISO, 2018, p.vii). However, ISO practices may not necessarily drive performance improvements if there is a lack of awareness of TQM and commitment to continuous improvement philosophy, and the concern is more focused on obtaining the ISO certificate than with quality improvement (Oliveira et al., 2019).

3.7.2 EFQM

According EFQM (2011), the European Foundation for Quality Management (EFQM) is a global not-for-profit work foundation based in Brussels, Belgium. The EFQM Excellence Model is a framework which is designed to enable organizations to understand and manage their businesses in a way which ensures they meet customer requirements; indeed, this model has been used by business and services organizations as a model for the implementation of TQM (EFQM, 2011). The EFQM Excellence Model is based on 9 key criteria, as shown in Figure 3.8 below.

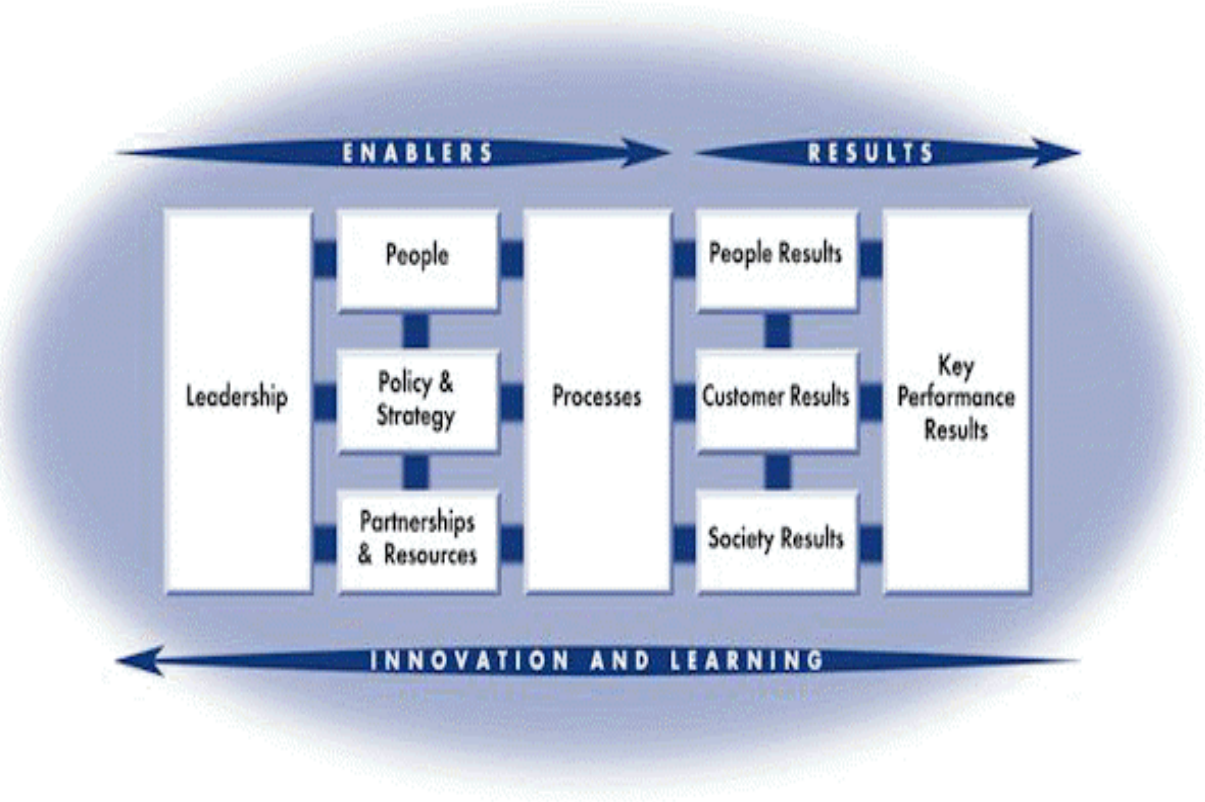

Figure 3.8: Key Criteria of EFQM (EFQM, 2017, p. 4)

As shown in Figure 3.8, five of the criteria are the enablers, and four of the criteria are the results. The enablers' criteria are associated with the actions implemented by an initiation, while the results criteria cover what an organization should achieve. There is a feedback system for all criteria - this helps with the initiation process and helps organizations to improve and develop their performance to obtain a good product and meet the requirements of their customers (Joaquín, et al., 2017; Joaquín, et al., 2015). Additionally, the ISO9001 EFQM includes a cycle to manage and monitor the application of the criteria named 'RADAR' which is based on: Results, Approach, Deploy, Assess and Review (EQQM, 1999).

Through the two models above, it is noted that the philosophy of the ISO 9001 and EFQM are based on the principles of TQM, which is based predominantly on the philosophies of Deming, Crosby, and Juran. Both of these models also use the same Deming Quality Cycle (PDCA) to manage and monitor quality processes within an organization. Furthermore, quality is the primary driving objective for both models; firstly, to improve the image of the organization, and secondly to enhance customer satisfaction through the effective application of the standards, procedures, and requirements of the model related

to system improvement and efficiency and internal control, including processes to improve customer requirements.

However, the reputation of ISO 9001 is more widespread than EFQM, hence, it is more commonly utilised and implemented by organizations, institutions, and also by customers. In terms of practical application, the ISO 9001 evaluation focuses on the strategic plans of the institutions, starting from the development of their current reality, whereas the EFQM assessment focuses on developing the reality of the current institution only by linking the causes and results achieved. However, it is widely considered that the standards and procedures of the ISO 9001 model are more bureaucratic than the EFQM model, as many managers and leaders of the institutions using this approach believe that due to the complexity of their work, to a large extent, this takes a long time and requires much effort to reach calibration. This may be due to the lack of awareness of these managers and leaders, or perhaps refers to their unwillingness to change. Conversely, with the EFQM model, the application of its standards are easier although it has high financial costs for its application (Stassen, n.d; Saizarbitoria et al., 2010)., Thus, the main difference is in the implementation approach.

It is generally the case that institutions, whether industrial or service, will apply the model that best fits with their structure and system. In other words, in spite of the many TQM models and awards, each model has its own unique set of characteristics which opens up the competition between the institutions, requiring them to choose the most appropriate model.

3.8 Conclusion

In the context of the debate on TQM, ‘quality’ relates to the perspective of the beneficiary; there is no global definition of quality and TQM. These definitions depend on the aim and type of the organizations. TQM has evolved to the philosophy of management from conformity to focus on performance and continuous improvement through three stages, namely, inspection, quality control, quality assurance and the TQM. In terms of TQM thinkers, Deming, Juran and Crosby are among the most influential and, through their philosophies, have all had an impact on TQM experts who have followed in their footsteps. Their philosophies complement each other, and they agree on the main foundations of quality, which are reflected in the TQM principles and models in the present era. These principles are the pillars for building the instruments of the present study. The next chapter discusses the various aspects of the application of TQM in the education sector.

Chapter Four: Total Quality Management in Education (TQME)

4.1 Introduction

The service sector is one of the most active sectors of life in the socioeconomic context; where service industries are characterized by their diversity and expansion to touch all aspects of the daily life of contemporary societies. This has led many service organizations to adopt total quality management (TQM) principles in order to solve both the administrative and technical problems that they encounter (Subrahmanyam, 2017).

Zeithaml et al. (2006) classified services into four sectors; namely, the service industries, derived services such as hotels and restaurants services, intangible products, and customer service. According to Shahin (2006), services are a series of activities of a tangible or intangible nature. Al-Shammri (1997) explained that the intangible aspect of the service cannot be assessed by the consumer before it occurs, therefore, the reputation of an institution is often used to judge the quality of its services. This reputation can only be achieved through the adoption of programmes and strategies that maintain the quality of the service provided, such as TQM. Although the roots of TQM have grown in manufacturing, based on the theories of its pioneers its concepts and practices have become applicable to the service sector.

According to Shahin (2006), service quality is an activity, or a group of activities, while Grönroos (2006) defines service quality as the result of an assessment process where the customer can compare their expectations with the level of service provided. Through defining the meaning of service quality, Namukasa (2013, p.522) concluded that "most definitions of service quality depend on the context used and therefore focus on meeting the customer's need and requirements, and how well the service delivered matches the customers' expectations of it." For instance, the definition of service quality in the banking sector is different than the quality of services in the educational sector.

Looking at the previous definitions, one can notice that quality in services, as with the quality in the manufacturing sector, concentrates on customer requirement and expectation. Thus, this represents the basis of the competition among a variety of public and private sectors, including both profit and non-profit organizations (Santouridis et al., 2012; Taylor and Wilson, 1996). One of the most important service sectors is the education sector, and therefore, the quality of education in both higher education

and school education is one of the most important aspects of human resource development in creating the knowledge and social strength of any country.

Education systems may play a crucial role in delivering a high standard of education and have been a positive factor in the economic and cultural reconstruction and development of nations for many years. This chapter discusses Total Quality Management in Education (TQME). The first part outlines a brief introduction to TQME, highlighting the definitions of quality and TQM in the context of education. The second part discusses TQM in School Education (TQMSE). The third part explains some of the benefits of TQME, followed by a discussion of the TQM principles in Education. A review of the previous quality and TQM studies carried out in the education sector in the Sultanate of Oman then follows. The chapter finally concludes with a brief description of the mechanism of applying TQM in school education.

4.2 TQM in the Education Sector

The increased interest in the efficient use of resources, as well as the successful operation of the systems and practices utilised in institutions, and in ensuring that equal opportunities were made available for all students, led to a level of concern with the issue of quality and efficiency in education (Salih, 2008). In recent years, many publications have appeared on the application of TQME. The electronic literature on the TQME sector has acquired a large number of discussion papers, reports, and lists of TQM education institutions (Vazzana et al., 2000). According to Paine et al. (1992), TQM can have a great contribution in education, where education is seen as an industry that is not different to, or isolated from, other industries. Therefore, this leads to the concept of TQME beginning in higher education institutions. As observed in the preparation of the present study, this indicates that most scientific studies relating to the quality of education are concentrated in the higher education sector rather than in the school education sector, such as Bonstingm (1992), Cyert (1993), Lewis and Smith (1997), Winn and Green (1998), Cruickshank (2003) and Nadim and Al-Hinai (2016).

According to Winn and Green (1998), TQM as a concept for education originated in 1990 when Oregon State University adopted the quality management philosophy and subsequently experienced great success in improving its administrative academic processes. Since then, TQM has been presented as a solution to make higher education relevant to society and to meet its needs (Cyert, 1993). Generally speaking, whatever applies to higher education automatically applies to school education from an administrative and teaching perspective. Moreover, although there is a difference in some of the finer details for each of these sectors, despite this, student education is the main product of both sectors.

Unlike other services, education services are long-term, continuous, and cumulative and cannot be measured as a whole system in a short time.

According to Bonstingm (1992), Magdi (2004), Zwain et al. (2014), Al-Lawati (2015) and Al-Masroori (2015) TQM is still very much in demand; educational institutions are challenged with how they can improve their outputs so that these outputs are able to deal with contemporary variables. The fact that their application leads to the development of quality in educational institutions, which is in line with the latest educational and administrative developments, they also need to maintain the pace with developments whilst continually seeking to achieve excellence in all processes carried out by the educational institutions.

Anastasia and Maria's paper (2017, p.132) reviewed and presented a summary of 52 studies from 2006 to 2016 in quality management within higher education institutes. The aim of this paper was to submit evidence regarding the level of quality management in higher education institutes, particularly in developing countries, and to enhance the research in the field of quality management. The findings reveal that infrastructure limitations focused on human and financial capital, limited involvement of stakeholders and measurement of a complex range of performance indicators are barriers which affect the application of quality management. Therefore, quality must be seen as a part of the whole educational process. Thus, in the contexts of this debate, it can be argued that TQM and educational reform are two sides of a single coin. In another sense, 'quality' is the heart of education (UNESCO, 1998).

4.2.1 Definitions of Quality and TQM in Education

According to Sreenivas et al. (2014) and Adams (1993) the concept of quality in education is a complex concept which is multi-dimensional with a variety of processes. Often, the terms 'efficiency' and 'excellence' are used to express the quality of education. In the International Working Group on Education in Italy (2000), UNICEF defined that quality in education includes learners who are healthy, environments that are healthy and safe, content that is reflected in relevant curricula and materials for the acquisition of basic skills, processes and outcomes that encompass knowledge, skills, and attitudes and are linked to national goals for education.

In contrast, Al-Rasheed (1995) linked quality in education to the attributes, activities, and processes that affect the teaching system, which show the quality of the results to be achieved by translating the

needs and expectations of students and society. Hoy et al. (2000, p. 10) partly defined quality in education as an "evaluation of the process of educating, which enhances the need to achieve and develop the talents of the customers of the process and, at the same time, meets the accountability standards set by clients who pay for the process or the outputs from the process of educating."

From the previous definitions, it can be summarised that quality in education is a set of principles and standards adopted by educational institutions to enhance their performance and improve outputs. This is achieved through improving the work of the educational administration departments and reforming the curricula to improve teaching strategies, all of which will be positively reflected on both the students and society as a whole.

In principle, although the characteristics of TQM are similar in the productive and service sectors, these characteristics may differ somewhat in the educational system given the specificity of this service and its association with the social, economic, and cultural factors of society. However, looking at the definitions put forward by TQM, the TQM definitions and the TQME definitions are fundamentally similar, with some variation applying to some aspects of the education sector. The literature related to the TQME definitions some of these definitions are described as either strategy (Rhodes, 1992); system (Lewis and Smith, 1997); efforts (Al-Zawawi, 2003); or philosophy (Karusner, 2004; Al Emrani et al, 2011).

According to Rhodes (1992), TQME is a strategic management process based on a set of values. The energy of its movement is derived from the information in which it can employ the talents of employees and invest their intellectual abilities in various levels of educational organizations in a creative way to achieve the continuous improvement of the organization. Lewis and Smith (1997) interpreted TQME as a cooperative system in which schools agree to engage and participate in providing the needs and requirements of the education process to achieve the quality of outcomes in the educational system.

In his definition, Al-Zawawi (2003) refers to TQME as the total efforts exerted by educational staff to raise the level of the educational product (student), commensurate with the requirements of the community, and the necessities of these efforts to apply a set of educational standards and specifications. In contrast, Karusner (2004) and Al Emrani et al (2011) state that TQME is a philosophy that focuses attention on the management functions that are reflected in the learning which students are able to achieve educational excellence.

From the previous examples it can be argued that the definitions of TQME differ ostensibly in the way that they are described, although they do agree in content. So, TQME is a management process which is designed to achieve the aims of the educational organization in a number of areas. This includes having the capability to fulfil all its functions and activities to a high standard, increasing the level of satisfaction felt by society and improving the output levels of the institution both locally and globally.

4.2.2 Total Quality Management in School Education (TQMSE)

It is necessary to highlight the application of TQMSE and outline the importance of the role of each individual in the school, in particular, as well as the educational institution supervising it; for example, the Ministry of Education. Moreover, it is imperative to consider the quality of output, as this is the responsibility of everyone, from the lowest to the highest level, in any organization (Zamel, 2006).

The use of TQMSE is surrounded by a range of issues, the most important of which is, perhaps, the presence of a group either within or outside the institution which is characterized by their unwillingness or inability to accept change. According to Motwani and Kumar (1997) and Johnston (1999), in educational institutions there is a strong expectation of resistance to change and the need to maintain the current status. This resistance arises for many those linked to an individual's view of their job position, those linked to the working bureaucracy of the institution and some issues may also arise due to how the institution is linked to the community.

The period of resistance can be short or long due to the factors surrounding the system of change, and this is known as the transition from the existing system to the new system. In order to implement the overall quality of educational institutions, Al-Ruwaili (2012) stressed that the culture of change must be directed towards collective awareness and collective action instead of the independent role. Rampa (2004); Widrick et al. (2002) and Sulaiman et al. (2013) emphasized that the changing culture in educational institutions is a change of behaviour and ideas relating to values and beliefs before changing plans, structures, and processes. Therefore, prior to its implementation in schools, TQMSE should be preceded by the preparation of media awareness and incorporate systematic and planned training. In other words, it is assumed that there is a comprehensive strategy for all stages of preparation and implementation, and in particular that the quality of school education is linked to various elements that are interrelated.

These elements were summarized by Nawelwa et al. (2015) in terms of quality educational management, curriculum quality, teacher quality, teaching methods quality, quality of facilities, performance evaluation quality, and finally, student quality. It can be noted that the quality of educational management comes at the top of the pyramid because it may be that the management and the educational leaders have a positive or negative impact on the rest of the elements which relate to the student. Therefore, the current study investigates the application of the TQM principles that relate to the first element - educational management quality, that link to the second element - quality of curriculum development, and evaluation in the DGC in the MoE in the Sultanate of Oman. This is covered in detail in the next chapter.

In short, to ensure the success of the implementation of TQMSE, educational leaders must look at changing the environment of the educational institution and, in the first instance, positively influence the attitudes and convictions of the community in general and staff in particular, in respect of these necessary changes. To this end, education leaders must take into account that in order to be effective, the successful implementation of all changes will require the effort, patience, and dedication of all involved. In addition, the positive outcomes for education and for the individual student will not be seen instantaneous, but must be observed over a longer period of time.

The application of TQMSE is a further important facet that is linked to complex administrative and technical elements that cannot be separated or treated as a single system. From this perspective it can be argued that the quality of education has become important in a competitive environment. There is certainly a need to adopt a change in the administrative and educational processes in order to improve the quality of education. Therefore, in such a complex system as education, the process of satisfying the diverse needs of clients can be a major issue.

4.2.3 Benefits of TQM for Education

It can be argued that education is considered to be a globally competitive change tool, hence, TQM can be a sensible approach to educational development. According to Pourrajab et al. (2015), TQM is a tool for teaching teachers and principals what students need to learn and how they learn. He also points out that the implementation of TQM in educational institutions will minimize errors with clear systems and procedures, and that a good team works through careful and thoughtful planning. Mazen (2002) states that TQM can benefit those who are interested in the issues of improving educational

work, and decision makers, in terms of its objectives, processes, outputs, and developing the management of education in accordance with the requirements of the age.

Similarly, Herman and Herman (1995) indicate that quality in education should reach all of the institution's processes. The aim is to be able to develop an education service that will result in the delivery of those high-quality services in a manner that will create maximum society satisfaction. Thus, the objective of TQME is to establish continuous improvement mechanisms for all of the processes of the education system in order to improve their performance (Cowles and Gilbreath; 1993; Cruz et al. 2016). It is also necessary to build a holistic framework which links TQM with organisational performance in educational institutions (Nasim et al., 2020).

For this purpose, Moore (1993); Manley and Manley (1996), and Quong & Walker (1999) summarised the benefits of applying Total Quality in an educational institution as follows:

- improving the educational process and its outputs on an ongoing basis;
- developing the leadership and administrative skills of the educational institution;
- controlling and developing the educational administrative systems;
- developing the skills, knowledge, and attitudes of employees in the educational field;
- improving the level of students in the physical, mental, social, and psychological aspects;
- focusing on developing processes rather than defining responsibilities;
- providing tools, standards, and indicators to measure performance;
- providing optimal use of physical and human resources available;
- providing an atmosphere of understanding, cooperation, and sound human relations among all employees of the educational institution; and
- giving satisfaction to beneficiaries (students, parents, employees, community, and labour market).

In the context of this debate, TQME might help education to provide a greater value for all stakeholders, provide better quality provision, and continue seeking innovation and improvement. However, this requires patience so the most important point in the application of TQME is the commitment of all the parties involved. It cannot and will not be successful if it is viewed as a plan for a single school year. The next part of the chapter will discuss the TQM principles in Education.

4.3 TQM Principles in Education

It is generally agreed that the application of TQM principles is a positive step in many countries which are seeking global competitive advantages in many areas, as well as in education. The principles of TQM in the education sector, as reviewed earlier in this chapter, are used to improve the processes, outcomes, and services of the educational institutions in order to achieve the objectives set, and meet international standards with a high level of quality, obtaining stakeholder satisfaction. According to Nawelwa (2015), the principles of TQM can be applied to various aspects and levels of the education sector. Thus, the following section attempts to explain the application of TQM principles in the field of education.

4.3.1 Leadership

The growing literature on TQM stresses the importance of educational leadership for organisational performance. In this sense, quality is seen as a leadership responsibility and so TQM principles are seen as being the principles of leadership. There is a belief that high quality leadership can make a positive impact on school and student outcomes; furthermore, educational institutions need effective leaders in order to enhance the quality of education (Ali, 2013; Lakshman, 2006; Arcaro, 1995). In terms of the importance of school leaders, especially from the perspective of the continuous improvement, Huber and Muijs (2010) emphasized that the principals of effective schools are strong leaders. In other words, schools classified as successful possess a competent and sound school leadership. The impact of educational leadership is therefore one of the clearest messages of school effectiveness. According to Deming (1986), the behaviours associated with TQM are in themselves appropriate leadership behaviours. In other words, leadership is the backbone of TQM (Oakland, 2011).

Therefore, one of the important challenges facing the application of TQM, which can lead to the failure of many TQM initiatives in educational institutions is the lack of leadership support and a willingness to apply the commitment necessary for its success (Lakshman, 2006; American Society for Quality, 2013). Al Mudiars and Al Husain (2008) refer to the obstacle of fear of change, it may be the case that fear of carrying out non-traditional work that differs from their regular job role, which might contribute to the failure of TQM application in education.

So, changing the culture of an organisation to create sustainable continuous improvement to reach quality will come about only as the result of responsibility and a commitment of leadership through careful planning and management (Dahlgaard-Park, 2015; Oakland, 2011). Fullan (2002) highlights the importance of leadership that seeks to bring about change in an organisation by building shared values with staff, building effective relationships between and across staff groups, and looking for ways in which staff can work together. According to Leithwood et al. (2008), there are several aspects of leadership which are pertinent within the organisation, in that they: set direction, building relationships and developing people, developing the organisation to support collaborative practices, and improving the instructional programme. All of these aspects are directly associated with the DGC work in the MoE in Oman.

It can be argued that educational leadership is the key element of success that affects the rest of the elements of the educational organization. This starts from the senior leadership that plans the strategy of the educational institution through to middle leadership and incorporates access to the school's leadership which directly implements the strategies developed. In other words, educational leadership should be integrated at all levels. According to GTC Scotland (2012, p 5), leadership is central to educational quality and the ability to develop a vision for change, which leads to improvements in outcomes for learners, and is based on shared values and robust evaluation of evidence of current practice and outcomes. In other words, leadership should mobilise, enable and support others to develop and follow through on strategies for achieving development and improvement. Management is the operational implementation and maintenance of the practices and systems required to achieve this development. Thus, the best return on investment is to raise the quality and sustainability of education through the factors that make a difference in the education system, such as quality of leadership (Paratha, 2020).

Rago (1996) states that if the educational leaders are unable to change the attitudes and behaviours of the organization’s members towards the application of TQM, it is unlikely that there will be an opportunity for useful cultural change in the organization. In other words, educational leaders need to realise the change process in order to lead their educational staff and manage the change and development efforts effectively (Fullan, 1995). This means that leaders in educational organisations should define the desired and intended outcomes of the changes and developments proposed. Assaf et al (2013) and The Baldrige National Quality Program (2015) emphasized that education leaders are the critical factor to achieving quality through their effective participation in the development of strategies and plans. Consequently, the efforts of educational leaders in the improvement and

motivation of an organisation's members and processes plays a great role in reaching excellence, and thus, achieving its customers' requirements.

School management particularly needs to create an environment, and student-oriented learning programmes, that focus on learning by taking advantage of the available physical and human resource elements (Blankstein, 1999). In other words, school leadership should strengthen their commitment to developing a culture of quality in their performance and partnerships within the community which will reflect effectively and positively in the performance of teachers, learners, and parents alike.

Unfortunately, however, there are some leaders who are afraid of the participation of society for fear of losing control on any aspect of the management and functionality of the school because they believe that this may hinder their performance. Therefore, the role of school leaders should be shifted from inspection to supervision, and such supervisory practices should assist faculty members to adopt appropriate new models of quality assurance (Farooq et al., 2007). This is also confirmed by Rampa (2004) who stated that the leadership of TQM in educational institutions should establish a trust relationship with all employees in order to reach the commitment stage to continuous improvement.

In short, educational leadership, as a fundamental principle of TQM, can impact positively or negatively on the application of the rest of the TQM principles.

4.3.2 Customer Satisfaction

The concept of customer satisfaction first appeared in the economic sector. Moreover, it can be argued that measuring customer satisfaction is a valuable and important method of evaluating the quality of a product or service. When applied to the education sector, however, the question of how to define the customer arises. Thus, is the customer a consumer, a client, or a beneficiary?

According to Abdullah (2006), the definition of customer in the education sector is very different to the manufacturing industry or other general services, because the students, employers, academic staff and families all have diverse requirements. Scrabec (2000) confirmed that the best concept to use in the education sector is 'beneficiary' rather than 'customer'. Thus, for the purpose of this debate, the term 'beneficiary' will be used to describe the customer.

Cruickshank (2003) asks who the beneficiary is in education. Newby (1999) believes that the student is the direct beneficiary of the education field, and that educational institutions, teachers, and other

employees are the indirect beneficiaries. In the same way, Victor and Wadhwa (2016) point out that the students, parents, teachers, community, and employers are the beneficiaries whose viewpoints reflect the quality of education within organizations. In this sense, it could be that there are two beneficiaries, namely, internal beneficiaries and external beneficiaries.

According to Salih (2008) and Mădălina Militarua et al. (2012), educational beneficiaries can be classified as either internal or external. Internal beneficiaries include students, teachers, and staff and external beneficiaries are parents, governments, and society as a whole, each having a different set of specific requirements and expectations that the institution must consider. Pourrajab et al., (2011) state that the external and internal beneficiaries are the focus of TQM systems in the field of education. The external beneficiaries are the pupils or individuals who have benefitted from the education that they have received, while the internal beneficiaries are the educational staff who provide and fulfil the requirements of both pupils and society within educational institutions.

To achieve quality, Silvestri et al. (2017) stressed that beneficiary satisfaction must be considered as one of the most important principles of TQM. This requires the building of close relationships with all educational sectors that can affect the ability to meet the needs of internal and external beneficiaries. Meeting the requirements of educational beneficiaries is not an easy matter; it is a complex process, the most difficult aspect of which is the ability of the educational institution to continue to maintain and deliver the required standards in order to ensure the quality of services provided to these beneficiaries.

Therefore, it is important to emphasize that the context of this study focuses on the internal beneficiary only, because it aims to explore the extent of the application of TQM in the Directorate General of Curriculum (DGC).

4.3.3 Employee Involvement

A key principle of TQM is employee involvement at all levels. Therefore, the participation of all members of the institution is necessary to achieve its roles and objectives. As such, the educational institutions are tasked with completing complex jobs and dealing with a variety of beneficiaries. Furthermore, quality of their outcomes must be of a high standard because this will have consequences for the wider society. This participation can be reduced to two main components: participation in decision making, and participation in training and qualification. According to the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG), stakeholders are

understood to cover all actors within an institution, including students and staff, as well as external stakeholders, such as employers and external partners of an institution. Involvement of stakeholders in quality assurance is part of the four principles for quality assurance, specifically: quality assurance considers the needs and expectations of students, all other stakeholders, and society (EURASHE, 2015).

Nadim et al. (2016) state that in order to achieve a quality culture in an educational institution, employees must be involved at every stage with regard to their work environment, administrative and technical practices, and their outcomes. Moreover, this participation emphasizes the collective work and relationships between different jobs that provide many opportunities for interaction in the work environment and for social reinforcement. Zabadi (2013) adds that the educational institution is supposed to provide a broad space for the participation of all staff to implement TQM in the education sector in a sustainable manner by giving them the opportunity to maximize their potential and to create functional awareness and belief in their importance in raising the efficiency and effectiveness of the organization. Furthermore, it must pay attention to encouraging the education sector to involve all stakeholders as active partners in self-evaluation and improvement activities (Maxwell, 2020). Thus, in order to reach a 'zero defects' stage, the educational administration should be aware that everyone has the skills to do the right things, and this awareness must be communicated to each member of the team (Farooq et al, 2007), because one of the benefits of education stakeholder involvement is to create the feeling of collective ownership for the quality of education (Homa et al., 2020).

However, it is not a simple task to involve employees. Venkatraman (2007) emphasized that involvement and engaging employees in various aspects of work is essential for educational institutions that have transactions with a variety of beneficiaries, but this requires special training in order to achieve the goals that will build an atmosphere conducive to excellence in performance, full participation, and organizational growth. Therefore, if TQM fails to achieve quality, this may be due to the fact the employees do not possess the necessary qualifications, and thus, are unable to participate in making appropriate decisions at the right time to achieve quality in the outputs sought by the institution (Blankstein, 1999).

In short, the involvement of all levels of the function within the educational institution as a key principle of TQM that leads to the satisfaction of the members of the institution in all respects, enabling them to provide high quality services without delay. This leads to the satisfaction of the beneficiaries. In other

words, it will reflect positively on teachers, and thus will have short-term and long-term positive effects on students and society.

4.3.4 Continuous Improvement

Continuous improvement is an important principle of the philosophy of TQM, therefore, the continuous improvement of work processes within the educational institution confirms this philosophy. Thus, the continuation of improvement begins with continuation and commitment in the development of educational leadership and the participation of employees to achieve the satisfaction of beneficiaries.

According to Pourrajab et al (2011), the continuous-improvement approach requires educators to meet and agree on a strategy in order to achieve the required level of excellence and efficiency in all processes. This will lead to the achievement of the specified outcomes in quality and thus, achieve the objectives set. Therefore, the TQM principles will guide and support the processes of educational institutions and thereby assist them to improve their performance (Zwain et al., 2014). Continuous improvement must be an integral part of the school process in particular, and the educational system in general. This approach should seek to involve students, society, and all members of this system as full participants and contributors to the improvement of processes through their strong commitment to educational management and leadership for continued improvement (Pineda, 2013).

In short, the change in the typical institutional culture and the continuity of its development is the basis for the successful implementation of TQM. This change is primarily the role of the senior leadership with the participation of all staff to be ready for continuous improvement. In the Omani context, in their working paper, Yarahmadi and Magd (2016) summarized the major obstacles in the successful implementation of TQM in higher education institutions in Oman, including lack of management commitment, poor vision, government influence, lack of highly qualified professionals, lack of knowledge about the self-assessment mechanisms, resistance of institutional assessment/change, poor co-ordination between employees and departments, lack of interest in training, expectation of immediate results, instability of leaders and departments, rigid organizational structures, lack of clarity about role and responsibilities, and lack of employees' commitment.

Another important facet, the continuous commitment to the application of the principles of total quality is the key to the continuity of the application of this philosophy and its success in the educational institution. In contrast, there is also integration between quality in the management of curriculum

development and evaluation, the topic of the current study, and the quality of curriculum content. Therefore, reaching a zero defects stage in the curriculum content is closely linked to quality in management and processes. The next part of the chapter is a review of the previous studies of TQM in the Omani school education context.

4.4 Previous Studies of TQM in Omani School Education Context

In order to identify the issues, objectives, methodologies, tools, target groups, places of application, and comparison with the current study, a number of previous studies on TQM have been reviewed in the Omani context. These studies vary between Doctorates and Master's degrees, as shown in Table 4.1 below.

Table 4.1: Previous Studies of TQM in the Omani School Education Context

Researcher	Aim of Study
Al- Mushaifri (2019)	To investigate the quality of leadership practices of Omani educational leaders at the Ministry of Education Central Headquarters and 11 educational governorates
Al-Azwani (2017)	To identify the degree of effectiveness of self-management in achieving the TQM standard of the self-managed schools in the Sultanate of Oman.
Al- Amiri (2017)	To find out the contribution of the organizational trust in improving the performance of employees of the Directorate General for Human Resources Development at the Ministry of Education
Al-Rahbi (2017)	To identify the impact of the implementation of the principles of total quality on organizational performance in the Ministry of Education
AL Harthi (2016)	To identify the degree of psychological empowerment of teachers and their confidence in the educational sector
Al-Manzheri (2015)	To discover the quality of the career and its relation to job performance of employees at the Ministry of Education in the Sultanate of Oman.
Al-Masroori (2015)	To build a model for TQM standards and indicators in the Islamic Education Curriculum for Grades 1-12 and to show how to use the proposed model to achieve quality in its content.

Al-Lawati (2015)	To build a proposed scenario for organizational development at the Ministry of Education in the Sultanate of Oman in light of the principles of TQM.
Al-Habsi (2015)	To develop a proposed vision to improve the institutional capacity of the Directorate General for Human Resources Development at the Ministry of Education in the Sultanate of Oman in light of the requirements of ISO 9001: 2008.
Al-Jahoori (2015)	To identify the reality of human resource development at the Ministry of Education in light of the introduction of knowledge management
Al Arimi (2015)	To explore the educational managers' perception of characteristics of training programmes at the MOE.
Al-Maamari (2014)	To understand the reality of applying the principles of total quality in the administrative practices of school principals
AL-Hinai (2013)	To explore the factors affecting teaching faculties' job satisfaction in Higher Education Institutes of the academic sector in the Sultanate of Oman.
Al-Riyami (2013)	To examine the requirements of applying TQM to the headmasters' cycle-two schools of basic education in the Sultanate of Oman.
Al-Mkhmari (2013)	To determine the degree of application of the TQM principles in Grades 11-12 from the point of view of headmasters and teachers in the governorates of North and South Batinah in the Sultanate of Oman.
Al-Ghaithi (2012)	To construct a proposed model based on TQM standards in the development of school performance in the Sultanate of Oman.
Al-Sawafi (2012)	To address the impact of quality practices on the performance of the MoE.
Al-Mahrouqi (2012)	To build standards for the adoption of schools for the second cycle of basic education in the Sultanate of Oman.
Al-Salti (2010)	To evaluate the social studies curriculum for cycle-two of basic education in the Sultanate of Oman from the point of view of the supervisors and the senior teachers in light of the TQM standards.
Al-Harazi (2009)	To evaluate some of the principles of TQM in the educational management departments of the basic education schools in the Sultanate of Oman, and to establish the criteria and determinants that define the quality of the processes and outputs of the educational process.
Al-Rashidi (2009)	To use the application of TQM to highlight teachers' problems with educational developments.

Al-Hathari (2008)	To find mechanisms for the development of school management in basic education in the Sultanate of Oman following the introduction of TQM.
Al-Hinai (2008)	To highlight the reality of the management of cycle-one schools in the Sultanate of Oman in light of the global changes and to develop a proposal for the development of these in light of TQM.
AL-Nabhani (2007)	To identify the issues that need addressing in the Ministry of Education in the Sultanate of Oman as it seeks to expand and improve its education system by examining the feasibility of applying TQM in the MOE and by designing a model for implementing TQM in the MOE.
Al-Rasabi (2004)	To examine the mechanisms needed to reach the development of secondary education schools according to the principles of TQM in the Ministry of Education in the Sultanate of Oman.
Al Ghanboosi (2002)	To examine the extent to which the environment of SQU is suitable for the implementation of TQM, by exploring the opinions of staff members of SQU and secondary data towards the implementation of TQM principles.

By reviewing some of the previous studies associated with TQM and quality in the table above, it is clear that most of these studies have been linked to the application of TQM in school management systems, or in the educational directorates in the governorates, such as Al-Azwani (2017), Al-Habsi (2015), Al-Manzheri (2015), Al-Lawati (2015), Al-Mkhmari (2013), Al-Riyami (2013), Al-Ghaithi (2012), Al-Sawafi (2012), Al-Harazi (2009), Al-Rashidi (2009), Al-Hinai (2008), Al-Hathari(2008), Al-Nabhani (2007) and Al-Rasabi (2004). This means that they target the administrative cadres of the school, such as principals and middle management in the educational directorates in the governorates. There are two studies which relate to the curriculum, Al-Masroori (2015) and Al-Salti (2010), which target the quality of curriculum content.

In the aspect associated with the current study, these studies such as Al-Nabhani (2007), Al-Lawati (2015) and Al-Azwani (2017) are of great importance in terms of taking advantage of the methodology and how to build instruments. These studies clearly indicate the location of the present study and its differences from the rest of these. When compared to previous studies, the current study, to the researcher's knowledge, is the only one which has been applied in the DGC. This study targets administrators and technicians alike and uses the qualitative approach by incorporating two data collection instruments, namely, the questionnaire and the interview. The current study also aims to fully understand the application of TQM in order to determine the level of application through obtaining

knowledge of the strengths and weaknesses of TQM in order to use these results to determine the starting point for the project of the implementation of the ISO system, as previously mentioned in the second chapter.

Also, the recommendations of these studies may have had a degree of impact on some of the developments in the MoE, such as the establishment of quality departments in the educational directorates in the governorates, as well as the potential role of the implementation of the ISO system in some departments of the MoE. The researcher will, therefore, seek to link the results of most of these studies with the findings of the current study in the Discussion chapter.

4.5 Conclusion

A review of the TQME literature shows that decision makers are expected to face the difficulties and obstacles that stand in the way of applying overall quality, and find the mechanisms to overcome them so that the educational institution, including schools, can remain successful in their specific field. Therefore, the concept of TQM must be properly and comprehensively applied in order to improve quality standards and enable the school to excel.

This chapter has discussed the TQME principles by reviewing some of the relevant literature. Following this, after defining the concepts of quality and TQM in education, it has shown quality in education as a set of standards adopted by educational institutions to improve their performance. Both TQM and TQME definitions are similar in fundamentals with some variation in some aspects of the education sector. To ensure the success of the implementation of TQMSE, the educational organization should begin by changing the culture of the educational institution. Furthermore, it is as equally important to change the attitudes and beliefs of the internal and external community.

TQME has been very useful for all stakeholders; it provides better quality provision and continues to strive for innovation and improvement. The stakeholders are in agreement with the TQM principles in education which are necessary for the educational and administrative processes and activities to improve their outcomes and achieve the requirements needed. The key principle of TQME is leadership, as it directly affects the rest of the principles. However, leadership commitment is the most important element to the success of the application of TQM principles in education. The next chapter discusses various aspects of the curriculum development and evaluation.

Chapter Five - Curriculum Development and Evaluation

5.1 Introduction

In the previous two chapters, the theoretical literature relating to TQM and TQME has been reviewed and discussed. In this chapter, emphasis is placed on reviewing the theoretical literature relating to curriculum evaluation and development as one of the basic elements of this study, given the application of this study to the curriculum development and evaluation work in the DGC in Oman.

A key question is - what is meant by curriculum, and what purposes does it serve? The curriculum is the practical translation of the objectives, plans, and trends of an educational system; therefore, effective planning and delivery of the curriculum is crucial to ensure that any education system is run efficiently. Moreover, any educational reform might need curriculum development as the one elements of the education system. All other elements of an education system, such as teacher preparation and evaluation, must relate to the curriculum and its foundations, requirements, and work to achieve its objectives. Therefore, the quality of the curriculum is judged by the effectiveness of its beneficiaries, the students (Al Hilah and Murai, 2011and Al-Wakil and Al- Mufti, 2011).

In order to achieve the overriding objective of being effective in facing challenges such as global developments, society requirements, and scientific development, curriculum development requires an appropriate strategy to improve its input and components in terms of objectives, content, experiences, teaching methods, school activity and evaluation, all of which lead to improvements in the quality of educational outputs that relate to the needs of society. With this strategy, if based on the principles of total quality management theoretically and practically, it is probable that it will have a positive impact on the quality of the curriculum content (Allam, 2002; Mohamed and Abdel Azim, 2011).

This chapter reviews the literature related to curriculum development and evaluation. Firstly, a comprehensive understanding of the definition of the curriculum will be provided. Following this, curriculum development will be examined in order to highlight the particular justifications, development decisions, and foundations that relate to the development and evaluation of the curriculum. Thirdly, the chapter will outline curriculum evaluation by focusing on its aims, elements, types, and challenges. After that, quality in the curriculum context will be discussed. Finally, the implications arising from the literature review will be discussed.

5.2 Definition of the Curriculum

Historically, the origin of the word ‘curriculum’ is derived from the Latin word ‘curricle’ which describes a chariot, a circuit, or a race field (Oxford English Dictionary, 2017). The use of this concept could be interpreted in order to indicate the competing of pupils to achieve their goal during the study stages. There are many different opinions about the definition of the educational curriculum among educators. According to Mathews (1989), it is not easy to give a single definition of the curriculum because it is a complex and combined concept that cannot be adequately described in a particular sentence. Therefore, the definition of the educational curriculum has taken many different contexts in terms of its goals and purposes, depending on the different views of the educator concerned (Kelly, 2009).

According to The Oxford English Dictionary (2017), the curriculum is defined as "the subjects comprising a course of study in a school or college", and "course components of the school curriculum." This linguistic definition of the curriculum is linked to the traditional concept of it as being a set of information, facts, concepts, and ideas as taught to students in the form of courses, which are referred to as “the syllabi”. In this sense the teacher becomes a transmitter and the student a recipient (Taylor, 1971; Al-Lakany, 1981; McKimm, 2007; IBE, 2015).

Similarly, Good and Brophy (1973) describe the curriculum as a content plan that ensures that students obtain a certificate enabling them to enter their chosen career field. Moreover, there are those who consider the curriculum as the instructions given to students which are sent to teachers by local authorities (Kopweh, 2014). Gradually, the term curriculum has come to refer to the formal school curriculum which is scheduled according to a specific time plan. In this sense it may also be used to refer to a particular set of courses or syllabi (Coleman et al., 2003).

By analysing the above definitions, it appears that the traditional perspective of the curriculum limits student learning to the textbook, as the curriculum in this sense makes the textbook the only source of knowledge, neglecting other sources. Thus, the curriculum may focus on the mental cognitive aspect only by concentrating on examinations whilst ignoring the other aspects of growth, including physical, social, and emotional growth. This is contrary to the correct perception of the student character which is intended for development and integration. In addition, they do not consider the individual differences of students.

Thus, the curriculum in this perspective addresses students in a single manner in which the teacher explains everything to all students in one way, uses one teaching way and evaluation items do not take into account the variation among students, all of which contradict the principle of individual differences. Since the curriculum consists of limited and standardized courses for all students in all environments, this might lead to a weak correlation of the study of the local environmental problems in which the student lives, and ultimately results in the student separating school from society. As a result, the concept of the curriculum has evolved into something new, fresh, and more comprehensive.

The idea of the concept of comprehensive curriculum is not new, as many educators have called it. According to Kerr (1968), the curriculum incorporates all of the activities and experiences that are offered by the school under its supervision and responsibility, whether practised by students inside or outside of the school. Sharpes (1988) on the other hand, expanded the concept of the curriculum to be an integrated system of educational processes provided by the school, such as courses, classroom, and non-class activities, and all of the documents associated with them.

Beacco et al. (2010) defined the curriculum as a comprehensive plan designed to enable students to effectively take control of the activities and experiences that yield positive educational and non-educational outcomes. In other words, the curriculum serves as the engineering plan for the educational process. In 2013, the International Bureau of Education (IBE) identified the goal of the school curriculum as being to respond to the diversity of expectations and needs of the community in general and students in particular, paying attention to the diversity of students and their abilities to meet their needs and respect their characteristics.

Through the embedded content of concepts above it can be argued that the perspective of the curriculum has a number of characteristics; it is not only the courses, but also all of the activities that the students undertake and all the experiences they undergo under the supervision of the school. A good curriculum is based on helping the learner to learn, through providing appropriate conditions and circumstances, such as considering the tendencies of the students and their attitudes, needs, problems, and abilities. It also focuses on the development of the learner's personality in all its aspects, equipping them with the tools needed to deal with the challenges that they will face throughout their life. Thus, the curriculum in this concept has become associated with the environment and the society in which the learner lives.

According to Lumby (2001, p1), the meaning of the curriculum is used in another sense at national level to indicate a syllabus, and sometimes its means of implementation, assessment, and the required learning outcomes. In other words, it tries to implement national directives on what should be taught and how, the means of assessment, and the expected outcomes.

In the Sultanate of Oman, the definition of the MoE for the curriculum started from the comprehensive concept. The MoE defines the curriculum as "a series of processes, skills and attitudes that transcends the prescribed teaching curricula and is disseminated through classroom activities and out of class activities" (MoE and The World Bank, 2008, p. 27). However, the reality of this definition is more theoretical than practical. Because the Omani curriculum is limited to student books, teacher guides, and assistive educational techniques and aids, it is uniform and prescriptive for all pupils of the Sultanate's schools. Furthermore, the pupil evaluation system, in particular the examinations, focuses only on the information that has been given to the students from the student book. Nevertheless, there are attempts to translate the definition into reality. According to Middlewood (2001, pp. 107-108) in most countries, no matter how uniform, prescriptive, or centrally dictated the formal curriculum is, it remains an inescapable fact that individual institutions differ. These differences may be because of factors such as differences in location, consequential differences in local communities, and the nature of the student intake including different attitudes to learning, achievement, and formal education itself, differences in physical resources such as buildings, and differences in human resources especially staff.

Through the above definitions, it can be argued that the school curriculum is a set of planned and targeted activities and practices that the school provides, inside or outside the classroom, according to specific goals and under professional educational leadership to achieve the comprehensive growth of the student in all physical, mental, social, and psychological aspects.

5.3 Curriculum Development

Any positive changes in society, such as national strategies, may need to be followed by a change in the education system, and then a change to the curriculum of education, as these are important elements of the education system as a whole. There are a number of synonyms that refer to curriculum development provided in the curriculum notes of the theoretical literature, such as curriculum planning,

building, and design (Ornstein et al., 1993). This section determines, in detail, the concept of curriculum development and the justifications and foundations of its development.

The meaning of development, as stated in the Online Oxford English Dictionary (2017), is “A specified state of growth or advancement.” From this definition it can be concluded that the development process must be defined by a clear plan that has a beginning and an end. In their definition, Al Hilah and Murai (2011) refer to the development of the curriculum and describe this as the process of reviewing all elements of the curriculum, from its objectives through to evaluation, as well as all the other factors that relate to, affect, and are influenced by the curriculum.

In the same context, Al Khalifa (2010) explained that the process of curriculum development is intended to introduce innovations in its field; to improve the educational process and raise the level, so that it is based on achieving the planned objectives, and ultimately, it leads to the modification of the behaviour of students and guides this behaviour to follow the directions required. Al-Wakil and Al- Mufti (2011) identified a link between the evaluation of the curriculum and its development. They stated the development of the curriculum is to improve the curriculum evaluation processes, including all of the curriculum elements that need to be improved, as well as raising the adequacy of the curriculum in general so the desired goals can be achieved.

Kopwes (2014) considers that curriculum reform or development is a broad concept that requires a fundamental change to the elements associated with the educational system, such as examinations and teaching methods, through a set of planned stages. The National Turning Point Center for Collaborative Education (NTPCCE) (2001, p. 4) states “…the process of curriculum development should be based on what we want students to know and are able to do.”

From the previous definitions it can be concluded that curriculum development is an integrative process, and should consider all the associated elements, such as teaching strategies, teachers, and needs of learners. At the same time, it must consider all the components of the curriculum, such as content, objectives, assessment and evaluation, materials, and activities.

5.3.1 Justifications for Curriculum Development

There are many justifications leading to the development of curricula, including factors related to the current status of the curricula factors related to the impact of these curricula on future generations.

Boschman et al. (2014, p396) identify the key reasons for curriculum development as being "…current trends, external priorities, and scientific interests."

According to Mohamed and Abdel Azim (2011) and Kyunghee, (2020) the justification for curriculum development is to improve its inadequacies in dealing with the needs of the individuals and society. This can be accessed through the evaluation of public examination results and examining the progress reports written by the education supervisors and technical experts. Saadah and Ibrahim (2011) stressed that the development of knowledge and the prediction of the future needs of the individual and the education system as a whole are a fundamental justification for the development of curricula. As students grow, their tendencies, attitudes, and abilities change according to these future needs. Moreover, society also changes its customs, systems, and cultural heritage. Scientific knowledge is always increasing, and new discoveries are constantly being pursued. Thus, the educational sciences must also change. All these developments lead to the development of the curriculum. The Scottish Executive (2004) and Silova, et al. (2020) focused on the economic and social developmental needs of society as other major justifications for curriculum development. According to Karimi et al. (2012, p. 147) "one of the problems faced by the educational institutions is the lack of cooperation of educational institutions with other organizations. So, it should reduce centralization in curriculum planning development." The following figure summarises these justifications:

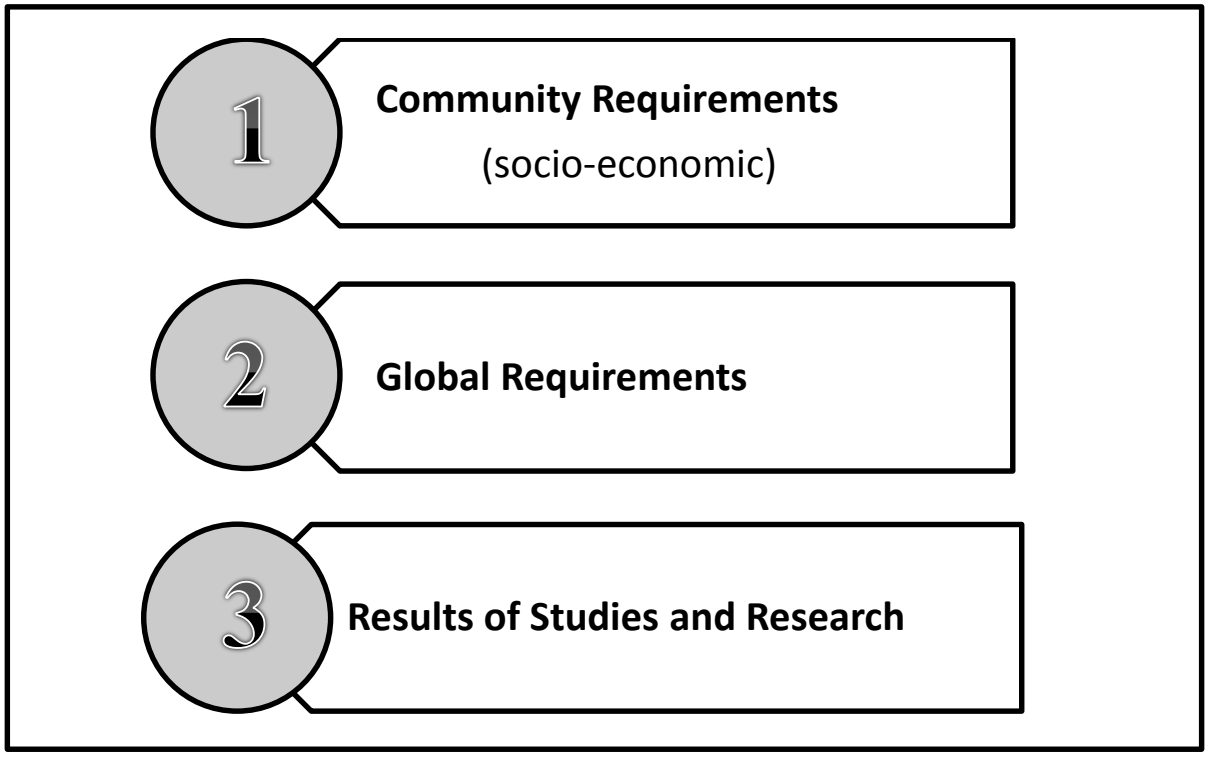

Figure 5.1: Justifications of Curriculum Development (by researcher)

5.3.2 The Development Decisions of Curriculum

It is very important that the justification for development is based on the results of research and specialist scientific studies related to the educational aspect, such as the teacher and examinations, as well as other external aspects, such as the political and economic aspects, and the changes that occur in the community (Beacco et al., 2010). Therefore, the determination of justifications for development requires the commitment of the decision makers at educational level in particular, and official government level in general.

Similarly, Kärkkäinen (2012) points out that the levels of decision-making in curriculum development begin to rise from teachers at school level, to teachers at higher education institutions, then to the provincial level, and finally to the national level. The OECD (1998) classifies the levels of decision-making for curriculum development into three categories, namely: the community level (represented by the parents and government institutions); the educational level (referring to the curriculum specialists in the education institutions); and finally, the learning level (represented by the teachers).

According to the OECD (2011), curriculum development should start in schools. Moreover, there must be a continuity between the educational institutions that supervise education, with teachers and with society. Similarly, Burton et al. (2001) and Milner et al. (2010) claim that the teacher must have an essential role in the decision making processes relating to curricula development, and any decisions should be based on their own teaching experience, as well as the feedback they receive from the learners. From another point of view, the IBE (2013) highlighted that there should be open discussion with educational and non-educational decision makers before making any decisions relating to developing the curriculum.

It is useful for the decision to develop the curriculum to be made collectively by all relevant parties, because the intentional or unintentional failure or neglect of any party, may have a negative impact on the decision of the development and therefore, will have a negative impact on the educational process. On the other hand, the development decisions must start with the teachers who implement the curriculum with their students, through to the educational specialists and then to the final decision makers who are the politicians, educators, and economists.

5.3.3 Curriculum Development Foundations

The process of curriculum development should be transparent, well-known, and well managed on a clear basis. According to Kelly (2009) and Ornstein et al., (1993), curriculum development should be based on sound scientific planning that considers the principle of ordering priorities, reality, and potential. For example, the development plan is supposed to be based on clear and specific developmental goals that reflect the comprehensive and balanced development of the individual that is capable of satisfying his needs, solving his problems, and enhancing his positive tendencies and trends, in accordance with the interests of society and its aspirations and goals.

Salum (2014) supports this view and states that the curriculum development must be based on an educational philosophy stemming from the goals and aspirations of society. He explained that the inclusion and integration of curriculum content should be taken into consideration when developing it. This means that the curriculum incorporates many components; these are the goals, content, method, materials, activities, and evaluation. Thus, curriculum development must include all of these components in order to achieve comprehensiveness and the integration with all elements of these components.

Weller (2012) believes that the decision to develop the curriculum must be collective and involve all parties who are directly or indirectly associated with the educational process, including civil society institutions, as well as the various official institutions. In other words, the students, teachers, supervisors, educational experts, parents, as well as the economic, political and religious people, who should all participate in the development process.

In contrast, Boyle and Charles (2016, p. 23) stated “In order for the curriculum to be efficiently developed, it should be presented in a structure which would enable coherence, a learning continuum that allows for the differentiated pace of individual learning needs, and measurement of progression against clearly stated learning outcomes.” Finally, the IBE (2016, p.13 & p.16) states that governments should consider curriculum development as being a continuous process of modernization and improvement in accordance with a long-term plan, and be flexible enough to allow adaptation to the future developments of society and rapid scientific development. The foundations of curriculum development are illustrated in the following figure:

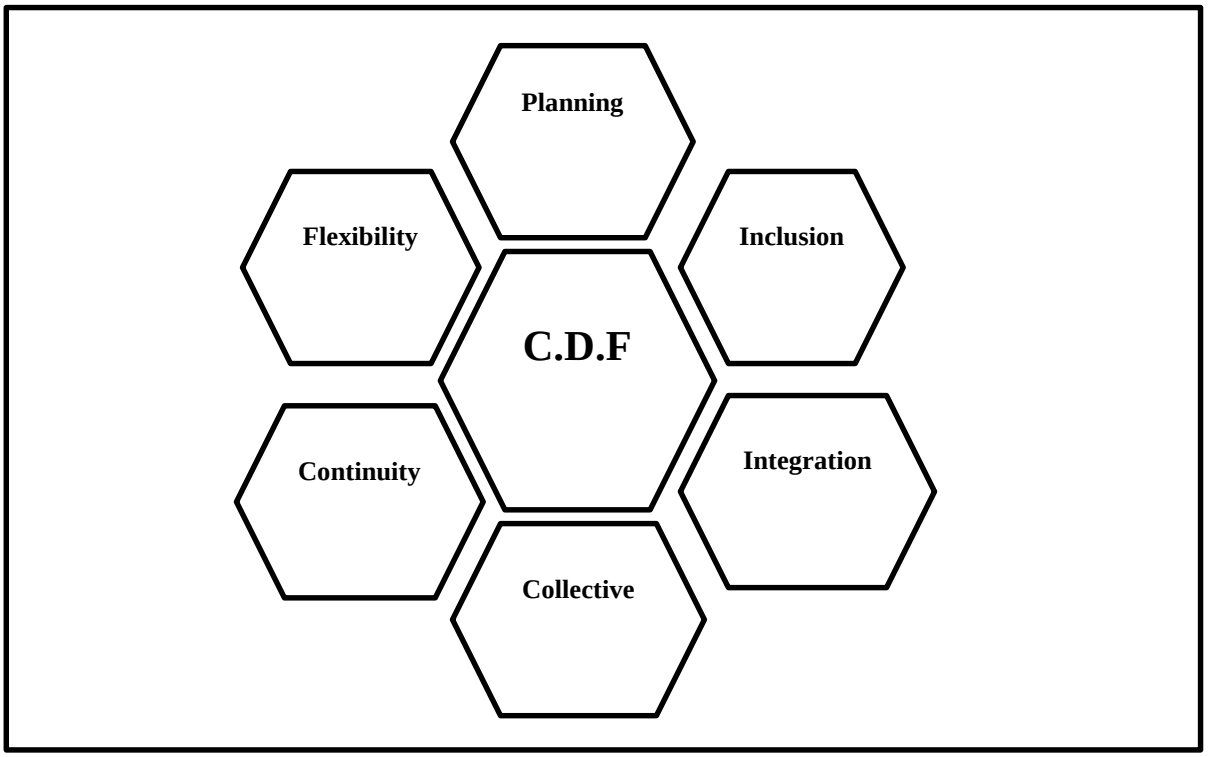

Figure 5.2: Curriculum Development Foundations (by researcher)

According to IBE (2016, p. 4 & p. 13), "given the essential role of curriculum in enabling quality learning and in articulating and supporting education that is relevant to holistic development … so, the development of curriculum should follow a transparent and publicly known process and be well-managed in terms of focusing on the curriculum vision, conducting effective development activities, and adhering to timelines and budgets."

Furthermore, Denton and Surendra (2005) revealed that the place of curriculum design assumes that the needs of the internal and external customer are considered at all levels of the product design matrix.

In short, the decision to develop the curricula is a collective decision taken to serve the interests of society and to achieve the aspirations of all interested parties. Furthermore, this decision should be based on the results of relevant evaluation studies. The next section reviews the curriculum evaluation process.

5.4 Curriculum Evaluation

According to Worthen and Sanders (1987), education evaluation is the process followed to provide educators with the relevant information that they need to improve the standards and delivery of the education system. Furthermore, according to Georgescu (2011, p. 2), "the curriculum evaluation stage is a part of curriculum development cycle." The importance of this stage lies in its direct impact on the curriculum development process as a whole. Furthermore, ongoing data collection helps to foster the culture of continuous improvement, ensuring that the processes of curriculum development are revisited and adapted to meet the needs of its beneficiaries (Singh, 2020).

Education evaluation is not an easy process; in fact, it is a complicated, overlapping, and continuous data collection and description process that provides the basis for decision making (OECD, 1998). According to Georgescu (2011), to make the curriculum evaluation process more effective, there must be a clear vision, criteria, methods, and tools incorporated in the whole development process.

5.4.1 Definition of Curriculum Evaluation

There is an agreement among most educators regarding their definition of educational evaluation in general, and curriculum evaluation in particular. According to the Oxford Online Dictionary's (2017) evaluation, it is "…the making of a judgment about the amount, number or value of something; assessment." In his book, '*Curriculum Studies and Educational Planning'*, Lawton (1983, p. 90) indicated that "…educational evaluation is the process of providing information pertaining to the successes and failures of educational learning. Moreover, the evidence obtained through the feedback received from teachers, as well as the student's examination results, concludes that a new approach to teaching methods and the curricula is required."

Similarly, the IBE (2003, p 53) defines curriculum evaluation as being "… the determination of the worth of a thing." Additionally, the evaluation of the educational curricula is referred to as "… determining the merit or worth of a part or the whole of a curriculum." Preedy (2001, p. 89) emphasised that "Curriculum evaluation is concerned with gathering evidence to describe and make judgements about the value or worth of curriculum plans, processes, and outcomes as a basis for developing and improving them."

In light of previous definitions, it can be argued that curriculum evaluation is a comprehensive concept to collecting descriptive or quantitative information about curriculum elements by using specific tools.

This information is then interpreted for the purpose of making special decisions either by deleting, modifying, or developing the existing curriculum. In other words, it answers the questions: “Are the skills, attitudes and values that are included in the curriculum worth the students and teachers spending their time and effort in both teaching and learning it? Also, is it good for their future?” (Hamdan, 2001, p. 8).

5.4.2 The Aims, Elements, and Types of Curriculum Evaluation

Some pertinent questions relating to curriculum evaluation are ‘why do we need to evaluate a curriculum?’ and ‘what are the benefits?’ As indicated above, curriculum evaluation is needed to delete, modify, or develop the existing curriculum. According to IBE (2003, p. 57) “The main purpose of curriculum evaluation is to facilitate or improve programmes or projects by judging them. Predominantly, judgments are made on the basis of what has been observed, and this helps to modify or change a particular programme, project or curriculum.” Furthermore, the curriculum evaluation results give indicators which ultimately improve the quality of educational practice and guide the learning process by providing proper guidance (MoE, 2008b).

Hopman (2003) determined the purpose of curriculum evaluation as being to support decision makers and curriculum experts, by highlighting the strengths and weaknesses in a curriculum in order to enhance existing pedagogical approaches. In contrast, Briggs and Somfeldt (2002) minimise the objective of curriculum evaluation to merely measuring student progress. Posner (2004) on the other hand, has provided a deeper explanation and determines the aim of curriculum evaluation as being necessary to identify the usefulness of the skills, values, and attitudes contained in the curriculum offered to pupils.

Therefore, clearly defining the goals of curriculum evaluation will help to reach results that relate to the relationship between the curricula and the educational environment in which they are applied. Thus, the answer to the question, ‘is the motive and objective of the evaluation to be accountable, to provide evidence, to improve, to change, or to shed light on an issue?’ needs to be clear from the outset.

Whenever the objective of the evaluation is clear, the results are more valid, and the objective is more easily achieved. This is confirmed by the IBE (2016) which states that the primary task of curriculum evaluators is to ensure that the objective and scope of the assessment is clear. For example, the goal is to evaluate educational practices within a given subject area, such as the quality of classroom

activities for mathematics, or to support teacher effectiveness. In other words, evaluate the teachers' ability to teach this approach as planned.

Another important aspect which is associated with the purpose of curriculum evaluation is that the elements of the curriculum should be evaluated. According to Al Lwatia (2004) and Al Khalifa (2010), the important curriculum elements which must be evaluated are objectives, in terms of their clarity, and the possibility of their achievement in the learning environment; content, in terms of the ability of the content to meet the requirements of the students' cognitive and psychological abilities whilst taking into account individual differences; and the outcome of the curriculum, which means the impact of the curriculum on students' thinking, of acquiring knowledge, skills, and positive attitudes, and their impact on the needs of society in general.

Allam (2002) provided further detail when he pointed out that the evaluation of a curriculum is a process of evaluating the educational program as a whole, which includes the methods and strategies of teaching, textbooks, and educational techniques. Moreover, this evaluation should be based on specific criteria that show the impact of the curriculum, its cost effectiveness, and the direction of both teachers and students towards it.

In short, curriculum evaluation is intended to judge the quality of these curricula and their impact on students in particular, and society in general, by targeting some or all of the components of the curriculum, according to the goals which are set in advance. To this end, the evaluation process must be conducted by qualified and experienced cadres, for example, from universities, the Ministry of Higher Education, and various research centres, who should all have a thorough understanding of all aspects of the curriculum, evaluation strategies and processes.

After choosing the suitable purpose and elements of evaluation, the type of evaluation needs to be identified. There are two basic types of curriculum evaluation, namely formative evaluation and summative evaluation. According to Ornstein and Hunkins (1993); Allam (2002); IBE (2003); and Macdonald (2006), formative evaluation, which is sometimes referred to as continuous evaluation, is defined as the evaluation process during the development or design of the curriculum. It starts with the beginning of the development phase and continues through the process of implementation to the end point. Since formative evaluation occurs during building, every effort must be made to use it to improve the curriculum. For example, when designing a particular learning module or unit, curriculum designers can experiment with a sample of students to gather feedback during the development phase.

Summative evaluation is the evaluation process being carried out at the end of the programme or project. This type of evaluation is used to determine what has been achieved over a given period of time, and to define the impact and effectiveness of the curriculum provided (Ornstein and Hunkins, 1993; Allam, 2002; IBE, 2003; Macdonald, 2006). For example, following every five or ten years of a specific curriculum, a comprehensive evaluation process should be carried out. Moreover, after determining the purpose and type of the evaluation, it is assumed that the most appropriate data collection instruments and analytical mechanisms to use will include interviews, direct observation, questionnaires, and document analysis.

Through the above, the process of evaluating the curriculum can be summarised in three stages, as illustrated in the figure below:

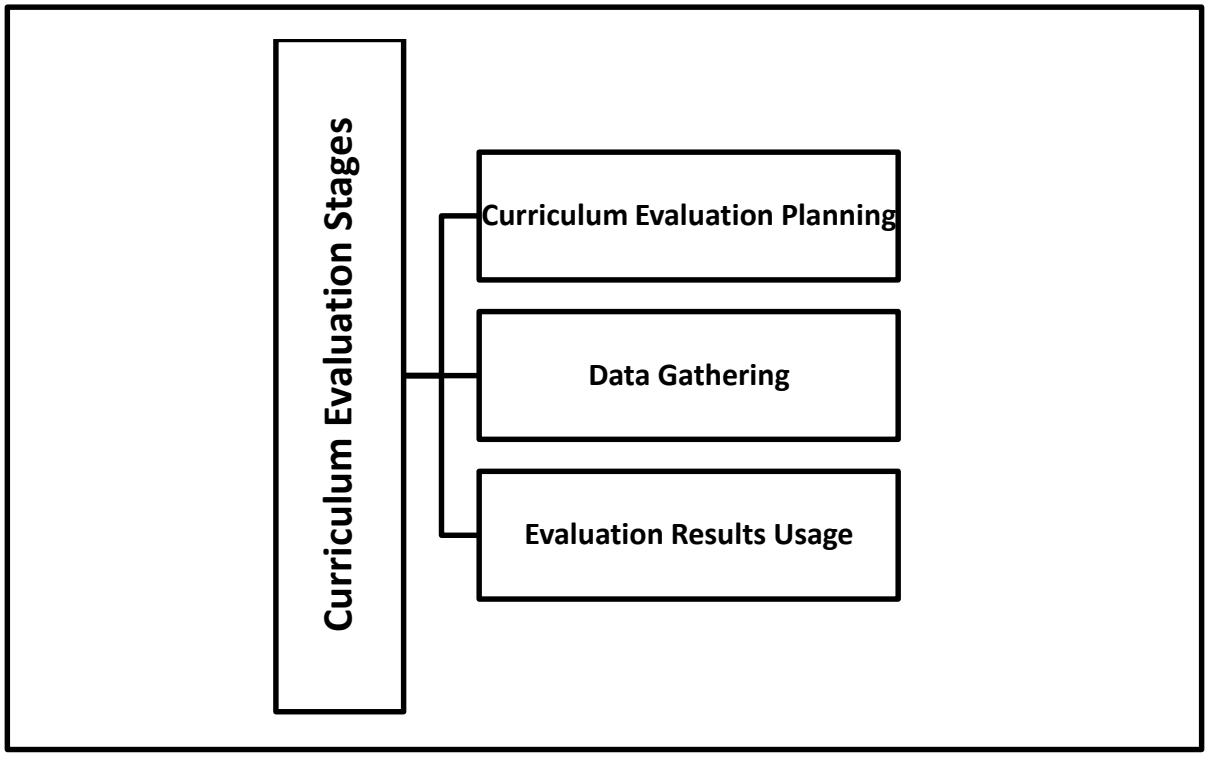

Figure 5.3: Curriculum Evaluation Stages (by researcher)

5.4.3 Challenges of Curriculum Evaluation

The process of curriculum evaluation faces many challenges that can be a major impediment to achieving the objective of the evaluation. These challenges are not only about the acceptance of the evaluation process but relate to the culture within the institution and beyond. According to Al zobaie and Al janabi (2003), the process of curriculum evaluation can only take place through human interaction among all individuals so that new values and trends can be accepted as a result of the

evaluation process. They also add that the school is part of the society, so the acceptance of the community for educational developments, and enthusiasm for this, is not easy.

In order for a new curriculum to be applied successfully there has to be a strong collaboration between the school and the community. This necessitates the consensus and support of the vision and mission of the new curriculum to validate and strengthen the changes for the school. Therefore, the educators must explain the reasons of curriculum development and its necessity to members of society.

Volan (1995) emphasised that developers and evaluators must learn how to deal with the complexity of change and how to overcome obstacles; so, before any changes can be made, a culture that accepts change for development is needed. Unfortunately, however, "… often schools release test results not to improve the programme, but to impress various power groups within the community or to demonstrate to legislators that an educational programme is effective" (Ornstein and Hunkins, 1993, p.346), which is a big issue that should be highlighted.

Furthermore, there are constraints relating to the financial requirements of the evaluation process. If the financial allocations that meet the burden of education are inadequate, then it may be difficult to provide the necessary funds for the full development and evaluation process. Thus, the financial aspect may be one of the biggest obstacles facing curriculum development and evaluation (Al Zobaie and Al Janabi, 2003). Moreover, there are also constraints which relate to the evaluation process itself. The first challenge relates to the unclear purpose of evaluation.

According to Heywood (1984) and Scott (2016), there is ambiguity about the purpose of the evaluation, as the evaluation results are often not linked to the real, general objective. Another issue facing the evaluation process is the pressure on evaluators to complete the evaluation project. This pressure may be due to the limited time allotted to complete the evaluation from the start of the process until the results are released, in addition to the pressure of the social relations between the evaluators and individuals to whom the evaluation applies, especially when the curriculum being evaluated relates to their work colleagues within the educational institution. In such cases, the curriculum being evaluated may be deemed as invalid (Neary, 2002).

Who performs the evaluation might be challenging. Yekta (1996) and Georgescu (2011) explain that the process of curriculum evaluation is a common process; therefore, everyone concerned in educational matters should be involved. This includes teachers, supervisors, curriculum experts, evaluation experts, and community representatives. Indeed, Bovill, et al. (2009) went even further as

they emphasised the promotion of the student and their participation in learning through their involvement in the stages of curriculum design, including the evaluation stage. As such, excluding any student could have a negative impact on the results of the evaluation.

Finally, the selection of the data collection tools, and appropriate analysis methods and programmes could be challenging. When the correct choice is made, the result is more likely to be linked to the overall goal of the evaluation. However, even if the goal is met, it may create another challenge, such as the extent to which the evaluation results are used in curriculum development (Macdonald, 2006 and Neary, 2002), and this is "…based on the decision makers' perspectives" (Popham, 1981, p. 13).

From the above it can be seen that the most important challenges facing the curriculum evaluation process can be summarised as illustrated in the figure below:

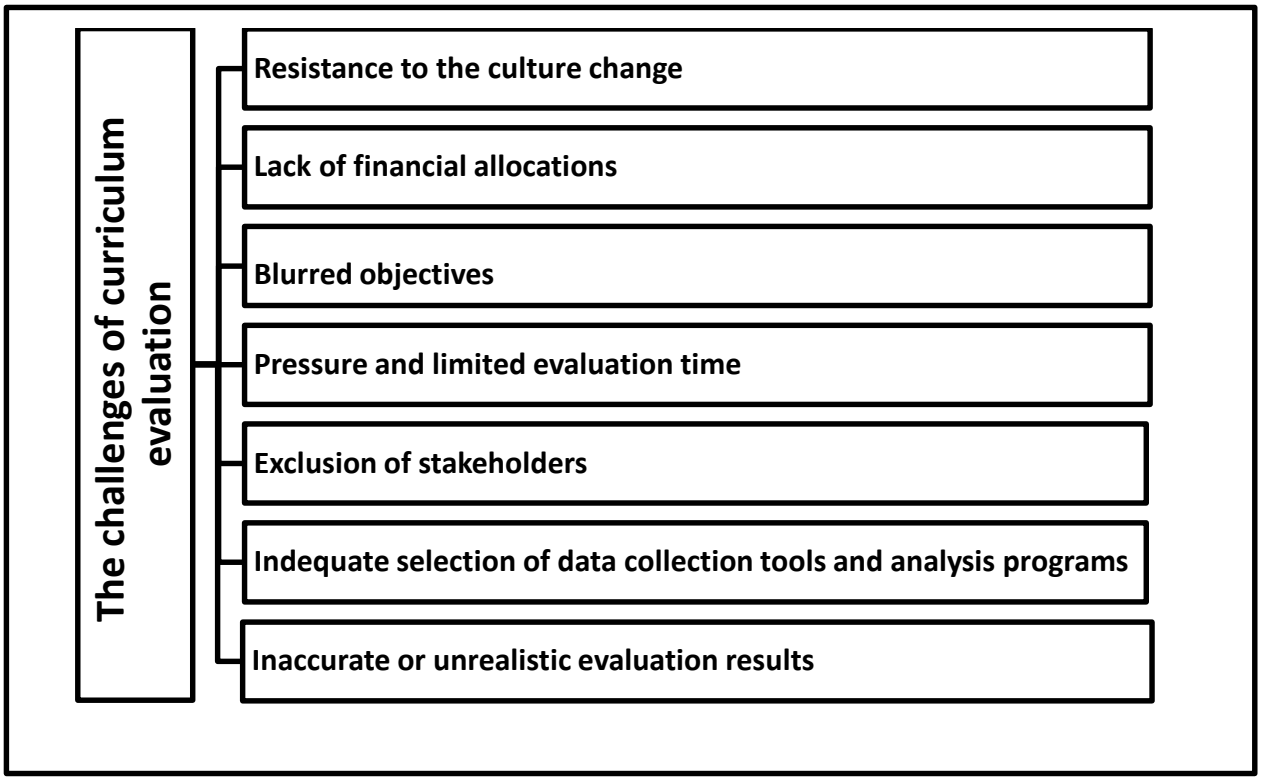

Figure 5.4: Curriculum Evaluation Challenges (by researcher)

In short, curriculum evaluation is an important stage of development. However, in order to judge the quality of any curriculum, it must be subject to an evaluation process which is in accordance with

effective standards, as well as being linked to all of the components of the curriculum and other related educational elements which are required to measure student performance. These include teaching strategies, teachers, school buildings, and tools. The assessment and evaluation of all these elements will help to measure the effectiveness of the educational policies implemented in the curriculum development and evaluation process. In short, “If we wanted to know about the quality of the curriculum, we would need to examine the processes and content that was being taught” (Eisner, 1981, p 41). The final part of the chapter addresses quality in the curriculum context.

5.5 Quality in the Curriculum Context

As explained in detail in Chapter Four, quality in education is linked to both learning and teaching processes, as well as management. Quality is an integral part of product characteristics, and learning is productive. Therefore, this product must have characteristics and specifications that reflect its ability to achieve its objectives and fulfil the requirements expected from the recipients of the service. In other words, quality in the field of education means the achievement of the objectives of the educational programs for students, and to achieve the satisfaction of the community as the main beneficiary of the existence of educational institutions.

Following the review of the theoretical literature related to quality in the curriculum, it was found that most of what has been discussed in this aspect is linked to the quality of the curriculum content, with some reference being made to the quality of the processes of curriculum development and evaluation, which forms the basis of the current study. This may be due to the fact that TQM application in the education sector and its associated principles do not change by changing the name or type of educational institution. For example, the administrative processes of the DGC at the Ministry of Education are not too dissimilar to any other directorate or department of the Ministry of Education. Thus, the difference remains only in the quality of the roles of each directorate, and the administrative processes associated with these roles (MoE, 2008b).

The effectiveness of a curriculum can be judged through the quality of its design and implementation and by determining whether this encompasses effective management for curriculum development, a strong infrastructure, and qualified teachers; as well as the quality of content, which refers to its ability to translate and deliver the national goals. Finally, the quality of the educational outputs, for example, whenever there are more goals achieved for the learners who are exposed to content and processes

in the educational environment, it can be argued that the curriculum is characterised by quality (UNICEF, 2000).

According to Hamaad (2011), the school curriculum quality means a variety of content, clarity of purpose, and being achievable and realistic in order to meet the wishes of the beneficiaries (students, parents, community), thereby, the quality of curriculum that is more consistent with the targeted strategies. So, the core business of any school system is to deliver quality education and to ensure that pupils reach their potential.

In principle, curriculum working is a planning process that begins with development which consists of clear objectives, activities, and evaluation that reflects those goals (Scott, 2016). Therefore, it must be defined and understood from the outset exactly what the curriculum is required to contain. It has been confirmed by Stabback et al. (2011, p. 5) that “Good quality curriculum content is important for good learning outcomes for students, but content must be supplemented and supported by good delivery strategies”.

With regard to the quality of the curriculum building process from the stages of development and evaluation, according to Abdul Jabbar (2017), in order to ensure the quality of the curriculum, it must ensure that quality standards in its construction and application processes are provided. In doing so, this will highlight the strengths to enhance and the weaknesses to develop. Thus, the issue of curriculum quality is concentrated in a common and gradual vision, good implementation, and in contributing to the development of the individual and society (Georgescu, 2011). In other words, for curriculum design to be characterised by quality, it must balance the needs of all stakeholders within the organisation. Thus, it is necessary to take into consideration the views of all the policy makers in the field of education in general, and the curricula in particular (Denton et al., 2005). According to Burton, et al (2001, p. 19) there is a three-dimensional view of curriculum management, namely vision, structure, and strategy, as shown in the figure below.

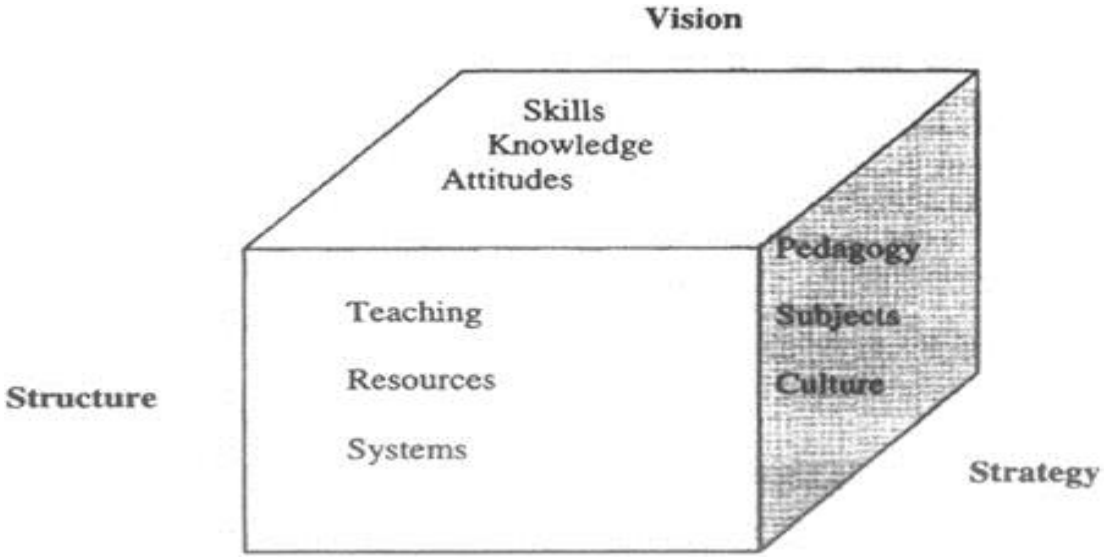

Figure 5.5: A Three-Dimensional View of Curriculum Management (Burton, et al, 2001, p. 19)

Establishing a culture of quality in the curriculum and its programmes leads to the participation of all officials in the administration of the educational institution, the students, and the faculty, in order to become part of the programme of quality culture (Hamaad, 2011). Therefore, quality means the driving force required to effectively push the education system to achieve its goals and mission entrusted to it by the community. In Nigeria, Iyamu's (2005) study revealed that parents and teachers largely agreed on the importance of establishing a culture of curriculum quality as a factor necessary to ensure the effectiveness of education in any society. Thus, it must participate in the selection of curricula.

In order to have a good curriculum in place, curriculum development processes are supposed to be of good quality (Stabback et al., 2011). In other words, curriculum development processes are planned and systematic, led by professionals, and supported by specialised centres. Harvey and Aanyu-Angura (n.d.) pointed out in detail that curriculum management refers to the provision of leadership and effective supervision by the educational leaders, such as the directors of the curriculum department, and other education managers and principals, in order to achieve the effectiveness and efficiency with which the curriculum is offered. This is because the primary purpose of curriculum management is to ensure quality education and learning, which is the responsibility of all education directors, especially principals.

To ensure this is achieved, clear guidance should be given on key curriculum management activities, such as scheduling, learning resource management, supervision and support planning for education, supervising the teaching and learning process, supervising student evaluation and promoting

professional development of staff. Denton et al. (2005) emphasised this in a nutshell by stating that the use of quality assurance methods can result from the benefits of educational leadership in overcoming the constraints and challenges facing the content design curriculum. However, this must recognise the fact that it is impossible to design an effective curriculum on the first attempt.

Continuous monitoring and adjustment are needed to reach the quality of the required curriculum (Ladwig, 1996), and then maintaining this level of quality by emphasising it in the working environment. It must be considered that the curriculum industry and associated implementation processes are an important instrument of the state and government to deliver the vision to society through its pupils (Westbury, 2016). According to Paratha (2020), the curriculum, assessments, quality of our skills, and national qualifications, should reflect the value we provide to society. Thus, it will become critical to the development of educational system programmes (Mukhopadhyay, 2014).

In short, curriculum development is a specialised field within the education sector. Thus, the curriculum development processes must be managed by qualified and experienced professionals. However, it is no longer appropriate to prepare curriculum documents behind closed doors, and now everyone must be involved. Adequate training and resources should be provided for capacity development because the process of curriculum development is supposed to be a transparent and well-known process, as well as being well managed in terms of focus on curriculum vision, effectiveness of activities, and adherence to schedules and budgets.

A good curriculum is therefore the result of good quality development processes, such as those related to communication, consultation, and community discussion. Finally, there is no exaggeration if we say that the quality of curriculum management is equal to the quality of content, and thus the quality of teaching and learning.

5.6 Implications arising from the literature review

The researcher has analysed literature relating to TQM in general, and particularly, TQM in respect of education. With regards to quality in the context of curriculum development and evaluation in education, the literature has raised some important points.

Firstly, the overall goal of TQM is to improve the quality of the services and products provided. Moreover, in order for an organisation to reach its optimum level, by adhering to its principles, TQM

aims to encourage leaders at all levels within an institution to evaluate the quality of productivity instead of focusing merely on the quantity produced. Therefore, the principles and standards of quality are an important basis in the process of building strategies for any institution in general, and the educational institution in particular.

The existence of points of agreement and integration between planning and quality indicates important links between these processes and ideas. For example, the principles of quality must be available when formulating the mission and objectives of the organization with the commitment that the process of implementing the objectives is based on the collective performance and the interaction of all departments and sections in achieving the objectives of the institution. This is reflected by the philosophy of TQM that focuses on the participation of all members of the institution and beneficiaries of its services.

Participation in shaping and setting goals for the organization during the planning process is crucial to ensure that better results arising from the process of participation in implementation are achieved. If this culture is built on and followed by employees within the institution, it will gradually become part of their customs and values, and will ultimately form the institution's vision and mission in the future. This, in turn, will lead to the 'satisfaction concept' being realised which includes the three categories of decision makers, employees through job satisfaction, and external beneficiaries through satisfaction with the quality of the product or service provided.

The second key focus of this study is to explore the application of TQM in the DGC at the MoE in the Sultanate of Oman. Along with many other similar organizations, the DGC has an administration procedure, organizational structure, and strategy which emanates from its specific objectives and seeks to be the basis of its operational performance throughout all administrative and technical levels. The aim is to obtain a product which is characterized by high quality outputs that satisfies the ambitions and aspirations of students in particular, and society in general, as well as the vision of the MoE. In other words, the quality and standard of the curriculum is essential for obtaining qualified graduates to support the labour market and to achieve international standards in education. Thus, the MoE is represented by the DGC in the continuous development of curriculum planning and evaluation processes.

However, the question still remains as to whether the DGC is able to create a quality culture in its operational performance that positively reflects the quality of the Omani curriculum based on the

physical factors available. Furthermore, are the leaders tasked with delivering satisfactory results to the internal and external beneficiaries of the DGC motivated to work with the services provided? Finally, are all employees encouraged to participate in decision making processes, as well as setting strategies and goals for the DGC, thus enabling them to reach the stage of fully belonging and enabling them to contribute to the organisation's environment?

Thirdly, in the context of this debate it can be argued that the work system of curriculum development and evaluation in the MoE in the Sultanate of Oman can be compared with the ecosystem. The ecosystem includes all living organisms, flora, and fauna, in a particular area, interacting together and with their non-living environments such as weather, land, sun, soil, climate, and the atmosphere. This means that the absence of a single member, factor, or element can adversely affect all ecosystem parties. Also, the ecosystem is composed of ecologically homogenous units which facilitate the effective management of the system as a whole (Online Biology Dictionary, 2018).

The ecosystem of curriculum work is an element that is supposed to integrate with other elements associated with the curricula, such as assessment and evaluation, examinations, teachers, educational supervisors, the school building, and equipment. As such, any defect in one of these elements may have a negative impact on the quality of the curricula and ultimately on the quality of educational outputs that the Ministry aims to achieve.

In addition to the curriculum development and evaluation processes, the DGC consists of specialized technical and administrative cadres for different curricula, such as Arabic, English, Mathematics, and Science, which interact internally with each other through the supposed integration of these curricula vertically with the subjects of the one syllabus for the different classes and horizontally with the other curricula. Furthermore, it must be considered that the DGC is a system of work within a larger system, namely, the Ministry of Education. The DGC is required to interact and integrate with other directorates in the Ministry, especially those associated with them technically. These include the Directorate of Educational Evaluation, the Directorate of Human Resources Development, and the Directorates of the Educational Governorates.

It is probable that the implementation of TQM in the work of curriculum development and evaluation will provide fertile ground for constructive and positive interaction between the internal elements in the DGC, and the external elements under the umbrella of the MoE. Therefore, at this stage, the creation of an organizational culture in the work of curriculum development and evaluation based on the

principles of TQM may be an urgent and necessary requirement for the justifications, as detailed in the Chapter One in the study dilemma clause.

Referring to Chapter Two, if the processes of curriculum development and evaluation are characterized by quality, there will certainly be a positive response to the quality of curriculum content. It is beneficial to have a sense of flavour of this culture that is reflected positively on the Omani curriculum. For this purpose, this study seeks to explore the reality of applying the principles of TQM in the process of curriculum development and evaluation.

5.7 Conclusion

This chapter has reviewed the curriculum development and evaluation literature. A comprehensive understanding of the definition of the curriculum and curriculum development and evaluation are provided. This chapter has also highlighted the particular justifications, development decisions, and foundations of curriculum development. Furthermore, the aims, elements, types, and challenges of curriculum evaluation and quality in the curriculum context are explained. Finally, the implications arising from the literature review have been addressed.

To answer the research questions, the next chapter seeks to look to the best approach for building and designing the study instruments, based on the content of Chapter Two and the Literature Review chapters, and then on research methodology philosophy.

Chapter Six: Research Methodology

6.1 Introduction

Governments are embracing research through the organisations and academic research institutions to open up a whole debate about evidence informed policy making, confront their problems, and develop their situations in all aspects of life, including education. Specifically, the Sultanate of Oman has set a special budget for scientific research in various fields in order to develop its life system by the Scientific Research Council and various research centres in Omani Universities, in addition to sending Omani researchers to acquire research experiences in global research centres and universities. Hence, scientific research in the education sector is necessary to develop and improve all components of the education operation. Thus, the researcher requires a certain knowledge of the rules of the scientific methods and the required steps to use this as a framework for organizing the search process.

Research is simply "…one of many means by which human beings seek answers to questions. Questions arise constantly throughout a day, whether they are personal or professional in nature" (Bryman, 2012, p. 5). According to Kothari (1992, p. 1) "…research in common refers to a search for knowledge. One can also define research as a scientific and systematic search for pertinent information on a specific topic. In fact, research is an art of scientific investigation." Reeves (1992, p. 8) defines research as "…a systematic approach to answering questions."

Omar's (2009) more in-depth definition refers to research as "…the planned efforts and application of the series of procedural scientific steps to interpret phenomena, investigate the facts, solve problems and gain access to new, supported knowledge." In other words, "…research is a process of steps used to collect and analyse information to increase our understanding of a topic or issue" (Creswell, 2012, p. 3). This view is supported by Gay and Airasian (2003), who define research as "…the formal and systematic applications of the scientific inquiry approach to the study of problems." So, it can be argued that research is an organised approach to answering research questions.

In contrast, Jankowicz (2002) states that the methodology is the analysis of, and rationale for, a particular method or methods used in a given study. However, most researchers often confuse methodology with method, and use it in one context and in one sense. However, this practice is actually untrue because the methods are not identical. The first refers to philosophy and the latter refers to the technical procedures applied to conduct the research (McGregor and Murnane, 2010). Thus, the range

of research methodology is wider than that of the research methods. Crotty (1998) and Ormston et al. (2014) explain that the understanding of the differences between methodologies and methods is pivotal and has significant issues. The lack of awareness of the differences between these two concepts has affects many researchers, and necessarily entails having good knowledge and a critical understanding of discrimination between them as a way of understanding the range of research design approaches available.

Research methodology applies to more than the research methods alone as it also considers the logic behind the methods that are used in the context of the study, as well as the reasons that a particular method or technique is used. In other words, it is "… a framework associated with a particular set of paradigmatic assumptions that will be used to conduct research" (O'Leary, 2004, p. 85). This will enable the researcher and others to assess and evaluate the study's findings (Kothari, 2004). Hence, it is important for researchers to be aware of the research methodology as this will help to inform them of the range of research methods that can be applied to data gathering, and the variety of approaches that can be applied to the data analysis. Furthermore, it avoids drawbacks and provides insights into the overall research process (Bryman, 2012).

This chapter presents a detailed overview of the research methodology applied in this study. This involves a discussion of two related key issues, namely: the philosophy of methodology, that is, the paradigms, methods, and instruments; and the procedures and approaches applied to the data collection.

6.2 Key philosophical issues in social research

In this part of the chapter, the logical sequence of the current study is presented in relation to the methodology. Here, the researcher explains his vision of the research philosophy associated with this study, such as paradigms, methods, approaches, and instruments. The philosophy of research in social sciences in general, and education in particular, cannot be reduced to one particular theory or approach, because most of the theories and approaches that are advocated by the pioneers of research can be adopted.

This section highlights what is relevant to the current study which, in turn, will provide a basis for understanding the research journey. According to Ormston et al. (2014, p. 19), "It is advisable for

researchers to have an understanding of the different epistemologies, paradigms, or traditions as a way of understanding the range of approaches available."

6.2.1 Research philosophy

It is essential for social science researchers to have a knowledge of the theories that inform research, because this can provide a logical background for the research that is being conducted, so that the procedures associated with the research journey can be fully understood (Bryman, 2012). There are two main research philosophies, namely ontology and epistemology.

Ontology is the nature of reality - in other words, knowing what exists, how it looks, and how it interacts. Therefore, according to this philosophy, humans must have a number of ontological assumptions about what is real and what we attribute to existence. Whether these basic assumptions are identified and considered or not, the researcher may be partially blind to some aspects of the investigation and knowledge. Thus, this assumption must be implicitly assumed until proven or rejected (Bryman, 2012; McGregor and Murnane, 2010 and Richards, 2003). Simply, ontology is the philosophical assumption that concerns our thinking and beliefs about the kinds and nature of existing reality.

Epistemology is about the 'how' and 'what' we actually know about reality. In other words, it is the method or basis of access to knowledge through a set of claims or assumptions about the ways in which existing knowledge can be acquired. Therefore, it is necessary to think about methods and criteria that can be relied upon to verify and produce knowledge. According to Cohen, et al. (2007, p. 7) "… epistemology is about the assumptions which one makes about the very basis of knowledge - its nature and form, how it can be acquired and communicated to other human beings" (Bryman, 2012 and Richards, 2003). In short, ontology and epistemology are theoretical perspectives that concentrate on assumptions that inform the researcher's views of the world and the area being researched.

Consequently, both ontology and epistemology philosophy form the basis of the research paradigm. So, the researcher's readings in the field of epistemology and ontology have formed the basis on which his understanding of social research is based, which have developed his thinking in adopting the appropriate research methodology and methods for this study. In addition, ontology and epistemology assume that reality is always waiting to be explored. In other words, this is not fixed, but is rather in a state of constant review that has contributed to his ability to think critically in order to understand the

relationships between exploring the application of total quality principles in the context of the curriculum directorate's work.

The ontological and epistemological arguments in support of this research are based on the belief that there is no absolute truth or knowledge. In other words, human knowledge of the reality of existence is still deficient due to the lack of disclosure of all this truth, and therefore, it is upon us as researchers to explore the existing knowledge and truth associated with this reality. This reality is seen through multiple angles in different people's perceptions and beliefs. There are, therefore, different ways of understanding, presenting, and interpreting this reality. Therefore, the researcher's own understanding of ontology and epistemology defined the methodology, methods, and tools for data gathering that were used in this research, because the purpose of social research, as in the case of this study, is to "explore" reality, not discover it. This understanding of ontology and epistemology also led to the development of the researcher's position and voice during the research stages, especially when criticizing an issue in the theoretical literature of the topic or the study methodology, in addition during the stage of discussing the results in Chapter Nine.

6.2.2 Research paradigm

According to Neuman (2006, p. 81), "a paradigm is a general organizing framework for theory and research that includes basic assumptions, key issues, models of quality research, and methods for seeking answers." Similarly, McGregor and Murnane (2010, p. 419) define a paradigm as "a set of assumptions, concepts, values, and practices that constitute a way of viewing reality." There are two main paradigms in social sciences research, namely positivism and interpretivism. According to Scotland (2012), every paradigm is based upon its own ontological and epistemological assumptions. Different paradigms inherently contain differing ontological and epistemological views. Thus, the paradigm guides different aspects of the research, such as the principles of the research, the data collection methods, data analysis, and sampling designs.

The positivist paradigm assumes that there is a single uniform reality that researchers attempt to use; it is the scientific method which focuses on facts and/or the objective assessment of attitudes and aims to work out the theories that broadly apply to people or societies (McGregor and Murnane, 2010). The positivist paradigm seeks to generate hypotheses that can be tested, and that will thereby allow the explanations of laws to be assessed, the knowledge of which is then arrived at through the gathering of facts that provide the basis which will either be accepted or refused by the hypotheses. Furthermore,

researchers see themselves as neutral recorders, and by using the same instruments they should reach the same conclusions (Bryman, 2012).

In contrast, the interpretivist paradigm is one of subjectivism based on real world phenomena. The world does not exist independently of our knowledge of it (Grix, 2004, p. 83). Moreover, it is directed at understanding phenomena from an individual's perspective and investigating interaction among individuals (Creswell, 2009, p. 8). These researchers see themselves not as neutral recorders that can use the same instrument for all participants, but use different items, different questions, and work out the theories that apply to people or societies (McGregor and Murnane, 2010).

In light of the above, it can be argued that positivism is the basis of the quantitative research method which focuses on obtaining a superficial set of information from a wide range of people for the purpose of understanding and predicting. In contrast, interpretivism is the basis of a qualitative research method that focuses on what people do and targets a much smaller number, more deeply, for the purpose of interpretation and interaction. In this study, positivist and interpretivist paradigms have been adopted.

6.2.3 Research methods

Research methods mean that "…a range of approaches are used in educational research to gather data which are to be used as a basis for inference and interpretation, for explanation and prediction" (Cohen et al, 2007, p. 47). According to O'Leary (2004, p. 85), research methods are the techniques used to collect data. There are two types of primary research methods, namely quantitative and qualitative.

The quantitative research method requires the collection and analysis of numerical data and attempts to maximize objectivity, reliability, and findings, and is typically interested in prediction (Lincoln and Guba, 1985). Furthermore, it is an approach used for testing objective theories by examining the relationship among variables (Creswell, 2012). In contrast, qualitative research is an approach used for exploring and understanding the meaning of individuals or groups that are ascribed to a social or human problem (Creswell, 2012). In other words, qualitative research necessitates the collection and analysis of narrative data, with its focus being on discovering and understanding the experiences, perspectives, and thoughts of the research participants (Hiatt, 1986).

For the purpose of looking for an approach which attempts to use multiple methods to answer the research questions instead, of adhering to one method, methodology researchers have adopted an

approach called the ‘pragmatic approach’. In the context of discussing, it here in this study, the researcher focuses solely on the relationship of pragmatism in the selection of the research paradigms and then research methods and does not delve into its philosophical complexities. The philosophy of pragmatism, when regarded as an alternative paradigm, sidesteps the contentious issues of truth and reality, and accepts, philosophically, that there are singular and multiple realities that are open to empirical inquiry, and orients itself toward solving practical problems. In that sense, pragmatism allows the researcher to be free of the mental and practical constraints imposed and researchers do not have to be the prisoner of a particular research method or technique. For instance, the researcher has to be aware from the outset that the data collated as part of the research may not completely fit the research question. However, this does not mean that we can abandon the original research question and answer another one but that the findings need reflection, linking, and rethinking. So, pragmatism is an acknowledgement that any knowledge produced through research is relative and not absolute. Therefore, researchers are often advised to choose the mixture of methods and procedures that works best for answering our research questions to find out whether the research has helped to discover what the researcher wants to know (Badley, 2003; Feilzer, 2010, Creswell, 2012).

The pragmatic approach to science involves using the method which appears best suited to the research problem, and not getting caught up in philosophical debates about which is the best approach. Pragmatic researchers therefore grant themselves the freedom to use any of the methods, techniques, and procedures typically associated with quantitative or qualitative research. They recognise that every method has its limitations and that the different approaches can be complementary. In this sense, pragmatism offers a philosophical framework for mixed methods research (Morgan, 2007; Wheeldon, 2010; Hathcoat and Meixner, 2015). According to Cameron (2011, p. 101) the pragmatic approach is a practical approach to solving a problem and has strong associations with mixed methods research. Moreover, the pragmatic approach is not committed to any one method or philosophy. So, researchers have the freedom to choose a research method or methods of their choice which are most appropriate to meet their research needs and purposes (Creswell, 2012). To this end, it allows for a more flexible approach to any research study (Morgan, 2007; Wheeldon, 2010). In short, a flexible approach addresses the limitations of quantitative and qualitative methods (Johnson and Onwuegbuzie, 2004).

Greene, Caracelli, and Graham (1989, pp 285-260) determined three reasons for the use of the mixed-methods approach:

- ***Triangulation:*** *to corroborate data and obtain convergent validity.*

- ***Development:*** *to guide further data collection, sampling, or analysis.*

- ***Complementarity:*** *to explain the results of analyses more fully.*

Also, Hammersley (1996, pp 167-168) summarized the purposes for the use of the pragmatic or mixed methods approach, as described below:

- ***Triangulation****: where the findings from both approaches are used to check each other.*

- ***Facilitation:*** *where one approach is used to support or aid the other. The results from the first approach may, therefore, serve as the basis for the other.*

- ***Complementary****: where one approach is used to complement the other. Each approach focuses on different aspects of the investigation.*

For this purpose, Turnbull and Lathlean (2015, pp 374-377) emphasized that there are three main functions that mixed methods research aims to fulfil.

> ***Triangulation, or convergence and divergence:*** *refers to a process of adopting two or more methods in order to corroborate the findings from one method with the other. With this process of cross-checking, it is intended that the confidence in the entire study will be enhanced.*
>
> ***Facilitation, or development:*** *is where one method is used to facilitate a following stage of the research. Examples of this may be when the results of the questionnaire are used to develop or improve the questions of the interviews.*
>
> ***Complementarity:*** *is grounded in the idea that the weaknesses of one method can be offset by combining them with an alternative method which offers different strengths – that is, methods are combined to complement one another. This process may aid the completeness or the*

comprehensiveness of understanding of an issue. This process can provide both a broad brush and the detailed context. It can also help enhance the explanations for findings.

Thus, the pragmatic approach opens the door to multiple methods, different worldviews, and different assumptions, as well as different forms of data collection and analysis.

According to (Creswell, 2012), mixed methods research is an approach to inquiry involving collecting both quantitative and qualitative data, integrating the two forms of data, and using distinct designs that may involve philosophical assumptions. The basic principles of mixed methods research are that multiple types of data must be collected using different strategies and methods in ways that reflect strengths and weaknesses (Johnson and Turner, 2003). In the same way, Johnson and Onwuegbuzie (2004) emphasized that mixed methods research aims to draw from the advantages and minimize the disadvantages associated with using individual methods. Thus, bringing quantitative and qualitative findings together can answer a broader, more diverse, and more complete range of research questions, and help to clarify and integrate them with each other (Bryman, 2007; Feilzer, 2010). In addition, it provides stronger evidence for a conclusion through the convergence and corroboration of findings (Johnson and Onwuegbuzie, 2004).

In short, mixed methods research serves to improve the quality of research, and enhances the confidence in the findings. Furthermore, this method allows the researchers to use more than one research instrument. In this study, the researcher has used two research instruments - the questionnaire and semi-structured interviews.

6.2.4 Research instruments

According to O'Leary, (2004, p. 85), research instruments are "…the devices you will use to help you collect data." In this study, mixed instruments, specifically questionnaires and interviews, have been used. As noted earlier, questionnaires and interviews are often used together as mixed tools to give power and credibility to the research results. Questionnaires can provide evidence of patterns among large groups of people, often gathering qualitative data that can be drawn on interviews. Thus the data gathered is deeper than the data that is gathered from an individual participant in an interview which draws from their perceptions alone (Kendall, 2008).

6.2.4.1 The questionnaire

Because of its positive characteristics, the questionnaire is widely used as an effective instrument for collecting information in various human, social, and scientific research (Omar, 2009). As such, it makes it easy for the researcher to collect vast amounts of information at a specific time (Karakoyun and Kurt, 2010). Researchers are able to distribute hundreds, and sometimes thousands, of questionnaires on any specific day, either by post, e-mail or online, and receive the answers within a specified time period. Furthermore, questionnaires are not materially expensive in terms of design, delivery, and distribution unless they are delivered by post which could prove to be costly, depending on the amount of participants and their location, particularly if overseas, and the collection of comparative information by others that needs more effort and additional material costs, such as travel (Gay and Airasian, 2003; Karakoyn and Kurt, 2010). Questionnaires promote and encourage 'free' answers because they are sent to participants directly and provide the opportunity for participants to respond at their own convenience and without embarrassment (Cohen et al, 2007; McKernan, 1996).

Some additional advantages associated with using questionnaires is that they are able to provide a degree of objectivity to the research results as they avoid the bias of the researcher. They alleviate any pressure to answer a particular type of question as there is no direct pressure facing the respondent to provide a particular type of answer (Bryman, 2012). In addition, the questions are uniform and identical for all members of the research sample because they are written and uniformly designed for all (Omar, 2009).

The questionnaire design facilitates the process of compiling information into totals and classifying the results into fields. The results are then interpreted, and the required and appropriate conclusions reached (Al-Jerjawi, 2010; Tadmouri, 2015). Finally, participants can choose a suitable time to complete the questionnaire at their own convenience (Gay and Airasian, 2003, Omar, 2009). For example, an individual can complete the questionnaire in their own home, in the office, or at any other location, at a time when they are mentally and intellectually prepared to do so.

However, there are some limitations and constraints associated with data collection when using questionnaires. Firstly, some of the participants may encounter problems in understanding questions, especially if the researcher has used words and / or phrases which are unfamiliar to them (Gay and Airasian, 2003; Bryman, 2012; Tadmouri, 2015). Secondly, for the sake of credibility, it is important that all the questions are carefully formulated to answer the research questions. It is also prudent to test

the validity and accuracy of the questionnaire on a specified pilot sample. This enables feedback and amendments to be incorporated in the questionnaire before final distribution to the research participants (Gay and Airasian, 2003; Al-Jerjawi, 2010).

Thirdly, unforeseen circumstances such as lost mail could result in some of the questionnaires not being received, as well a reduced response rate due to a percentage of the questionnaires not being returned (Al-Jerjawi, 2010). Thus, the principle for following up on responses should be clearly specified. In addition, extra copies of the questionnaire should be prepared in advance which can be re-sent to participants to replace any missing copies where necessary, in order to ensure a representative proportion of the population is reached. Finally, some of the questions may be unanswered by respondents for personal reasons, due to a lack of understanding of the questions being asked, or because the participant may not consider their answers seriously (McKernan, 1996; Omar, 2009; Bryman, 2012).

In this study, an online questionnaire has been used, which is often characterized as presenting the information and obtaining the answers in a timely manner. It is easy to complete and retrieve the questionnaire in order to get the results, and at a low cost to the researcher. In addition, it easy to transfer data obtained to statistical programmes and analyse it (Ronald and Matthias, 2002; Kevin, 2005; Martine and Nicholas, 2006; Martyn, 2009).

However, the researcher should take into consideration some of the disadvantages associated with the online questionnaire, such as the difficulties associated with designing it electronically. Consequently, the researcher needs to have the technical skills to design it. There is always a possibility of threatening the confidentiality of data, so it is necessary to verify the reliability of the website used, and that it is difficult or impossible to penetrate. In contrast, there is a second plan that uses the hard copies of questionnaires, if the researcher does not obtain the target numbers of returned completed questionnaires (Ronald and Matthias, 2002; Andrews et al; 2003; Martine and Nicholas, 2006; Tom et al, 2007). As a result, the Survey Monkey has been used to gather data by the researcher, after approval from the Ethics Committee at University of Glasgow.

For the questionnaire, the researcher decided to use the mother language of the participants, namely, the Arabic Language. More details included about the language used to collect the data are outlined in Section 6.8 - The language of data collection.

6.2.4.2 The interview

The interview is designed to collect information by direct contact with the respondent, whereby the researcher conducts a field visit to the study area to interview selected participants in person (Gall and Borg, 1996). For this study, semi-structured interviews were used. Thus, the researcher prepared the questions in advance, but was able to add or delete and amend questions according to the circumstances and developments which occurred during the interview.

The interview method has some advantages; for example, it gives the researcher the opportunity to clarify any ambiguity or confusion in the questions, and therefore ensures that all participants have understood the questions correctly by clarifying this with the researcher (Robson and Foster, 1993). The interview method also provides the researcher with additional information on the research topic, and helps them to gain a better understanding, as well as diagnose any problems accurately (Omar, 2009). Another positive feature of interviews is that it enables the researcher to respond directly to the participant, thus ensuring they provide complete answers to the questions and can provide clarification of their answers if needed (Gall, and Borg, 1996, Hamadawi, 2014). Moreover, the researcher can identify any contradictions given in the answers compared with the reality of their observations and have the opportunity to review and amend this in person (Hamadawi, 2014).

However, there are some disadvantages associated with using interviews to collect data. Firstly, there is the possibility that the researcher's bias (Gall, and Borg, 1996) may result in the questions being asked in a suggestive way. In doing so, this may influence or direct the respondent to answer questions in such a way that they support the views and opinions of the researcher. Another issue arises when the sample size is large, as this could make it difficult for the researcher to carry out all of the interviews personally (Gall, and Borg, 1996). However, researchers can overcome this obstacle by using interview assistants. In addition, the interviews can take a great deal of time and require a substantial amount of financial resources. Finally, the interviews can be affected by several other factors, such as increased stress and tension, among others, which may cause the respondent to be reluctant to answer some of the critical questions that create feelings of discomfort (Hamadawi, 2014).

In this study, the ontological and epistemological assumptions are significant in the sense that they justify the choice of paradigm, methods, and study instruments. Hence, this study follows a pragmatic approach by combining quantitative and qualitative research methods in different parts of the study. A

quantitative method was used to collect data relating to TQM principles from the GDC staff, and a qualitative method was used to obtain deep and comprehensive data from them.

The mixed-method approach was selected for a number of specific reasons. Firstly, mixed-method research enables the findings from both approaches to be compared against each other in a process referred to as 'triangulation'. In other words, corroborating the findings from one method with the other will lead to enhancing the entire study. Secondly, 'complementarity' means that one approach is used to complement the other. In other words, each approach focuses on different aspects of the investigation which can help enhance the explanations for findings. In this case, mixed instruments, questionnaires, and interviews have been used. These instruments are generally considered to be the most common types of survey instruments used in most areas of social sciences. The remaining parts of this chapter concentrate on all issues that are associated with data gathering procedures. In short, the study methodology and philosophy is summarized, as illustrated in Figure 6.1 below.

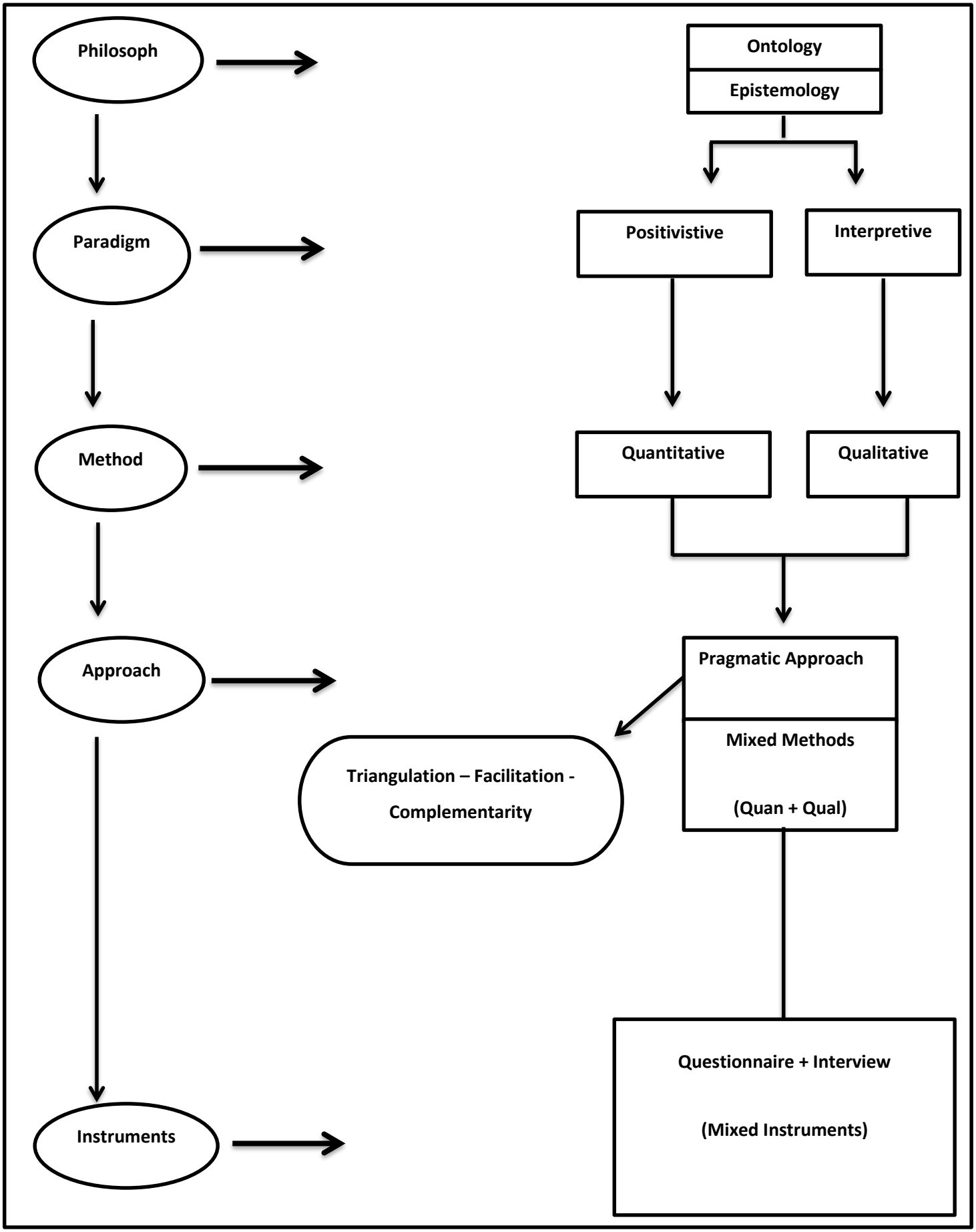

Figure 6.1: Methodology Philosophy (by researcher)

6.3 Design of research instruments

The administrative and technical staff at the DGC form the target sample for this study. In order to fulfil the objective of providing data to answer the study questions, two research instruments have been used to obtain the required information, namely, a questionnaire and semi-structured interviews. In addition, the Arabic language was used to gather the data, further details of which are outlined in Section 6.8 - The language of data collection.

Both the questionnaire and semi-structured interview were used to collect data relating to the TQM principles, and curriculum development and evaluation processes at the DGC generally, without requesting any personal details. Thus, at no time during this study was any personal data relating to the participants collected.

The design of the research instruments was informed by the literature review, as well as chapters three, four and five. and the roles in the DGC and the stages of the Omani curriculum development and evaluation processes, Chapter two. The content of the questionnaire and the questions of interview concentrated on the application of TQM principles, curriculum development, and evaluation works at the DGC.

6.3.1 Questionnaire

In this study, the questionnaire, Appendix (E), aimed to collect quantitative and qualitative data on the existing reality of the application of TQM principles in the curriculum development and evaluation processes in the Sultanate of Oman. The questionnaire was divided into seven parts, as detailed below.

Section 1 seeks to obtain specific information about gender and type of job, for example, administrative (general director, deputy general director, department director, deputy director, administrative expert, head of section, follow up officers); technical (educational expert, curriculum expert, educational researcher, curriculum officer, study officer, painter, designer, proof-reader, teaching aids officer, laboratory officer, electronic content officer); and finally, number of years of work experience in the DGC.

Section 2 focuses on the TQM principles and the four involved parts:

Part 1 seeks to obtain information in relation to leadership practices in the DGC.

Part 2 has been designed to establish the level of satisfaction experienced by the employees of the DGC, and the services provided to them.

Part 3 focusses on the extent that DGC staff have participated in the decision and policy-making processes.

Part 4 relates to the continuous improvement policies in the DGC.

Section 3 mainly targets the processes used for evaluating and developing the curricula in the DGC.

Section 4 contains open-ended questions. In addition, the end of the questionnaire includes a section in which the participants were asked whether they would like to participate in the interview. If yes, they were requested to email the researcher directly to confirm their interest.

The design of the study questionnaire mostly derives from the six-point Likert classification scale and consists of six scales because of its suitability for the nature of the paragraphs presented (strongly agree, agree, neutral, disagree, strongly disagree, and do not know). This scale is one of the most widely used standards in questionnaires for its practical and uncomplicated data analysis structure. The Likert scale is characterised by classifying the data and adding the property order so it can be placed sequentially (Rob, 2010; Anderson and Arsenault, 1998). However, the Likert Scale has some disadvantages, such as the space between each choice cannot possibly be equidistant. Therefore, it will heavily concentrate on one response side (agree/disagree). Also, it is not unlikely that participants' answers can be influenced by previous questions (LaMarca, 2011).

6.3.2 Interviews

The semi-structured interviews targeted 10 staff members from the DGC, consisting of five administrators and five technicians, and contained 15 questions as a basis for the interview. The main objective of the interviews was to obtain more in-depth information and more accurate explanations of the current role of curriculum development and the evaluation process, and their relevance to the principles of TQM. In this study, semi-structured interviews were used. This process enabled the researcher to gain more information by constructing new questions associated with the answers of the interviewees as they are given. The researcher was also keen to have the interview method suited to

each person individually so as not affect the reliability of the interview, as per Section 6.6.1 - Reliability. Finally, the interviewer should give the interviewees the opportunity to express themselves and add new comments and ideas that can often add value and enrich the interview (Omar, 2009; Hamadawi, 2014).

6.4 Population and sampling

According to Cohen et al. (2007; p. 144), "…the population that the researcher realistically selects from is referred to as the accessible population or available population." The sampling strategy adopted is one of the factors that can judge the quality of research. Therefore, one of the most important conditions for selecting the sample is that it must be randomly chosen and representative of the population because the results of the study of the sample selected can be generalised to the population (Cohen et al, 2007). In other words, the research results will be applicable to other samples selected from the same population.

The study sample size depends on the nature of the research and the shape and form of the data intended to be collected (O'Leary, 2004). Moreover, the relationship between the sample size and the total population is such that whenever the population increases, the sample size will also increase. Thus, the sample size of a population of 250 is 152 (Krejcie and Morgan, 1970; p 608). When asked if there are enough participants, qualitative researchers will answer by saying, "…it depends, as no hard-and-fast rules specify a 'correct' number of participants" (Gay, et al., 2012; p. 143).

For the reason that the population of this study is specific and limited, the sample population for this study involves all employees from the DGC at the MoE. According to the MoE (2018), the number of employees working in the DGC totals 253. All staff were invited to complete the questionnaire; however, as some staff were on official leave or study vacation, or other reasons which prevented certain members of staff from being present and available during the data gathering period, a total of 147 participants completed the questionnaire. A total of 10 randomly selected participants were involved in the interviews. The total of 8 employees agreed to participate as volunteers for the interview. The two groups by type of job, administrative and technical, was divided. Seven administrators and 11 technicians agreed to take part. Each of them were then coded and listed according to the date of reply in a paper based on type of work. After that, the first five participants, according to the date of response from each group, were randomly selected. The following tables provide the details of the distribution of the sample used in this study for the questionnaire and interview.

Table 6.1: Sample distribution of questionnaire based on gender, type of work, and work experience.

	Gender		Type of work		Years' work experience		
	Male	Female	Administrative	Technical	Less than one year - five years	6 - 10	More than 10 years
	88	59	102	45	28	42	77
Total	147		147		147		

Table 6.2: Sample distribution of interview based on gender, type of work.

Administrative		Technical	
Male	Female	Male	Female
4	1	3	2
5		5	
Total: 10			
Making notes by: 10			
Recording accepted by: 10			
Interview method: Face to face			

6.5 Pilot study

The pilot study is an initial trial of the research instruments carried out under the same conditions as those used in the actual application; however, a lower number of participants take part in the pilot study than in the actual application. The purpose of the pilot study is to develop the data collection instruments, improve the data collection procedures, verify appropriateness of the tools and processes for the context in which these are to be applied, such as space and time; and reduce the number of actual application errors by overcoming potential problems, in other words, to validate the accuracy of the questions and statements of the study's instruments by modifying or cancelling some vague concepts or questions of the samples.

Thus, the pilot study is an important stage for the researcher as, during this stage, rich feedback is obtained which will help to develop and improve the study's instruments and highlight the drawbacks that could negatively affect the data collection process. More specifically, it is an exploratory stage that gives the research preliminary indications of what the actual application will entail, and what the outcome might be (Kim, 2010; Miles, nd; Lancaster et al, 2004).

In the current study, the pilot study phase provided the researcher with much insight into many areas relating to the content of the study's instruments. In addition, the researcher gained valuable experience in dealing with the actual application of collecting the data. Subsequently, once the researcher received the required ethical approval from the University of Glasgow, the pilot study was conducted.

6.5.1 Piloting the questionnaire

In this study, the pilot questionnaire was divided into two stages, as explained below.

Stage (1)

The first pilot questionnaire was distributed to a total of eight participants. The researcher emailed a soft copy of the questionnaire to each participant. The target group was selected consisting of the experts, curriculum officers, and directors of the DGC at the MoE. The purpose of this was to provide the researcher with information associated with wording, design, layout, and the extent to which the statements were linked to the main themes under which it falls. In other words, it was to refine and

ensure that the validity of the questionnaire. More details of the validity of the questionnaire are provided in Section 6.6.2 of this chapter.

The main comments and notes associated with the design and content of the questionnaire are as follows:

1) In general, all participants who completed the questionnaire in the pilot study did not report any difficulty in understanding the different aspects of the questionnaire.
2) There were some grammatical mistakes, thus, the questionnaire was reviewed and corrected by an Arabic proofreader prior to its inclusion in the actual application.
3) In Section One, Personal Details, the participants were asked to place all of the functional titles in the DGC in order, in relation to the technical and administrative functions, so that they could be easily selected in the actual application.
4) Leadership, staff satisfaction, employee involvement, and continuous improvement must be grouped under one key title; namely, the principles of total quality management.
5) There were a number of repeated statements in some of the themes, some of which were subsequently removed by the researcher.
6) At the end of the questionnaire, a space was added to include an email address for those who wanted to be interview participants.

Stage (2)

The second pilot questionnaire was conducted on a total of 24 participants during the first week of September 2018.The participants included staff members from the DGC at the MoE. This empirical component of the research was conducted in Oman, an Arabic speaking country, so the researcher has taken on board to use of the Bristol Online Survey. However, the advice from the Research Administrator, from Research and Innovation Services, at the University of Glasgow confirmed that the Bristol Online Survey, and other similar online surveys, do not support surveys in Arabic, therefore, the Survey Monkey was used to gather data from the questionnaire instead.

In this pilot study, Survey Monkey software was used to check the technical work of the online survey, and to establish the reliability of questionnaire. This was to identify its ease of use and ensure that the software was able to receive the data obtained from the questionnaire. In addition, it was also to safeguard the reliability of the questionnaire and establish the average time that the participants took

to complete it. More details of the reliability of the questionnaire are provided in Section 6.6.1 in this chapter.

Technically, the online survey worked well, and no obstacles were experienced. In terms of the time taken to complete the online survey, the average time was 16 minutes per participant. Thus, it can be argued that the time was suitable to achieve the goal of conducting the online survey.

6.5.2 Piloting the interview

The semi-structured interviews were piloted with the first two interviewees, one administrative member of staff and the other being a technical member of staff, during the actual data gathering period. Once the first two interviews had been completed, the researcher collected all the comments and notes provided with a view to improving the quality of the subsequent interviews in order to gather the data related to the research questions. This step concentrated on time, clarity of questions, quality of recording, place of interview, and achieving the validity. More details on the validity are provided in Section 6.6.2 in this chapter.

The first interview lasted for 48 minutes and the second interview lasted for 37 minutes. Thus, it can be argued that the time taken to conduct both interviews was suitable to achieve the objectives of the interview. The questions were clear, however, there were occasions when the interviewees missed or did not understand the main key topic of question. Thus, the researcher paid specific attention to this in the remaining interviews.

The researcher used his mobile phone to record the interviews. The quality of the sound was very clear making it very easy to transcribe what had been said. The two rooms where the interviews were held had been selected to ensure the interviewees' sounded clear, and because there was almost no echo of sound experienced in this location. Furthermore, the rooms were very comfortable for both the researcher and interviewees; they were calm and quiet, had air conditioning, and the chairs and table were of high quality. The researcher deleted all recordings from his mobile phone after transferring them to his desktop computer at the University of Glasgow.

6.6 Instrument's reliability and validity

Reliability and validity are very important issues to consider when planning and carrying out any type of research. They are also important in all forms of research and all types of tests.

6.6.1 Reliability

According to Gay, et al (2012, p. 160) "…reliability is the degree to which a test consistently measures whatever it is measuring." In other words, the test or instrument will give the same result if applied to the same sample in two different periods. One of the most important measures of reliability for the questionnaire is the Cronbach's Alpha, which measures the overall stability of the questionnaire, and the degree of internal consistency between its items (Oppenheirn, 1992). In his book, Psychometric Theory, Nunnally (1978, p. 245) pointed out that according to Cronbach's Alpha measure, "…it is often associated with the assertion that instruments used in basic research should have reliability of .70 or better".

In this study. the Cronbach's Alpha test was completed to obtain the reliability of the questionnaire's items in two stages. ***Firstly,*** for the data obtained as a pilot study, the result of Cronbach's Alpha test of the model, questionnaire, showed an overall result of (0.959) which means that the internal reliability was high. Table 6.3 shows the results of Cronbach's Alpha test of the questionnaire contents and overall pilot study.

Table 6.3: The results of Cronbach's Alpha test of the pilot study

Part	Cronbach's Alpha result	No. of Items
Leadership	0.884	22
Staff Satisfaction	0.836	14
Employee Involvement	0.884	13
Continuous Improvement	0.897	22
TQM Principles	.945	71
Curriculum Development and Evaluation Processes	0.874	16
Overall	0.959	87

Secondly, the final collection of data, the full sample. In order to check the reliability of the collected data, the raw data were examined statistically, and the main test was Cronbach's Alpha test. The result of Cronbach's Alpha test of the model, the questionnaire, showed an overall result of (0.969) which means that the internal reliability was also very high. Table 6.4 shows the result of Cronbach's Alpha test of the questionnaire contents, and the overall for the full samples.

Table 6.4: The results of Cronbach's Alpha test of actual sample

Part	Cronbach's Alpha result	No. of Items
Leadership	.935	22
Staff Satisfaction	.898	14
Employee Involvement	.914	13
Continuous Improvement	.923	22
TQM Principles	.964	71
Curriculum Development and Evaluation Processes	.896	16
Overall	.969	87

According to Gay et al. (2012), the reliability of the qualitative research methods can be verified by focusing on the techniques used to collect the data; for example, the methods used to ask the questions during the interviews. Similarly, Cohen, et al. (2007) explained how to control and manage the reliability of the interview, which should be highly structured, with the same format and sequence of words and questions for each participant. Silverman (2011) also emphasized that it is very important for each interviewee to understand the question in the same way which will enhance the reliability of interviews by the careful piloting of the interview schedules, and the training of the interviewers.

In this study, the research sought to achieve reliability of the interview by focusing on various issues that ensure that all interviews were conducted in same physical and psychological conditions and circumstances. For example, all interviews were conducted in the DGC during the working week, and the rooms were very comfortable for both the researcher and interviewees.

The researcher was keen for the interviews to have a friendly and relaxed atmosphere. All interviews began with the researcher providing a brief summary about the topic of the study. A deductive approach was used when asking the questions. In other words, the questions started from general to detailed issues for all interviewees. Another method that the researcher applied was to build questions through participants' answers. All these approaches were used by the researcher to ensure the reliability of interview.

6.6.2 Validity

Validity refers to "… the degree to which a test measures what it is supposed to measure and, consequently, permits appropriate interpretation of scores (Gay, et al, 2012; p 160).” In other words, the ability of the study instrument to measure what was set, or the attribute to be measured. According to Gay and Airasian (2003), content validity can be determined by expert judgment.

In order to verify the validity of the questionnaire, and the interview questions used, the researcher's supervisor, curriculum experts, and researchers were consulted to find out the appropriateness of the items and questions for the study objectives. In light of these suggestions and directives, some of the statements and questions were reviewed and modified, and some were deleted. Appendixes (E) and (I) show the final version of the questionnaire and interview questions.

Moreover, to support both the strength of reliability and validity, and for internal consistency of the main parts of the questionnaire, Pearson's correlation coefficient was used. Correlational techniques are generally intended to display the relationship between the two variables or sets of data, the direction of the relationship, and the magnitude. Pearson’s correlation coefficient, one of the best known measures of association, is a statistical value ranging from −1.0 to + 1.0. Therefore, to have a good internal consistency between the data, it must be a positive correlation between 0.65 to 0.85. Within this range, it can be argued that the data is consistent enough for most purposes of research (Peers,1996; Cohen, et al, 2007).

In the current study, to ensure the strength of association between the parts of TQM principles and between the main parts overall, Pearson's correlation coefficient was calculated. More descriptive detail relating to this is set out in Tables 6.5 and 6.6 below.

Table 6.5: Correlation between the parts of TQM principles.

Part	Correlation with TQM
Leadership	.843**
Staff Satisfaction	.794**
Employee Involvement	.773**
Continuous Improvement	.841**

Table 6.5 above shows the correlation between the parts of TQM principles. In general, the range of the correlation in all parts of TQM is between (.773 - .843). in other words, there is a strength relationship between all parts of TQM principles.

Table 6.6: Correlation between the main parts with the overall.

Part	correlation with Overall
TQM	.989**
Curriculum Development and Evaluation Processes	.822**

Table 6.6 above shows the correlation between the main parts with the overall. In general, the relationship between the main parts of questionnaire has strong positive correlation.

It can be argued that the relationships, correlations, and constancy of items and parts of the questionnaire have been highly positive, so, the reliability and validity were reinforced.

6.7 Insider researcher

It is important to acknowledge the unique role of the researcher in this study as it was conducted in the DGC in the MoE, the researcher's place of employment. According to Given (2008), the term *insider researcher* is used to describe a situation where the researcher is a part of the topic being investigated. In this sense, the researcher belongs to the study community. Similarly, Loxley and Seery (2008) state

that in social sciences research, insider research is undertaken by members of the same group, who share particular characteristics such as culture.

Although advocates have cited many positive aspects of insider research, there are critics who have highlighted many negative aspects of being an insider researcher. According to Bell (2005), Merriam, et al. (2001), and Griffith (1998), the insider researcher is mostly familiar with the group and social setting and knows how to approach various individuals. Also, the insider researcher easily recognises the language of those being studied, and has the ability to ask meaningful questions associated with an understanding of the culture under study. Furthermore, a benefit of being a member of the group under study is the ability to interact naturally with the group and its members, and it is also easy to gain participants' acceptance (Dwyer and Buckle, 2009, Smyth and Holian, 2008, and Bonner and Tolhurst, 2002). Consequently, participants are often more welcoming and willing to discuss private knowledge with those who are personally part of their world and understand them. In other words, they are often more likely to volunteer information to them than they would to outsiders (Khaliza, and Aizan, 2016).

In contrast, the literature relating to research methodology raised many negative aspects of being an insider-researcher. The greater familiarity of an insider researcher with the culture under investigation can lead to loss of objectivity, and then might frequently be accused of biased. A particular concern is whether the insider researcher makes erroneous assumptions based on previous knowledge and experience relating to the participants, and the place of study (Merriam et al., 2001, DeLyser, 2001, and Gerrish, 1997). Also, ethical issues might arise and need to be dealt with. The insider researcher can gain access to sensitive data and may become privy to confidential information about participants and the institution under study, and thus it has the potential to negatively affect their positions and relationships (Smyth and Holian, 2008, and Bell, 2005). Therefore, participants may become uncomfortable with the insider researcher due to confidentiality and being confronted with the role duality, such as colleague and researcher (Couture, et al., 2012, Breen, 2007, and DeLyser, 2001).

In short, to conduct insider research, it is very important that the researcher is aware of all issues that could affect the reliability of the study's findings relating to the anonymity of the organization and individual participants and impartiality, and it should be dealt with so as not to leave the study's results open to the criticism (Greene, 2014 and Blythe, et al., 2013). In the current study, the researcher has taken many procedures to address all threats of insider research, and has been transparent in clarifying them. The role of researcher as an insider researcher in this study is explained further in Sections 6.8 to 6.12 in this chapter.

6.8 The language of data collection

The decision about which language to use to collect the data was extremely important as this would have many implications throughout the research. After careful consideration, the decision was made by the researcher to use the mother language of the participants, namely the Arabic language, in the collection instruments, due to the fact that many of the target sample are not proficient in the English language.

The use of Arabic would dramatically reduce any potential difficulties that participants may have in understanding the questions in the questionnaire and/or the interviews. In addition, using their mother tongue would allow them to express themselves freely without fear of making mistakes when speaking in another language. The basic language of the study tool is English, and after the final agreement, the final version was translated into Arabic by the researcher, and then this version was reviewed by an Arabic proof-reader under the supervision of the researcher.

6.9 Data collection process

This part of the chapter describes the procedures followed during the data collection phase. The data collection process was carried out in two phases, as described below.

Phase one: Data collection from questionnaire

The participants of the study who completed the questionnaire and took part in the interviews were recruited following an official request being issued to all staff working in the Technical Office at the Ministry of Education. Then, the DGC was informed by means of an informal letter from the Technical Office (Appendix (B), and agreed to facilitate the application of the questionnaire. After that, the invitation letter and links to the questionnaire were sent to the Coordination Office in the DGC by the researcher. Next, the participants, (DGC staff members), were informed and sent the questionnaire links via email that were used by the Coordination Office of DGC.

The questionnaire opened online on 6th September 2018. After almost five weeks the online survey closed on 11th October 2018, and subsequently, a total number of 147 responses to the online questionnaire were received. Finally, the questionnaire data was received by the researcher for analysis.

Phase two: Data collection from interview

The first step, prior to conducting the interviews, was the planning and preparation stage, where the interview questions and the rooms to be used were confirmed, with a mobile phone being used to record the interviews. After receiving the questionnaires, the volunteers who agreed to participate in the interview were determined by indicating a (√) to confirm their agreement to participate in a statement that was included at the end of the questionnaire. Following this, a random selection was carried out by the researcher. More detail about random selection is provided in Section 6.4 - Population and Sampling, in this chapter.

Next, the researcher sent formal invitation letters and the plain language statement via email to each of the randomly selected participants to arrange a mutually convenient date and time for the interviews. The interview period was between 16th September 2018 to 25th October 2018. In general, the length of interview lasted between 37 to 60 minutes as planned. All of the interviews were conducted in the rooms of the DGC during normal work hours.

6.10 Ethical considerations

Ethical considerations play a significant role in all research; thus, the researcher must be aware of and attend to the ethical considerations relating to their studies. Research studies are built on mutual trust and honesty between the researcher and the participants (Eynon, et al. (2017); Gay, et al., (2012). Practising ethics is a complex issue that involves much more than merely following a set of rigid guidelines (Creswell, 2012; p 23). Therefore, the researcher should be careful when dealing with participants, particularly with matters that relate to any risk that can threaten the confidentiality, safety, and privacy of the participants. In the current study, the data collected was used according to the University of Glasgow's approved Code of Good Practices in Research. The data gathering of this study was conducted after the researcher obtained the ethical approval from the Ethics Committee at the University of Glasgow (Appendix A: Ethical Approval).

6.10.1 Ethical risk

The researcher is an employee of the DGC at the MoE in the Sultanate of Oman, which may pose some risk of influencing the participants selected from the DGC in response to the questionnaire and answers given in the interview. In order to minimise this risk, the participants were informed that this study was being conducting as part of a PhD research project, and the data collected would be used for research purposes only. In addition, the participants were not asked for personal details, such as their job title, and department to which they belong. The participants were also informed that they had the right to withdraw at any time, without having to give any reason. The researcher also made sure that participants had been given the freedom to participate in this study.

To minimise any risk of the interview participants of this study, the researcher clearly stated that no pressure would be put on the participants being interviewed as a result of the researcher's working relationship with them. In addition, their decision as to whether or not to take part in the study would not impact or affect their employment status, or their professional development within the DGC in any way.

6.10.2 Anonymity of participants

The anonymity and privacy of all the study participants should be respected at all times. Anonymity refers to concealing the identities of the participants from all documentation produced during the course of the research. This means that care should be taken in deciding whether or not sensitive information should be recorded (Houston, 2018) and, if so, how.

No personal data was collected from the participants during the study. The questionnaire and interview were used to collect specific data that related to the development and evaluation processes at the DGC generally, which did not necessitate any personal details being obtained. All data obtained from both from the interviews and survey questionnaire were stored securely in the files of the researcher's computer. Furthermore, the data stored in the computer was password protected.

The identities of the online survey participants remained unknown to the researcher. An identity code was given to each interviewee and the data is being stored in a safe location (online – only accessible by password).

6.10.3 Confidentiality

Confidentiality is concerned with who has the right of access to the data provided by the participants (Houston, 2018). In this research, the related data was organised by a code of numbers and was kept in a secure place. In addition, the research data was also stored and backed up in other systems such as a USB drive, hard-drive, and personal laptop; all of which were password-protected to avoid any loss or theft of data. Thus, this data remained secure and all the data used for the publication of the project was de-identified. All data will be kept for a period of 10 years, after which time it will be destroyed, following confirmation by the supervisor, if possible.

The role of the Ministry of Education was to issue the initial invitations to participate in the study on behalf of the researcher. Following their agreement to participate, all efforts and measures were taken to preserve the confidentiality of all the research participants, and to ensure that no third party could access the research data. The researcher confirmed that information regarding the study participants would not be made available to, nor accessible by, any member of staff working within the MoE. Similarly, the data generated by the research was not available to, nor accessible by the MoE.

The researcher has endeavoured to preserve the safety, privacy, and confidentiality of the participants and their data at all times. There was no intervention by the MoE, other than to provide support for the organisation of the research, such as formal communications to facilitate the conduct of research, and to overcome any obstacles that may face data collection.

Each of the interviewees individually determined the location or room that they considered suitable for the interview to be carried out, so as to guarantee that the interview procedures were completely confidential. The researcher ensured that the place chosen for the interview by the participants was confidential and private, after discussing this with individual participants.

6.10.4 Consent

There are three primary areas which require the consent of the study participants. These are:

- Informed: given in possession and understanding of the principal, relevant information;
- Voluntary: given freely and not as a result of coercive pressure (real or perceived); and

- Competent: given by somebody able, in virtue of their age, maturity, and mental stability, of making a free, considered decision (Houston, 2018).

The participants were invited to complete in the online questionnaire using the link to the survey website. A plain language statement was provided on the front page of the online survey so that the participants read and agreed all the required information prior to taking part in the survey. The link was sent to participants, and consent was assumed by the completion of the online survey. The consent was requested from the participants before the interview.

6.11 Obstacles and challenges of data collection

Generally, the researcher did not encounter any major challenges or obstacles during the data gathering phase that could be considered as potentially serious. However, there were some challenges during the interviews and with the responses to the online survey. For example, two weeks after the online survey had been issued, the researcher had only received approximately 50 responses. Thus, the researcher followed this up by sending a request via WhatsApp message to the DGC coordinator to ask them to send a reminder about completing the online survey to those that it had originally been circulated to. Following this, the remaining surveys were then completed and returned in a timely manner.

A number of the interviewees talked about specific issues related to their specific job situation, which made the researcher have to then remind them of the original question more than once, which meant that some interviews exceeded the planned duration time of 60 minutes. Although there was one interviewee who was more formal in their answers to the interview questions, it was surprising to note that the rest of the interviewees were very outspoken in answering the questions, even giving examples in most cases. This, of course, may have had a positive impact on the findings of the study.

6.12 Role of the researcher

The researcher is employed by the Directorate General of Curriculum at the Ministry of Education, which is also the participants' place of work. The following steps were taken to ensure that any participation in the study would be purely voluntary:

- The participants were informed that the researcher is conducting this research as part of a PhD research project, and the data collected will be used for research purposes only.
- All participants were notified of their right to withdraw from the research at any time and without having to provide any reason.
- Prior to their involvement, each participant provided the researcher with their written consent to take part in the research.
- No personal data has been collected from the participants.
- A unique identity code was given to each interviewee.
- The participants were invited to complete an online questionnaire and were given a link to the survey website.
- All the interviews were conducted in the rooms of the DGC during normal working hours.
- The date, time, and location of the interview were selected by the participant, and the researcher was given assurance that the designated location was confidential and private.
- The interviews were conducted in a suitable and comfortable environment with appropriate air conditioning and soundproofing in order to allow the participant to remain calm and relaxed. Moreover, the researcher allowed all participants to discuss their points of view about the interview questions, without giving his own opinions during the interviews.
- From the outset, the researcher endeavoured to establish a high level of trust with the participants to allow them to express their opinions plainly and confidently, without any undue concern. In other words, the interviews were conducted in a friendly and relaxed atmosphere.
- The DGC provided logistical support to the researcher by facilitating and coordinating the required facilities for the research procedures, such as formal communications to conduct the research, as well as assisting with solving any obstacles encountered during the data collection process. Further details associated with the issues concerning research ethics are provided in Section 6.9 of this chapter.

6.13 Data analysis

A brief summary of the statistical computations and analytical methods used in this study is detailed in Chapters (7) and (8). This study used the mixed methods approach consisting of two data gathering instruments, namely, the online questionnaire and the semi-structured interview.

6.13.1 Quantitative data analysis

Version 22 of the Statistical Package for the Social Sciences Software (SPSS) was used to analyse the quantitative data. Thus, the descriptive statistical tool was used to obtain the means and standard deviations, and to establish the approval decision level of the sample for the themes and statements of the questionnaire. The internal correlation coefficient between both the themes of the questionnaire and the statements of each theme was established so as to determine the degree of consistency of the themes with each other, and the consistency of the statements within each theme.

An independent sample t-test was conducted to understand whether there is a difference in the degree of acceptance of the sample, based on gender and job. One-way ANOVA was used to compare the acceptance level to establish any difference to the degree of acceptance of the sample based on the number of years' work experience. More details of the quantitative data analysis are provided in Chapter (7).

6.13.2 Qualitative data analysis

The qualitative data was obtained from the semi-structured interviews and open-ended questions in the questionnaire, as pointed out previously in Section 6.2.4.2. For the interview in this chapter, qualitative data was used in order to corroborate the findings from one method with the other, which led to confidence in the entire study being enhanced, which is referred to as ‘triangulation’. In addition, some of the study’s questions were answered from the qualitative data to complete the rest of questionnaire contents. This is referred to as ‘complementary’, which means that one approach is used to complement the other.

Qualitative data were analysed thematically and then manually coded on the themes of total quality management principles and curriculum development and evaluation. The qualitative data obtained from the interviews were analysed in several stages. Firstly, the audio recordings of the interviews were converted to an Arabic script. Then, the Arabic script was converted to an English script by the researcher. Following this, the qualitative data from the interviews and open-ended questions from the questionnaires were analysed using a thematic approach, and the findings were then described. More details of the qualitative data analysis are provided in Chapter (8).

6.14 Conclusion

This chapter has examined the key philosophical issues in social research that relate to research philosophy and paradigms. The pragmatic approach adopted allowed for a mixed method approach to be implemented, specifically quantitative and qualitative data analysis. This was conducted using two instruments; namely, questionnaires and semi-structured interviews for the purpose of data gathering. This approach was implemented to improve the quality of the research and enhance the accuracy and validity of the findings.

This chapter has also presented detailed information relating to the design of the research instruments, population, and sampling. In order to confirm the reliability and validity of the instruments, this chapter has explained the various stages of piloting the questionnaire and interview, and the statistical tests used. The issues surrounding the data collection process and research ethical considerations have also been discussed. Chapters Seven and Eight describe the qualitative and quantitative research data independently.

Chapter Seven: Quantitative Data Analysis

7.1 Introduction

The importance of quantitative data analysis is no less nor greater than qualitative analysis. Its use is entirely dependent on its fitness for study purposes. Quantitative data analysis is a powerful research form and is often associated with large-scale research (Cohen, et al., 2007, p. 501).

According to Creswell (2012, p. 175), there are several interrelated steps used in the process of analysing quantitative data. The first step is to prepare the data for analysis. This involves selecting a statistical program and inputting the data into a program. The second step starts the data analysis by conducting a descriptive analysis of the data reporting measures of a central tendency and variation. It then conducts more sophisticated inferential analysis to test hypotheses and examine confidence intervals and effect sizes. The next step is to report the results that are found using tables, figures, and a discussion of the key results. Finally, a discussion of the results obtained from the data analysis takes place. This consists of summarizing the results, comparing them with the literature and theories and ends with recommendations. Thus, the most important and core point is to be aware of the purposes of the data analysis, and the techniques that will be used.

The quantitative data analysis shows that the level of current practices of application of TQM in the DGC is medium. An important point to note is that the mean score of the dimensions, " staff satisfaction" and "continuous improvement" were low. Moreover, a large proportion of participants are dissatisfied with the level of current practices of the application of TQM principles in the DGC overall, and all dimensions individually. However, there are some strengths in curriculum development and evaluation work, such as open discussions between the different levels of work, and there is a belief about the usefulness of change and development based on TQM principles.

This chapter analyses the quantitative data collected from the staff of the DGC at the MoE. The descriptive and inferential statistics were obtained using SPSS software Version 22. First, the description of the questionnaire components was completed, then the direction of the quantitative analytical explained. Following this, the Kolmogorov-Smirnov Normality Test was used to determine the analysis approach, and the parametric approach was adopted. The organization of the statistical part of the chapter mainly follows the structure of the questionnaire. Firstly, the demographic information of the study sample is presented in tables and charts. Secondly, the frequency, percentage,

mean, and standard deviation for each statement is determined, and the decision of either ‘very low’, ‘low’, ‘medium’, ‘high’ and ‘very high’ is assigned to each statement according to the mean values. Finally, the Independent Sample T-Test was used to establish the comparison between two groups based on gender and type of work, and an ANOVA test employed to carry out the comparison between three groups based on number of years’ work experience in the DGC.

7.2 The quantitative data instrument

As clarified in detail in Chapter Six: Research Methodology, the main aim of the questionnaire was to establish participants’ views and understandings of the application of total quality management (TQM) principles in the curriculum development and evaluation processes in the MoE in the Sultanate of Oman. The questionnaire was built by reviewing the relevant existing literature, as described in Chapters 3, 4 and 5, along with the processes and stages of curriculum development and evaluation in the MoE in Oman. The outcomes of these reviews shaped the content of the questionnaire, which was divided into four sections, including a total of 87 statements and three open-ended questions. The key contents of the questionnaire are explained below, with further detail set out in Section 6.3.1 Questionnaire and Appendix (E).

Section 1: Demographic Details (3 Variables)

Section 2: Total Quality Management Principles TQM (71 Statements)

Part 1: Leadership (22 Statements)

Part 2: Staff Satisfaction (14 Statements)

Part 3: Employee Involvement (13 Statements)

Part 4: Continuous Improvement (22 Statements)

Section 3: Curriculum Development and Evaluation Processes (16 Statements)

Section 4: Open-Ended Questions (2 Questions)

The design of the study questionnaire was mostly derived from the six-point Likert Classification Scale; it consists of six scales because of its suitability to the nature of the paragraphs presented. This scale is one of the most widely used standards in questionnaires due to its practical and uncomplicated data analysis structure. Further detail relating to the Likert Scale is outlined in Section 6.3.1 - Questionnaire. It is statistically symbolized as follows:

- (1) strongly agree
- (2) agree
- (3) neutral
- (4) disagree
- (5) strongly disagree, and
- (0) do not know

The quantitative section of the questionnaire, open ended questions, was designed to collect data from the DGC staff to answer the following research questions:

1. What are the obstacles facing the dissemination of a quality culture in the curriculum development and evaluation work?
2. What are your suggestions for improving the quality of the developing and evaluating curriculum work in the Directorate?

7.3 Analysis direction

The main purpose of data description is to present essential and important features of the data, usually in tables, graphs and/or charts (Peers, 1996, p. 50). Conducting analysis may be challenging for some researchers, however, calculating the statistics is only one step of the overall data analysis process. It also involves organizing the data for analysis, reporting, and discussing the results.

There is a general debate among most researchers about how to decide on the best and most appropriate analysis tool from the many different statistical tests available to analyse data. In other words, what is the basis of selection and how can researchers be sure that they have selected the correct track that allows them to use the most appropriate tests to answer the study questions?

7.3.1 Parametric or non-parametric

According to Peers (1996, p. 143), unfortunately many researchers do not provide information about the shape of a sample distribution. The fact is that many distributions are usually measures for which the underlying population distributions are not well known. Therefore, checking for 'normality distribution' should be an important precursor to many inferential statistical procedures. The simplest way to verify a sample distribution is use a normality test such as Kolmogorov-Smirnova and Shapiro-Wilk (AbuZeid, 2010; Abulfatah and Areff, 2007). The result of a normality test will determine whether the data is parametric or non-parametric.

Parametric statistical procedures are based on the assumption of underlying normality in the population from which the sample is selected. Therefore, the data is a parametric if the data measures are quantitative (Interval Scale or Ratio Scale) and follow the normal distribution. Therefore, an Independent Sample Test is used to compare the differences between two categories, and the One Way ANOVA test is used to compare three categories.

In contrast, non-parametric statistical procedures are based on the assumption of underlying non-normality in the population from which the sample is selected. Consequently, the data is non-parametric if the data measures are categorical (Ordinal scale or Nominal scale), or if the quantitative (Interval scale or Ratio scale), does not follow the normal distribution. Therefore, the Chi-Square Test is used to compare the differences between two categories, and the Kruskal-Wallis Test is used to compare three categories (AbuZeid, 2010; Abulfatah and Areff, 2007; Peers, 1996). Hence, researchers are supposed to check that the data are normally distributed prior to applying analyses (Sawilowsky, 1990).

At first glance it seems that the selection between parametric and non-parametric is very easy. However, there are different opinions among researchers and statistical thinkers; moreover, it is interesting to note that one particular individual has more than one opinion. According to Sheskin (2007, p. 108), whether one or more of the assumptions of a parametric test are saliently violated, the data can still be tested by the non-parametric test.

In contrast, some sources take the position that even when there is reason to believe that one or more of the assumptions of a parametric test have been violated, it is still more prudent to employ the appropriate parametric test. Such sources argue that most parametric statistical tests are robust and

can still provide reliable information regarding the underlying population, even if certain of the assumptions underlying the test have been violated.

Similarly, in their book 'A Parametric Approach to Nonparametric Statistics', Alvo and Yu (2018, p. 3) suggest that there is uncertainty as to the exact nature of the distribution; hence, one may alternatively make use of traditional non-parametric methods which avoid distributional assumptions. Such methods have proven to be very efficient in several studies despite the fact that their power is generally less reliable than the analogous parametric counterparts. Moreover, non-parametric statistics rely more on intuition and the subject has been developed in a non-systematic manner, always attempting to mimic parametric statistics.

Conversely, Sawilowsky (2005) and Cohen, et al. (2007) emphasized that it is possible to apply non-parametric statistics to parametric data. It is not widely carried out, however, as the statistics are usually less powerful, but it is difficult to choose parametric approaches when non-parametric statistics are more appropriate.

On the other hand, Thatcher, et al. (2005, p. 7) and Skene, et al. (2016, pp 877–878) explained that careful thought should be given on a case-by-case study basis about what is the most appropriate method of analysis. Where an assumption of normality is tenable, for example, parametric tests will be more powerful and offer a greater opportunity to detect differences where they exist. Furthermore, the assumption of normality has the advantage of providing useful information about the size of treatment effect.

The non-parametric tests tended to show higher error rates than the parametric analyses where there is an assumption of non-normality and small sample sizes. However, both statistical methods are valid, and their application is a matter of preference between researchers. Furthermore, Tabachnick and Fidell (2007) explained that the normality distribution of analysing the data is not always required but is generally preferable.

In his paper, which was aimed at reversing the assumptions of the parametric tests usage, Norman (2010, p. 631) dissected many studies dating back to the 1930s. Norman concluded *"Parametric statistics can be used with Likert data, with small sample sizes, with unequal variances and with non-normal distributions, with no fear of 'coming to the wrong conclusion'. These findings are consistent with empirical literature dating back nearly 80 years. The controversy can cease (but likely won't)."*

In short, both parametric and non-parametric statistics have been used in studies. Parametric statistics are known to be generally robust, simple, and easy to compute, even when the assumption of distribution is violated. Nonetheless, an objective evaluation of the assumption of normal distribution is helpful when deciding what type of statistical test is used.

In contrast, non-parametric statistics have the advantage of being distributed independently, as well as being insensitive to extreme values; however, it is more complex, has lower power and more time is required for computation. Thus, it can be argued that the debate between parametric vs. non-parametric statistics is not yet settled and some statisticians consider that the normality test assumption is a mere preference.

7.3.2 Analysis direction of current study

The previous chapter identifies the research methodology and explains how the data was obtained. At the beginning of this chapter, the researcher provides a description of how the quantitative data were analysed and selected the appropriate tests for analysis. In Chapter Six, the researcher committed to maintaining a clear and transparent approach to data collection. Similarly, the researcher also provides a clear description of the data analysis options and decisions that would contribute to the increased validity and credibility of the study results.

Consequently, in order to determine the analytical approach, the Kolmogorov-Smirnov Normality Test was used for three dimensions of the questionnaire. Tables 7.1, 7.2, and 7.3, and graphs 7.1, 7.2, and 7.3 below show the results of the normality tests for leadership, staff satisfaction, curriculum development and evaluation dimensions.

Table 7.1: Normality test of leadership dimension

	Kolmogorov-Smirnov[a]		
	Statistic	Df	Sig.
Leadership	.065	147	.200*

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

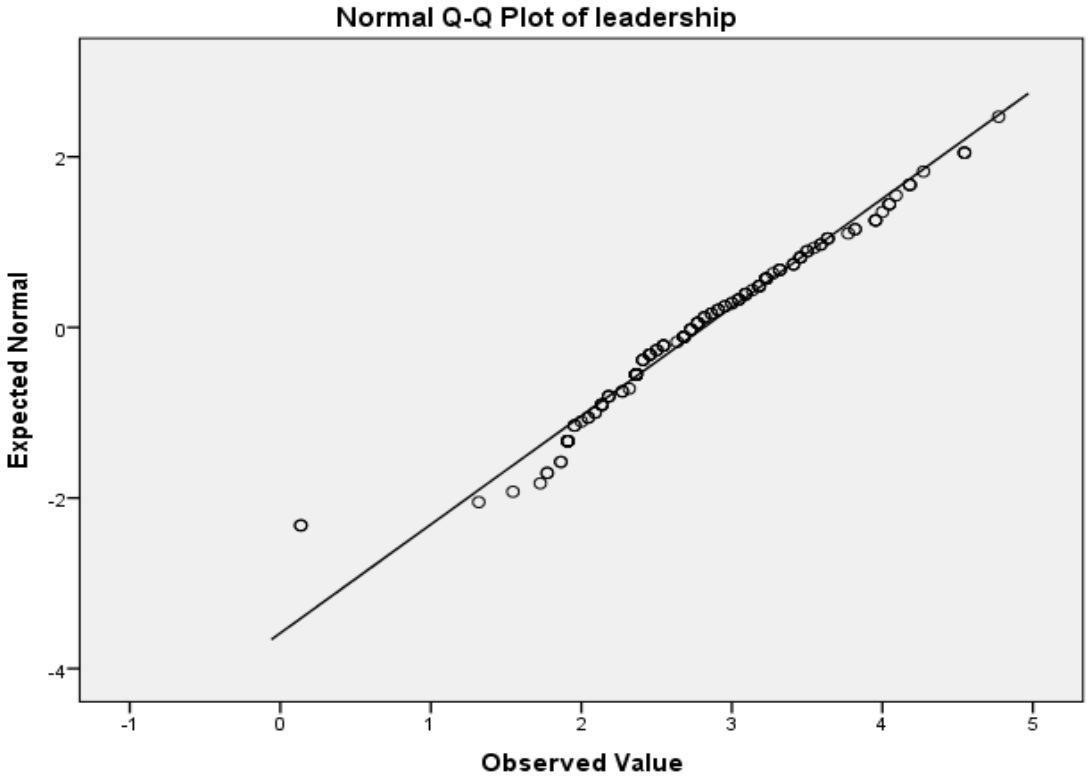

Figure 7.1: Normality test of leadership dimension

Table 7.2: Normality test of staff satisfaction dimension

	Kolmogorov-Smirnov[a]		
	Statistic	Df	Sig.
Staff satisfaction	.062	147	.200*

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

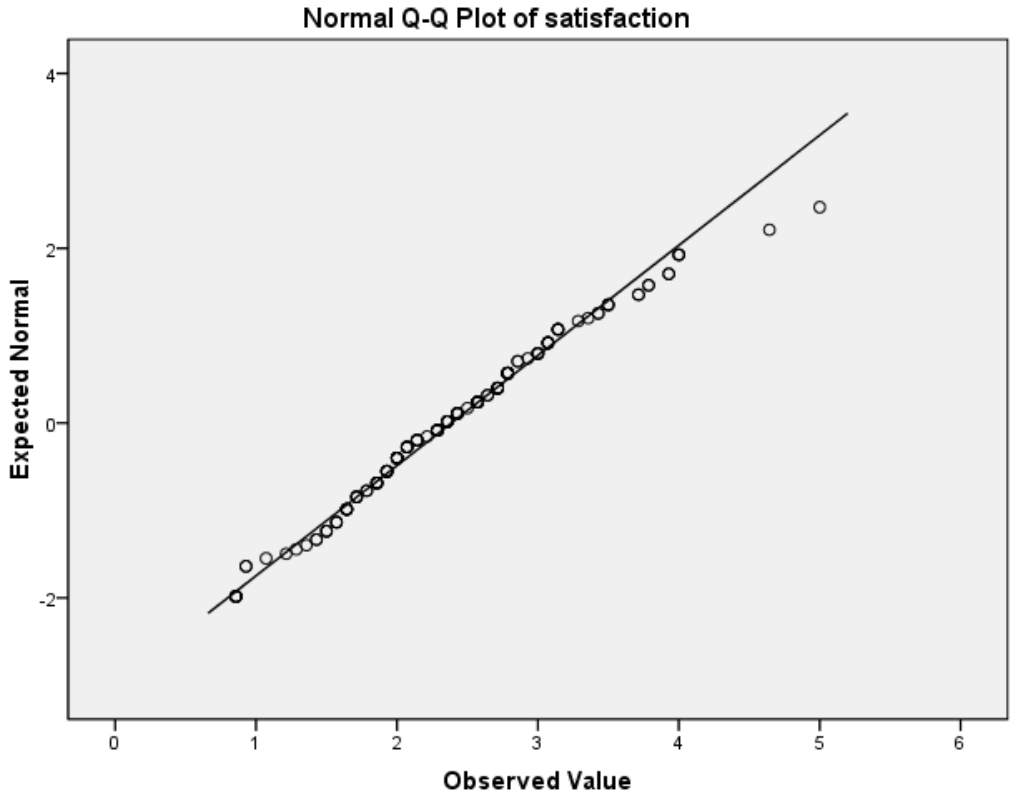

Figure 7.2: Normality test of staff satisfaction dimension

Table 7.3: Normality test of curriculum development and evaluation processes dimension

Curriculum development and evaluation processes	Kolmogorov-Smirnov[a]		
	Statistic	df	Sig.
	.067	147	.200*

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

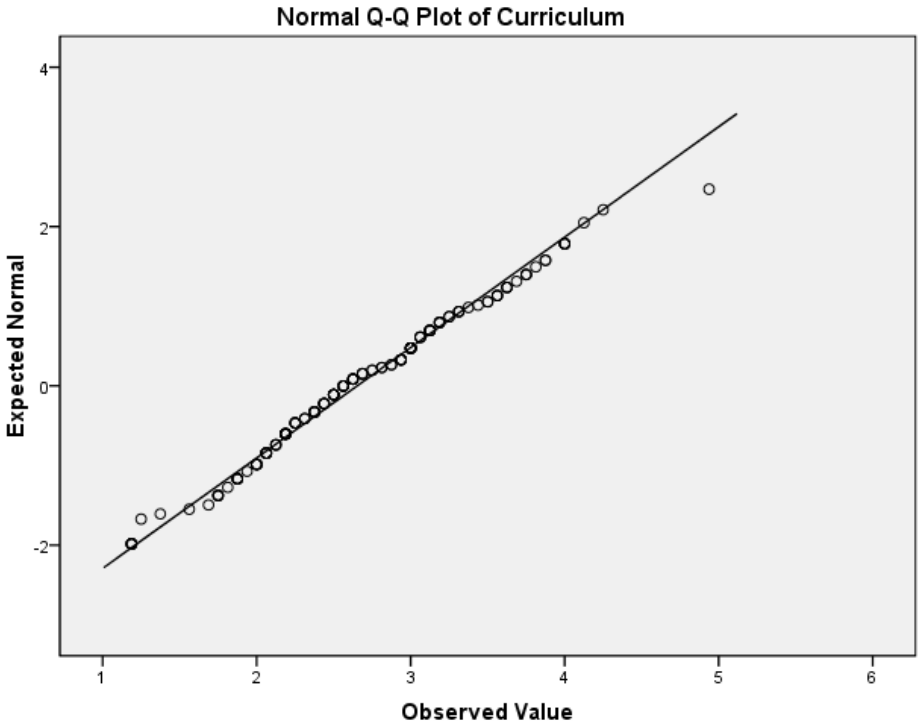

Figure 7.3 Normality test results of curriculum development and evaluation processes dimension

From the tables and figures above, the significant value of the normality tests for the three dimensions of the questionnaire was (0.200) more than (0.05). In other words, if the significant value of the test is 0.05 or more, the data has normal distribution. Thus, this study data has a normal distribution and, as such, parametric tests were used to analyse the data. In other words, the Independent Sample T-Test was used to establish the comparison between two groups based on gender and type of work, and an ANOVA test was employed to carry out the comparison between three groups based on number of years' work experience in DGC. Figure 7.4 below summarises the analysis approach selected for the quantitative data of this study.

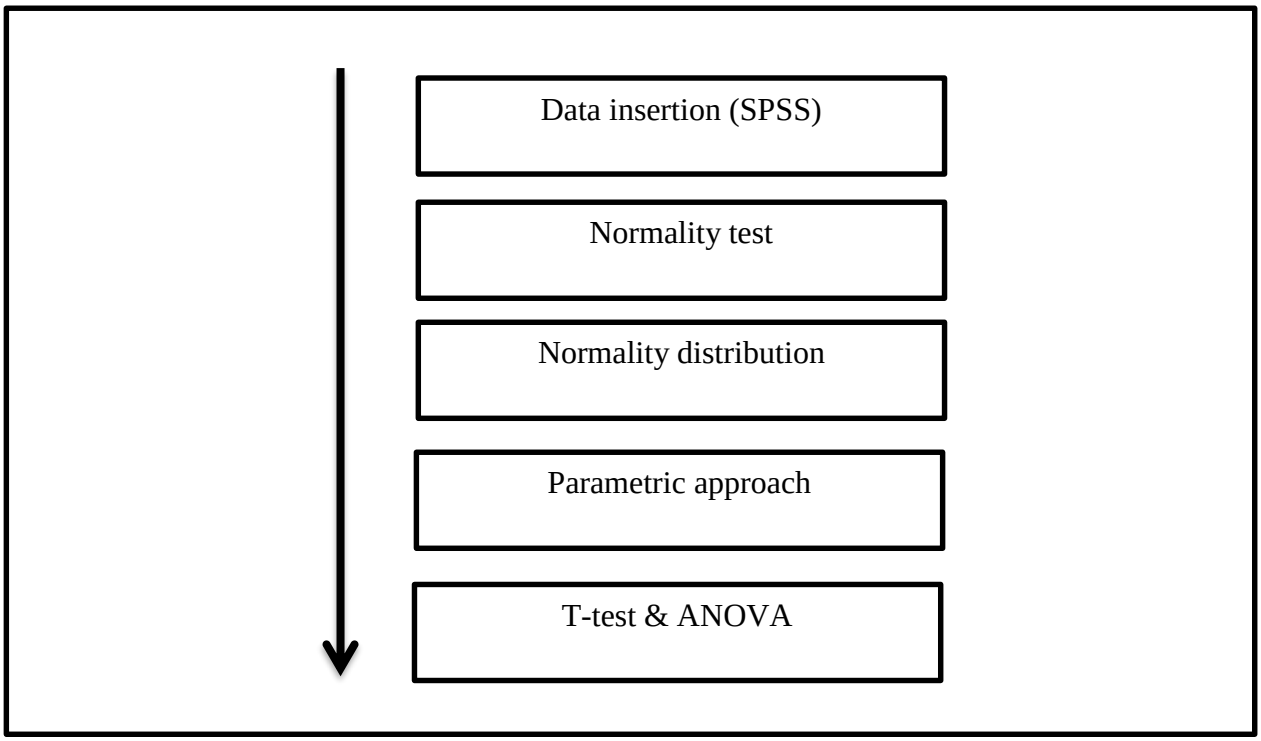

Figure 7.4: Analysis approach selection of quantitative data (By researcher)

7.4 Demographic details of the participants

The primary purpose of this section is to describe the main characteristics of the participants involved in the study. Participants were required to complete the online survey which was divided into three demographic variables, as follows - gender, type of job, and number of years' work experience at the DGC.

7.4.1 Gender

Table 7.4: Respondents' distribution based on gender

Gender	Frequency	Percent (%)
Male	88	59.9
Female	59	40.1
Total	147	100.0

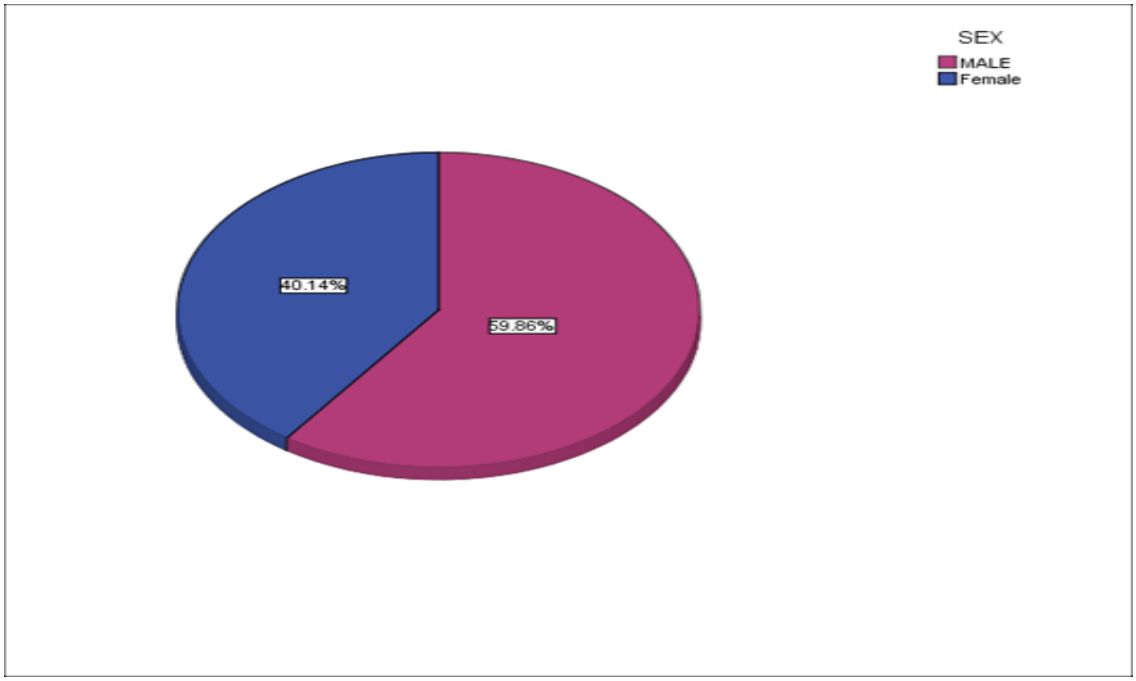

Figure 7.5: Respondents' distribution based on gender

Table 7.4 and figure 7.5 above show the distribution of respondents according to gender, of which (59.9%) were male and (40.1%) were female. It can be argued that the male and female respondents were quite close to each other in responses. In sense, parity of gender.

7.4.2 Type of job

Table 7.5: Respondents' distribution based on type of job

Type of job	Frequency	Percent (%)
Technical	45	30.6
Administrative	102	69.4
Total	147	100.0

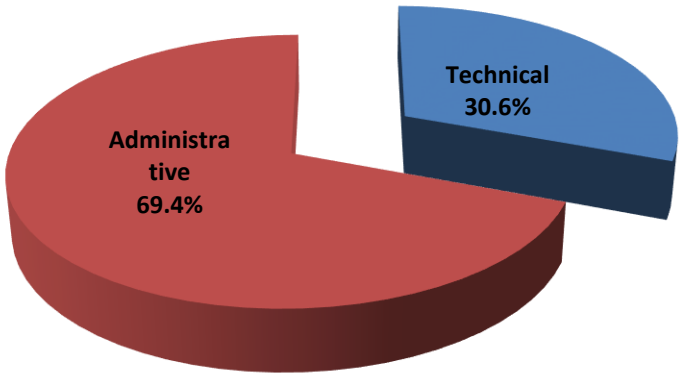

Figure 7.6: Respondents' distribution based on type of job

Table 7.5 and Figure 7.6 above show the distribution of respondents according to their job. The highest percentage of respondents worked in administrative jobs (69.4%) and the remainder worked in technical jobs (30.6%). It is noticeable that there is a large gap between the percentage of administrative participants and technical participants. So, the T-test result of type of job will show later in this chapter whether this has had an effect on the responses of the respondents.

7.4.3 Number of years' experience in the DGC

Table 7.6: Respondents' distribution based on number of years' experience in the DGC

Years' experience	Frequency	Percent (%)
Less than one year -5 years	28	19.0
6-10 years	42	28.6
More than 10 years	77	52.4
Total	147	100.0

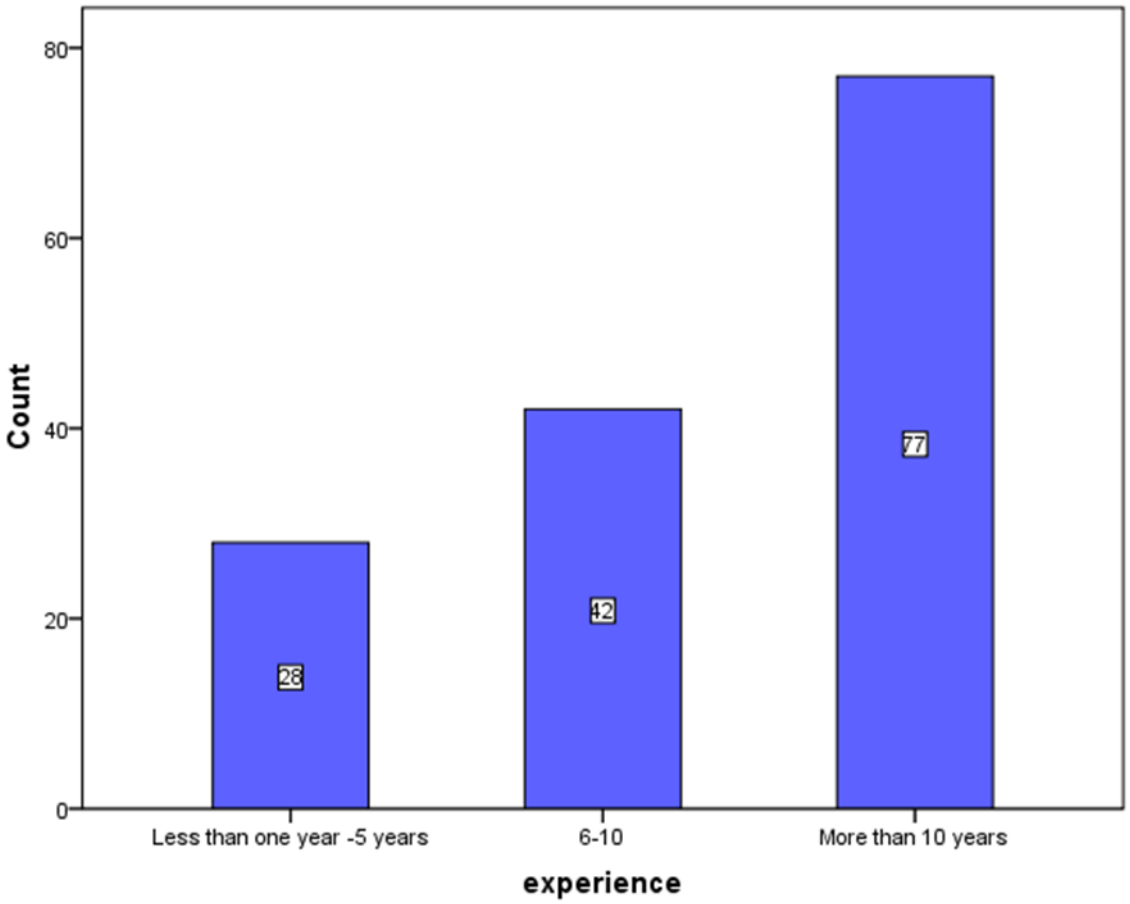

Figure 7.7: Respondents' distribution based on number of years' experience in the DGC

Table 7.6 and Figure 7.7 below show the distribution of respondents according to the number of years' experience at the DGC. From the total number of respondents, 52.4% had more than 10 years of experience, and 28.6% of them had 6 - 10 years. The remaining 19.5% had fewer than 1 to 5 years of experience. According to the experience indicator, length of service, it was observed that the majority of respondents were fairly experienced and this might have an impact on the results of the study. However, the ANOVA test result of number of years' experience in the DGC will show later in this chapter regarding whether this has had an effect on the responses of the participants.

7.5 General descriptive indicators

As explained in Section 7.2 of this chapter, the questionnaire was mostly derived from the six-point Likert Classification Scale. It consists of six scales, because of its suitability to the nature of the statements presented. The scale was statistically symbolized as follows: strongly agree (1), agree (2), neutral (3), disagree (4), strongly disagree (5) and do not know (0).

The ‘do not know’ was placed in the questionnaire as a sixth scale because there are some staff in the DGC who do not have any background in any specific areas of work. For example, some members of the administrative staff do not have any knowledge of some areas in technical work. Consequently, so as to ensure valid responses, the researcher included the scale ‘do not know’. Furthermore, statistically the ‘do not know’ scale appears as a percentage, but it was not inserted when the mean was accounted for.

According to Pornell and Saldañal (2013) and Al lami (2017), there is no specific method to determine the range of Likert categories that can determine decision making based on the mean value. The common method is calculated by (5 − 1 = 4) then divided by five, strongly agree (5), (4 ÷ 5 = 0.80). Figure one, which is the least value in the scale, was then added in order to identify the maximum of this cell. Statistically, this means that Likert scale points have been converted into categories. Each category means a specific decision based on the result of the arithmetic mean for each statement. In other words, once the arithmetic mean is high, that means the decision is high. In sense, a high decision means a strong approval rate for the statement, medium means a semi-natural approval rate, and low means a weak approval rate. The length of the cells is determined according to Table 7.7 below:

Table 7.7: Length of the cells of Likert scale

Likert scale	Mean	Decision
Strongly disagree (1)	(1-1.79)	Very low
Disagree (2)	(1.80-2.59)	Low
Natural (3)	(2.60-3.39)	Medium
Agree (4)	(3.40-4.19)	High
Strongly agree (5)	(4.20-5)	Very high

Table 7.8 and Figure 7.8 below interpret the overall level of approval for each dimension of the questionnaire, and report the percentage, mean, and decision of respondents.

Table 7.8: Level of approval for each dimension based on full sample

Dimension	Don't Know (%)	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)	Mean	Decision
Leadership	5.3	6.7	30.4	23.1	28	6.5	2.814	Medium
Staff satisfaction	7.1	16	32.9	22.9	17.2	3.9	2.386	Low
Employee Involvement	3	9.5	31.9	20.9	26	8.7	2.835	Medium
Continuous Improvement	3.9	12.3	33.8	28	18.1	4	2.559	Low
TQM Principles	4.8	10.8	32.2	24.2	22.4	5.6	2.655	Medium
Curriculum Development and Evaluation Processes	3.9	12.4	31.7	23.3	24.1	4.6	2.652	Medium
Overall	4.6	11.1	32.1	24	22.7	5.4	2.654	Medium

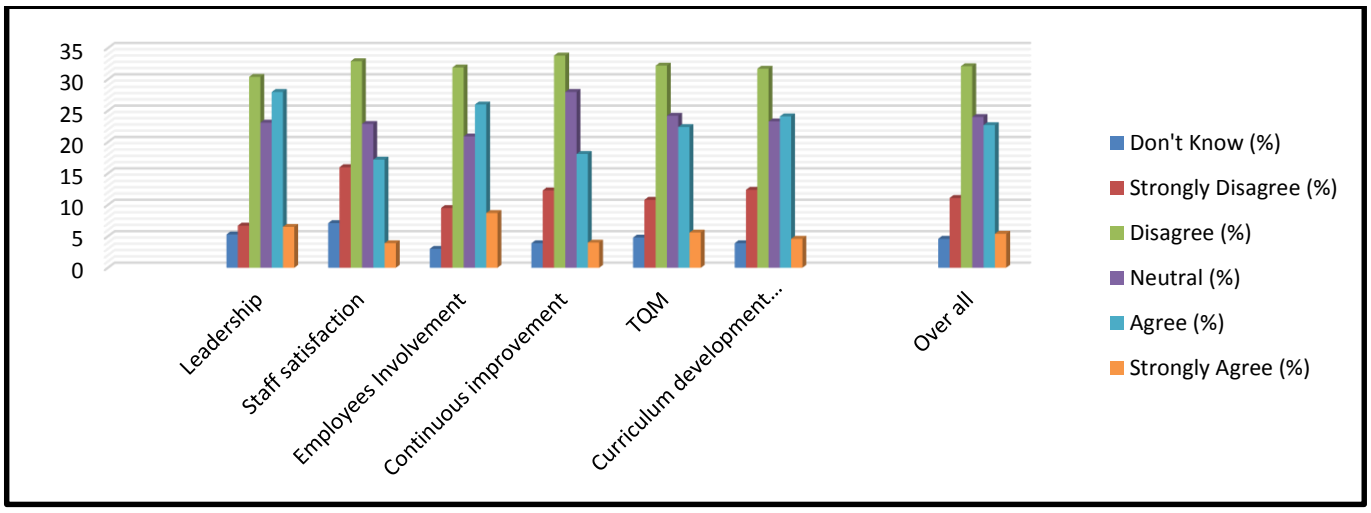

Figure 7.8: Level of approval for each dimension based on full sample

In general, Table 7.8 above shows that the overall mean score is 2.654. In other words, the level of approval of the current practices relating to the application of TQM in DGC is medium. An important point to note is that the mean scores of the dimensions *'staff satisfaction'* and *'continuous improvement'* are 2.386 and 2.559 respectively, which is relatively low. Moreover, Figure 7.8 above shows that a large proportion of the DGC staff do not agree with the current practices of the application of TQM principles at the DGC overall and all the dimensions individually.

7.6 Leadership

The purpose of this dimension of the questionnaire was to find out whether the leadership practices in the DGC are based on TQM principles. The following Table 7.9 displays distributive statistics, including percentages, mean, standard division, and decision of practices for each statement. The dimension includes 22 statements.

Table 7.9: Leadership practices in the DGC based on TQM principles

No	Statements	Don't Know (%)	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)	Mean	Std. Dev.	Decision
1	Convinced of the usefulness of change and development for quality.	3.4	1.4	13.6	17	38.1	26.5	3.65	1.238	High
2	Attempts to spread the culture of quality amongst employees within the Directorate.	3.4	7.5	27.2	18.4	34.7	8.8	3.00	1.261	Medium
3	Motivates employees morally on the quality of work.	4.1	5.4	30.6	25.2	20.4	14.3	2.95	1.295	Medium
4	Has a plan in place to minimize and eradicate any problems with the curriculum content.	7.5	10.2	27.2	28.6	21.8	4.8	2.61	1.274	Medium
5	Has clear vision of work	6.1	4.8	38.1	27.9	20.4	2.7	2.60	1.133	Medium
6	Able to create a culture of trust and commitment amongst employees.	6.1	3.4	28.6	29.3	24.5	8.2	2.87	1.240	Medium
7	Provide staff with the resources required to ensure that the quality of curriculum evaluation and development is achieved and maintained.	2	4.8	31.3	28.6	28.6	4.8	2.91	1.079	Medium
8	Flexible in applying the Ministry's instructions and decisions.	2	3.4	23.1	25.9	41.5	4.1	3.14	1.058	Medium
9	Discusses Ministry’s future plans with the staff.	5.4	6.8	34	15.6	32.7	5.4	2.80	1.271	Medium
10	Feedback is provided to staff.	6.8	5.4	42.9	19.7	23.1	2	2.53	1.166	Low
11	Closely monitored and supported to ensure that the work is completed accurately.	6.8	4.1	34	25.9	27.9	1.4	2.68	1.164	Medium

12	Encourages collective action in achievements by staff.	2	2	23.1	19	46.3	7.5	3.28	1.090	Medium
13	Involvement of staff in decision-making.	4.8	10.2	36.1	19	20.4	9.5	2.69	1.302	Medium
14	All concerns related to staff material needs.	8.2	21.1	40.1	15.6	13.6	1.4	2.10	1.167	Low
`15	Clear objectives and roles for task forces are established.	4.1	6.1	43.5	19.7	25.2	1.4	2.60	1.096	Medium
16	Good role models for staff.	9.5	4.1	21.1	33.3	29.3	2.7	2.77	1.261	Medium
17	Strong channels of effective communication with staff.	5.4	4.8	23.8	31.3	27.9	6.8	2.92	1.214	Medium
18	Strong relationships are built with employees.	1.4	6.8	21.8	25.2	32	12.9	3.18	1.194	Medium
19	Provide clear instructions to staff on the mechanism and processes for completing work.	1.4	3.4	34	20.4	36.7	4.1	3.00	1.066	Medium
20	Decentralisation depends on administrative work.	8.8	8.8	28.6	24.5	24.5	4.8	2.61	1.316	Medium
21	Innovative and proposed initiatives are encouraged.	6.8	15	29.9	17	26.5	4.8	2.56	1.335	Low
22	Ability to change in order for development.	9.5	7.5	36.1	22.4	20.4	4.1	2.49	1.279	Low

Table 7.9 shows the degree of leadership practices in the DGC that are based on TQM principles. From the decision column, it is noticeable that the majority of the statements (17 statements) have a 'medium' decision. This means that the DGC staff believe that the leadership practices in the DGC based on TQM are medium.

Statement (S1), *"It is convinced of the usefulness of change and development for quality",* was the only statement that received a 'high' decision (agree). A low decision (disagree) was scored for statements (S10) *"Feedback is provided to staff";* (S14) *"All concerns related to staff material needs"*; (S21) *"Innovative and proposed initiatives are encouraged"* and (S22) *"Ability to change in order for development"*.

7.7 Staff satisfaction

This dimension of the questionnaire sought to explore whether there is career satisfaction of the DGC staff as a principle of TQM. The following table 7.10 displays distributive statistics, including percentages, mean, standard division, and decision of satisfaction level for each statement. The dimension includes 14 statements.

Table 7.10: Career satisfaction of the DGC staff as a principle of TQM

No	Statements	Don't Know (%)	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)	Mean	Std. Dev.	Decision
1	Roles and responsibilities are clear to all employees.	2	7.5	25.2	25.9	36.1	3.4	2.97	1.113	Medium
2	There is a system for measuring and controlling employee satisfaction.	8.8	26.5	34.7	17.7	10.9	1.4	1.99	1.167	Low
3	The Directorate's objectives positively exceed the expectations of the employees.	13.6	11.6	40.1	26.5	6.8	1.4	2.05	1.151	Low
4	The Directorate’s plans and strategies are linked to the needs of staff.	6.1	9.5	36.7	34	12.2	1.4	2.41	1.065	Low
5	There is a system for managing social relations between employees to achieve continuous success.	7.5	15	38.8	27.2	8.8	2.7	2.23	1.129	Low
6	The Directorate's priorities are to achieve employee satisfaction.	9.5	14.3	40.8	22.4	10.2	2.7	2.18	1.175	Low
7	Attention is given to the needs of staff.	6.1	15	41.5	26.5	8.8	2	2.23	1.073	Low
8	A fair and effective remuneration mechanism is given to encourage, motivate, and reward staff.	1.4	36.1	32.7	18.4	4.8	6.8	2.10	1.184	Low
9	Confidence in the abilities and possibilities of the staff.	7.5	14.3	23.1	27.9	21.8	5.4	2.59	1.323	Low
10	The annual assessment is fair for employees and is in accordance with clear and specific criteria.	14.3	15	29.9	13.6	23.8	3.4	2.28	1.432	Low
11	There is effective communication between staff and managers.	4.8	5.4	25.9	12.2	39.5	12.2	3.13	1.336	Medium

12	There is awareness that employee satisfaction is a positive factor for the development of work in the Directorate.	12.9	16.3	24.5	17	19.7	9.5	2.43	1.526	Low
13	There is clear affiliation of employees who work in the Directorate.	2.7	15	29.3	29.9	21.8	1.4	2.57	1.110	Low
14	The work environment in the Directorate is attractive.	2	23.1	38.1	21.1	15	0.7	2.26	1.060	Low

Table 7.10 shows the degree of career satisfaction of the DGC staff as a principle of TQM. From the decision column, it is interesting to note that the majority of statements (12 of 14) have a low decision by the DGC staff, which means that the degree of career satisfaction of the DGC staff as a principle of TQM is low, (disagree). The mean of these 12 statements were respectively (S2=1.99), (S3=2.05), (S4=2.41), (S5=2.23), (S6=2.18), (S7=2.23), (S8=2.10), (S9=2.59), (S10=2.28), (S12=2.43), (S13=2.57) and (S14=2.26). Just two statements obtained a medium decision; these were (S1=2.97) and (S11=3.13) and there is no high decision.

7.8 Employee involvement

The aim of this dimension is to know to what extent the employees are involved in the DGC as a principle of TQM. Table 7.11 above displays distributive statistics including percentages, mean, standard division, and the decision as to what extent the employees are involved in the DGC as a principle of TQM. This dimension includes 13 statements.

Table 7.11: Employee involvement in the DGC as a principle of TQM

No	Statements	Don't Know (%)	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)	Mean	Std. Dev.	Decision
1	Giving employees powers to develop the work.	2.7	5.4	24.5	27.2	27.9	12.2	3.09	1.216	Medium
2	Strong cooperation is prevalent throughout the Directorate.	0.7	1.4	23.1	20.4	44.2	10.2	3.37	1.034	Medium
3	Open discussions between the different levels of work are encouraged and facilitated.	0.7	0.7	24.5	12.2	45.6	16.3	3.50	1.094	High

4	Motivate employees to adopt initiatives.	2	11.6	29.9	19	26.5	10.9	2.89	1.283	Medium
5	A culture of self-evaluation among employees is actively promoted.	4.1	14.3	33.3	17.7	21.1	9.5	2.66	1.327	Medium
6	Feedback from employees is welcomed.	1.4	5.4	40.1	22.4	21.8	8.8	2.84	1.139	Medium
7	Staff participate in the development of action plans and strategies.	1.4	9.5	38.1	18.4	21.8	10.9	2.82	1.231	Medium
8	Staff participate in decision-making.	4.8	17	33.3	18.4	19.7	6.8	2.52	1.300	Low
9	All staff working in the Directorate are part of a team.	2	9.5	29.3	15.6	38.8	4.8	2.94	1.201	Medium
10	Staff participation is considered an important factor for organizational development.	12.9	8.2	26.5	19	23.8	9.5	2.61	1.496	Medium
11	Meeting the material and moral needs of employees.	0	10.2	36.7	33.3	12.2	7.5	2.70	1.056	Medium
12	All staff participate in the development of the professional development plan.	2.7	10.2	39.5	21.8	21.8	4.1	2.62	1.137	Medium
13	The professional plan meets staff requirements.	3.4	20.4	36.1	25.9	12.2	2	2.29	1.093	Low

Table 7.11 shows the extent to which the employees are involved in the DGC as a principle of TQM. From the decision column, it is evident that the majority of statements (10 statements) have a medium decision by the DGC staff, meaning that the involvement of staff in the DGC is natural. Moreover, the only statement that received a high level of agreement (S3 =3.50) was *"open discussions between the different levels of work are encouraged and facilitated".* While the statements (S8= 2.52) *"staff participate in decision-making"* and (S13=2.29) *"the professional plan meets staff requirements*" have low decisions, disagree.

7.9 Continuous improvement

Table 7.12 below includes 22 statements from the continuous improvement dimension that were grouped together to examine extent of the ongoing continuous improvement of employees in the DGC as a principle of TQM. This table reports distributive statistics including percentages, mean, standard

division, and decision of the extent of the ongoing continues improvement of employees in the DGC as a principle of TQM.

Table 7.12: The continuous improvement of DGC employees as a principle of TQM

No	Statements	Don't Know (%)	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)	Mean	Std. Dev.	Decision
1	Staff are encouraged to develop and improve in all areas of work.	1.4	0	25.9	27.2	37.4	8.2	3.24	1.016	Medium
2	Performance monitoring and measuring procedures are in place.	2.7	6.8	48.3	25.2	11.6	5.4	2.52	1.056	Low
3	Work efficiency is reviewed on a continuous basis.	1.4	5.4	27.9	39.5	19	6.8	2.90	1.039	Medium
4	Laws and legislation are regulated and monitored to ensure the quality and standard of work is maintained and adheres to specified guidelines.	8.8	7.5	37.4	26.5	12.9	6.8	2.48	1.268	Low
5	Investment is made into individual initiatives to develop the work of the Directorate.	6.1	7.5	34.7	30.6	13.6	7.5	2.61	1.219	Medium
6	Five-year plans are in place that take into account the specific work requirements, aims, and objectives of the Directorate.	3.4	8.2	38.1	27.9	17	5.4	2.63	1.129	Medium
7	Curriculum development keeps pace with recent global developments.	1.4	8.2	27.2	25.9	31.3	6.1	2.96	1.134	Medium
8	Visits from international organizations and external bodies are organized to enable staff to benefit from their expertise.	2.7	4.8	21.8	34.7	32.7	3.4	3.00	1.060	Medium
9	To benefit from international competency experiences in the development and evaluation of curricula.	3.4	4.8	22.4	34	28.6	6.8	3.00	1.135	Medium
10	There is a clear mechanism for continuous evaluation of work performance in the Directorate.	7.5	11.6	36.7	34.7	8.8	0.7	2.28	1.052	Low

11	Professional development plans are linked to the general objectives of the Directorate.	6.8	4.1	37.4	28.6	21.8	1.4	2.59	1.122	Low
12	Benefiting from internal and external beneficiary proposals in the optimization process.	5.4	12.2	29.9	17	32.7	2.7	2.67	1.272	Medium
13	Training programs take into account all levels of the Directorate's work.	3.4	15	40.1	26.5	13.6	1.4	2.36	1.046	Low
14	There is a balance between theoretical and practical training.	1.4	15	36.1	34.7	12.2	0.7	2.44	.959	Low
15	Training programs support the requirements and updates of the work of the Directorate.	2.7	10.2	44.2	23.1	19	0.7	2.48	1.023	Low
16	There is a system for anticipating problems and obstacles at work.	5.4	32.7	29.3	26.5	5.4	0.7	1.96	1.046	Low
17	Employing technology in the process of optimization	1.4	6.8	23.1	29.3	26.5	12.9	3.12	1.185	Medium
18	Training programs available for newly appointed and existing staff.	1.4	22.4	32	25.9	15.6	2.7	2.40	1.121	Low
19	Rely on accurate and clear data on the optimization process	6.8	12.2	37.4	32	10.2	1.4	2.31	1.077	Low
20	There are clear future plans for the professional development of the employees of the Directorate.	6.1	20.4	36.7	28.6	6.8	1.4	2.14	1.058	Low
21	A long and short-term professional development plan is clear and explicit.	4.1	25.2	45.6	15.6	8.2	1.4	2.03	1.013	Low
22	Training programs focus on quality of work.	1.4	29.9	31.3	22.4	12.2	2.7	2.22	1.127	Low

It can be observed from Table 7.12 above that there is a general agreement that the continuous improvement of GDC staff is weak. Although there were nine statements which scored medium, (S1), (S3), (S5), (S6), (S7), (S8), (S9), (S12) and (S17), there were 13 statements which obtained a low-level score. None of the statements received a high-level score.

The low-level statements were:

- (S2) *"Performance monitoring and measuring procedures are in place"*
- (S4) *"Laws and legislation are regulated and monitored to ensure the quality and standard of work is maintained and adheres to specified guidelines"*
- (S10) *"There is a clear mechanism for continuous evaluation of work performance in the Directorate"*
- (S11) *"Professional development plans are linked to the general objectives of the Directorate"*
- (S13) *"Training programs take into account all levels of the Directorate's work"*
- (S14) *"There is a balance between theoretical and practical training"*
- (S15) *"Training programs support the requirements and updates of the work of the Directorate"*
- (S16) *"There is a system for anticipating problems and obstacles at work"*
- (S18) *"There are training programs for newly appointed and existing staff"*
- (S19) *"Rely on accurate and clear data on the optimization process"*
- (S20) *"There are clear future plans for the professional development of the employees of the Directorate"*
- (S21*) "A long and short-term professional development plan is clear and explicit"*; and
- (S22) and *"Training programs focus on quality of work"*

7.10 Curriculum development and evaluation processes

Table 7.13 below includes 16 statements and aims to highlight the curriculum development and evaluation processes in the DGC which are associated with the principles of TQM. The table reports distributive statistics including percentages, mean, standard division, and decision of the application of each statement in this dimension.

Table 7.13: Curriculum development and evaluation processes in the DGC

No	Statements	Don't Know (%)	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)	Mean	Std. Dev.	Decision
1	The process of development and evaluation of curriculum is based on clear strategies, plans, and criteria.	4.1	10.9	40.1	19	23.8	2	2.54	1.148	Low
2	The development process is based on the results of researches and studies.	3.4	10.9	38.8	25.2	19.7	2	2.53	1.094	Low
3	Employment of evaluation studies results of curricula in curriculum development.	8.8	2.7	21.1	26.5	34	6.8	2.95	1.318	Medium
4	Development and Evaluation Committees are represented by experts, curriculum officers, supervisors, and teachers with relevant key competencies and skills.	0	5.4	12.9	21.8	45.6	14.3	3.50	1.062	High
5	Technical work is linked and integrated between the departments and offices of the Directorate.	0	5.4	29.9	17	38.1	9.5	3.16	1.123	Medium
6	The Evaluation Committees and the Authorship Committees works are linked and integrated.	6.1	5.4	27.2	23.1	29.3	8.8	2.90	1.300	Medium
7	There is integration and linkage between the Directorate of Curricula and the Technical Directorates in the MOE.	2.7	17.7	29.3	23.1	25.9	1.4	2.56	1.171	Low
8	Proposals made by external beneficiaries, such as teachers and students, in relation to curriculum development and evaluation, are acknowledged and considered.	0.7	15.6	18.4	16.3	39.5	9.5	3.07	1.286	Medium
9	There are procedures in place to ensure that milestones are achieved accurately and within deadlines.	2	17.7	37.4	23.1	19	0.7	2.41	1.072	Low

10	Adequate time is spent on curricula development and evaluation.	2	21.1	41.5	17.7	15.6	2	2.30	1.094	Low
11	Any errors in the curriculum content are immediately addressed.	4.8	6.1	27.2	29.3	25.2	7.5	2.86	1.220	Medium
12	There are established and clear criteria in place for measuring quality of curriculum content.	5.4	16.3	38.8	23.8	14.3	1.4	2.29	1.112	Low
13	There are rich information sources and databases available which are used to evaluate and develop the curricula.	6.1	6.8	36.1	31.3	19	0.7	2.52	1.087	Low
14	The organizational and administrative structure of the Directorate helps it to achieve its objectives and vision.	10.9	4.1	29.3	30.6	20.4	4.8	2.60	1.296	Medium
15	All administrative and financial requirements facilitations related to the development and evaluations of the curricula are provided.	2	21.8	42.9	23.8	8.2	1.4	2.18	.979	Low
16	The penalty and reward system promotes and strengthens the work system of the Directorate.	2.7	29.9	36.7	21.8	7.5	1.4	2.05	1.026	Low

As shown in Table 7.13, there are 16 statements in this dimension. This table explains that the majority of the respondents agreed that the curriculum development and evaluation processes in the DGC range between low and medium. There is only one statement that obtained a high decision, which is (S4) *"The Development and Evaluation Committees are represented by experts, curriculum officers, supervisors, and teachers with the relevant key competencies and skills".*

In contrast, there are nine statements which have obtained a low decision which are:

- (S1) *"The process of development and evaluation of curriculum is based on clear strategies; plans, and criteria"*
- (S2) *"The development process is based on the results of research and studies"*
- (S7) *"There is integration and linkage between the Directorate of Curricula and the Technical Directorates in the MOE"*

- (S9) *"There are procedures in place to ensure that milestones are achieved accurately and within deadlines"*
- (S10) *"Adequate time is spent on curricula development and evaluation"*
- (S12) *"There are established and clear criteria for measuring the quality of the curriculum content"*
- (S13) *"There are rich information sources and databases available which are used to evaluate and develop the curricula"*
- (S15) *"All administrative and financial requirements facilitations related to the development and evaluations of the curricula are provided",* and
- (S16) *"The penalty and reward system promotes and strengthens the work system of the Directorate"*

7.11 Differences in responses according to demographics data

The following sections explain whether there are any differences in the overall percentages of approval for each dimension with the current practices of the application of TQM principles in the DGC, based on gender, type of job, and number of years' work experience.

So, to be more statistically accurate, as referred to previously in Section 7.3.2 in this chapter, the study data has a normal distribution, therefore parametric tests were used to analyse the data. In other words, the Independent Sample T-Test was used to discover the comparison between two groups based on gender and type of work, and an ANOVA test was employed to carry out the comparison between three groups based on number of years' work experience in the DGC.

7.11.1 Differences in the responses based on gender

An Independent T-test was conducted to understand whether there is any difference in the degree of participant's responses in relation to the TQM principles, curriculum development and evaluation dimension, and overall based on gender. In order to test this, the null and alternative hypotheses were assumed as follows:

- H_0: There is no difference in the responses of the TQM principles, curriculum development and evaluation dimension, and overall, based on gender
  ($\mu_{male} = \mu_{female}$).

- H_1: There is a difference in the responses of the TQM principles, curriculum development and evaluation dimension, and overall, based on gender ($\mu_{male} \neq \mu_{female}$).

Table 7.14 below shows the results from testing the two hypotheses by using an Independent sample T-test.

Table 7.14: Independent sample T-test based on gender

	Gender	No	Mean	t	D.F	P-value
TQM principles	Male	88	2.68	.514	145	.608
	Female	59	2.62			
Curriculum development and evaluation	Male	88	2.66	.206	145	.837
	Female	59	2.64			
Overall	Male	88	2.6741	.471	145	.638
	Female	59	2.6254			

Table 7.14 above shows that the gender of the respondents does not affect their responses to the TQM principles, curriculum development and evaluation, and overall. In other words, there is no difference in the responses of participants because the p-value > 0.05, (TQM principles = .608); (curriculum development and evaluation = .837) and (overall = .638). In a sense, it has failed statistically to reject the null hypothesis and it can be concluded that the group of participants based on gender was statistically significantly not different (not statistically significant). In other words, there is not any effect of type of gender in the study's findings.

7.11.2 Differences in the responses based on type of work

An Independent T-test was conducted to know whether there is a difference in the degree of participant's responses of TQM principles, curriculum development and evaluation dimension, and overall, based on type of work of them. In order to test this, the null and alternative hypotheses were assumed as follows:

- H_0: There is no difference in the responses to TQM principles in the curriculum development and evaluation dimensions, and overall, based on type of work ($\mu_{Technical} = \mu_{Administrative}$).

- H_1: There is a difference in the responses to TQM principles, curriculum development and evaluation dimension, and overall, based on type of work ($\mu_{Technical} \neq \mu_{Administrative}$)

Table 7.15 below shows the results of the independent sample T-test implemented to test the two hypotheses:

Table 7.15: Independent sample T-test based on type of work

	Type of work	No	Mean	t	D.F	P-value
TQM principles	Technical	45	2.91	3.40	145	.001
	Administrative	102	2.54			
Curriculum development and evaluation work	Technical	45	2.78	1.386	145	.168
	Administrative	102	2.60			
Overall	Technical	45	2.88	3.118	145	.002
	Administrative	102	2.55			

Table 7.15 above shows that the respondents' type of work does not affect their responses to the curriculum development and evaluation work. In other words, there is no difference in the responses of participants in this dimension because the p-value > 0.05 (curriculum development and evaluation = .168). Thus, as it failed to reject the null hypothesis and it can be concluded that this was not statistically significant. The response of group of participants in this dimension, based on type of work, is not significantly different. In other words, in this study findings there is not any effect of type of work related to curriculum development and evaluation work.

In contrast, Table 7.18 above also shows that the respondents' type of work has an effect on their responses to the application of TQM principles and overall. In other words, there are differences in the responses of participants because the p-value < 0.05 (TQM principles = .001 and overall = .002). Thus,

we reject the null hypothesis and it can be concluded that the group of participants relating to TQM principles, and overall, based on type of work is significantly statistically different. Consequently, the differences can be checked, for example, to identify which kind of job made the differences, by going back to the mean column in the table above. The 'technical' mean was larger than the administrative mean (mean of TQM principles =2.92 and mean of overall = 2.88) which means that the differences are in favour of the technical staff in the DGC.

7.11.3 Differences in responses based on number of years of work experience

A One-Way ANOVA was conducted to discover whether there is a difference in the degree of participant's responses to the application of TQM principles, curriculum development and evaluation dimension and overall based on number of years' work experience. In order to test this, the null and alternative hypotheses were assumed, as follows:

- H_0: There is no difference in the responses to the application of TQM principles, curriculum development and evaluation dimension and overall based on number of years of work experience
  ($\mu_{\text{Less than one year -5 years}} = \mu_{\text{6-10 years}} = \mu_{\text{A More than 10 years}}$).
- H_1: There is a difference in the responses to the application of TQM principles, curriculum development and evaluation dimension and overall, based on number of years of work experience
  ($\mu_{\text{Less than one year -5 years}} \neq \mu_{\text{6-10 years}} \neq \mu_{\text{A More than 10 years}}$).

Thus, it was necessary to test the two hypotheses by using a 'One-Way ANOVA'. Table 7.16 below shows the results.

Table 7.16: One-Way ANOVA based on number of years of work experience

		Sum of Squares	df	Mean Square	F	Sig.
TQM Principles	Between Groups	1.704	2	.852	2.205	.114
	Within Groups	55.637	144	.386		
	Total	57.342	146			
Curriculum development and evaluation work	Between Groups	1.999	2	.999	1.945	.147
	Within Groups	74.002	144	.514		
	Total	76.001	146			
Overall	Between Groups	1.699	2	.850	2.287	.105
	Within Groups	53.494	144	.371		
	Total	55.193	146			

Table 7.16 above shows that the respondents' number of years of work experience does not have any effect on their responses relating to TQM principles, curriculum development and evaluation, and overall. In other words, there is no difference in the responses of participants because the p-value > 0.05, (TQM principles = .114); (curriculum development and evaluation = .147) and (overall = .105). Thus, it has failed to reject the null hypothesis and it can be concluded that statistically, the participant responses based on number of years of work experience was not significantly different (not statistically significant). In other words, there is not any effect of years of work experience in the study's findings.

7.12 Conclusion

This chapter describes the quantitative data analyses collected from the GDC staff at the MoE. The statistical package for the Social Sciences Software (SPSS), Version 22, was used. The description of the questionnaire components was completed, then the quantitative analysis direction was explained. After that, the Kolmogorov-Smirnov Normality Test was used to determine the analysis approach.

The parametric approach was used for data analysing. Consequently, the Independent Sample T-Test was used to establish the comparison between two groups based on gender and type of work. The results show that there were no differences in the responses of participants based on gender, however,

there were differences in the responses of participants based on type of job for technical staff in the DGC.

An ANOVA test was applied to discover whether there are differences between the three groups based on number of years work experience in the DGC. The findings determine that there are no differences in the responses from the participants based on number of years of work experience at the DGC.

The approval level of the current practices of application of TQM in DGC is medium. An important point to note is that the mean score of the dimensions, "staff satisfaction" and "continuous improvement" were low. Moreover, there are a large proportion of DGC staff that do not agree on the current practices of the application of TQM principles in the DGC at overall and all dimensions individually. However, there are some strengths in the curriculum development and evaluation work, such as open discussions between the different levels of work, and the DGC leadership is convinced of the usefulness of change and development for quality. The following Chapter Eight focuses on describing the qualitative data analysis.

Chapter Eight: Qualitative Data Analysis

8.1 Introduction

This chapter presents the findings and analysis of the data gathered through semi-structured interviews, which were conducted with 10 DGC employees at the MoE; as well as the responses to the open-ended questions received from the questionnaires (N=147). The theoretical framework associated with the qualitative data analysis is explained. This includes the requirements associated with qualitative data analyses, the approach to thematic analysis, defining the code, category and theme, the characteristics of manual and electronic analysis, and the analysis stages that the researcher should follow.

Following this, the approach of analyses is determined for the current study, based on the theoretical framework of qualitative data analysis, and thus the manual thematic analysis has been adopted. The familiarisation and organisation of data is stated, the initial codes generated, and the search for themes is detailed. After this, the findings of the interviews and open-ended questions are reported. Finally, the main points of the chapter are concluded.

In his book *"Qualitative Researching*" Mason (2002; p. 1) states that qualitative researching is exciting and significant; it is a highly rewarding activity because it involves us deeply with the matter under consideration. Through qualitative research, the researchers can explore a wide array of dimensions of the social world. According to Flick (2014, p. 9) "…the analysis of qualitative data is often one step in a series of steps throughout the research process. It comes after field access has been found, sampling decisions have been taken, and data have been collected and recorded."

It is widely known that qualitative data analysis is not a simple or quick task. It is one of the most complex aspects of qualitative research. One of the greatest challenges of analysing qualitative research is determining what is worth analysing. Good qualitative analysis relies on the skill, vision and integrity of the researcher carrying out the analysis. It needs to be systematic and rigorous. Therefore, qualitative data analysis involves organising, accounting for and explaining the data. In other words, analysis is about making sense of data in terms of the participants' definitions of the situation; noting patterns, themes, categories and repetitions (Vaughn and Turner, 2016, p. 50; Neale, 2016, p. 1097; Burnard et al, 2008, p. 429; Cohen et al., 2007, p. 461 and Pope et al., 2000, p. 116).

In his book, '*Handbook of Qualitative Data Analysis'*, Flick (2014, p. 5) states: "… qualitative data analysis is the classification and interpretation of linguistic or visual material to make statements about implicit and explicit dimensions. In this sense, it is applied to discover and describe issues in the field, or structures and processes in routines and practices." In other words, the researchers are to seek the relationships between the various themes that have been identified to arrive at generalisable statements (Lacey and Luff, 2009). In the current study, the researcher has taken into consideration, as far as possible, all of the challenges and issues associated with qualitative data analysis, interviews, and open-ended questions.

8.2 Thematic analysis

One of the most common approaches to qualitative data analysis is often referred to as thematic analysis (Bryman, 2012, p. 578). It has become widely used in research areas (Clarke and Braun, 2018, p. 107), for identifying, analysing, and interpreting patterns of meanings, known as 'themes', within qualitative data (Clarke and Braun, 2017, p. 297). According to Vaismoradi et al. (2013, p. 400), "… thematic analysis as an independent qualitative descriptive approach is mainly described as a method for identifying, analysing, and reporting patterns (themes) within data." From the previous definitions and explanations, it can be concluded that thematic analysis is an organised process and which examines the meaning of a data set in detail.

According to Ryan and Bernard (2003); Braun and Clarke (2006), and Clarke and Braun (2017), thematic analysis can be used to analyse both large and small amounts of data. It is flexible, and as such, is able to generate unanticipated insights from the text to answer the research questions. Moreover, thematic analysis is a relatively quick and easy method to learn and apply and offers a way to present a broad description of the data set through highlighting similarities and differences. Furthermore, it provides systematic procedures for generating codes and themes from qualitative data and linking themes into theoretical models.

So, thematic analysis relies on codes and coding, and uses terms such as indices, themes, and categories (Gibbs, 2007, p. 39), to explore the understanding of an issue or the significance of an idea (Stirling, 2001, p. 387). However, all themes are not as equally important, hence, the researcher must eventually decide which themes are the most salient, and how the themes are related to each other to achieve the study's aims through answering the questions of the study (Ryan and Bernard, 2003, p. 103). The comparisons between code, category, and theme are determined in the following section.

8.2.1 Codes, categories, and themes

Codes, categories, and themes are the outputs of thematic analysis. In other words, they are steps which are followed during the analysis and, at the end of each step, the results and/or conclusions will be found. A brief description of these three concepts is provided below.

8.2.1.1 Code

According to Saldana (2016, p. 4), "A code in qualitative inquiry is most often a word or short phrase that symbolically assigns a summative, salient, essence-capturing and evocative attribute for a portion of language based on data." In this sense, "Codes are the smallest units of analysis that capture interesting features of the data (potentially) relevant to the research question" (Clarke and Braun, 2017, p. 297). In other words, "It is a description of the analytic idea it refers to and is a way of ensuring that the coding is reliable and is carried out in a systematic and consistent way" (Gibbs, 2007, p. 41). So, it can be argued that a code is applied to a section of text in order to easily categorise it, using features common with other descriptions, phrases or words in the data.

8.2.1.2 Category

A category is the process of assembling common codes in order to develop data into meaningful units to be analysed and interpreted (Gibbs, 2007; Blair, 2015). In other words, it is the search for cause and effect, connections, and relationships between codes during and after coding, in order to develop a matrix of codes and categories.

8.2.1.3 Theme

A theme is a category which is identified by the analyst through the data (Bryman, 2012, p. 580). It can be an outcome of coding, categorisation, or analytic reflection (Saldana, 2016, p. 15). In this sense, after categorising the codes, the category will become the theme and the codes will become the sub-themes. Figure 8.1 illustrates the steps taken to generate the codes, categories, and themes.

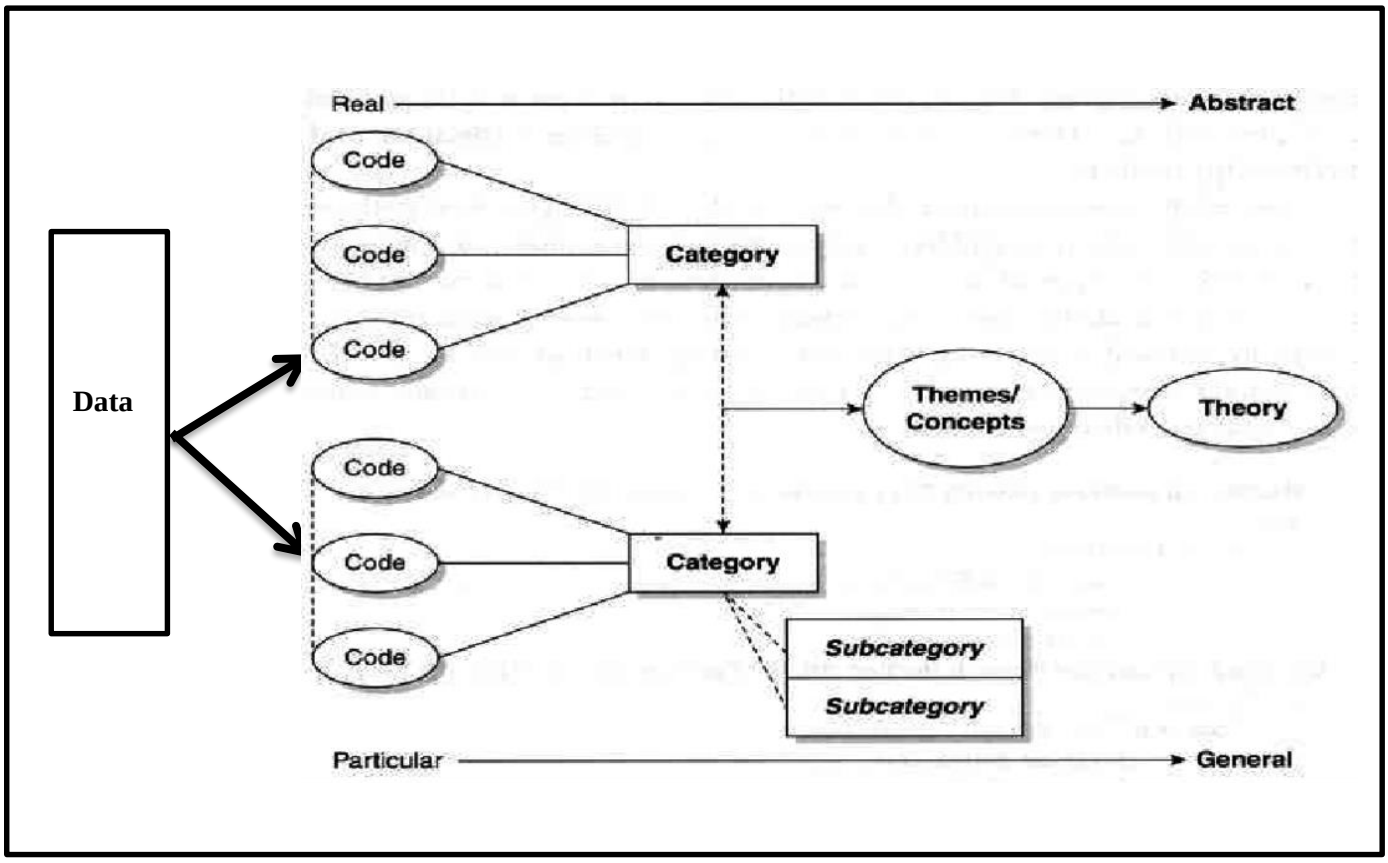

Figure 8.1: Steps followed to generate codes, categories, and themes (Saldana, 2016, p. 14)

8.3 Approach of analyses

The main purpose of this section is to clarify the essential data analysis processes and steps, as well as to achieve transparency and validity in the data analysis results. Thus, the researcher describes below the approaches and procedures that were adopted to analyse the current study's data. To start with the section examines why the researcher opted to use manual thematic analysis instead of using software. Following this, the researcher provides a detailed description which explains the data analysis stages.

8.3.1 Manual vs. electronic

According to Roulston (2014, p. 297), there is no one right way to analyse qualitative interview data. With the popularity of computers, researchers have a choice about whether to hand analyse data or to

use computer software. There are several computer-assisted qualitative data analysis software tools available, such as ATLAS and NVivo, which can be used to manage and help in the analysis stage.

Electronic coding, that is, the use of software packages, has made the process relatively smooth due to the huge amount of memory provided, the detailed annotation of text, data linking, the efficient search and retrieval tools, and the ability to handle large amounts of data (Basit, 2003 and Hoyos and Barnes, 2012). However, there is a concern that the attention attracted by the qualitative data analysis software will distract the researcher from the real analytic work, that is, the reading, understanding, and contemplating of the texts, and so on (Flick, 2014). Furthermore, "… software does not analyse the data for you" (Creswell, 2012, p. 241). In other words, "… the researcher must still create the categories, do segmenting and coding, and decide what to retrieve and collate" (Basit, 2003, p. 145).

In contrast, manual thematic analysis of qualitative data requires the researcher to read the data, mark it by hand, and divide it into parts (Creswell, 2012). According to Gibbs (2007, P40) "… paper allows the kinds of creativity, flexibility, and ease of access that is important at the qualitative analysis stages. Thus, most of the studies using qualitative research were undertaken without electronic assistance." Similarly, Lacey (2009) and Saldana (2016) point out that despite their popularity, analysis packages cannot replace the human element because they lack the capacity to think, reflect, and analyse without the deep engagement with the data that is the hallmark of good qualitative research.

In the current study the researcher has adopted manual analysis to be more creative, more flexible, for ease of access to data and to be more deeply involved, step by step, with the data analysed. The next part of this section will discuss the stages of qualitative data analysis.

8.4 Stages of analysis

As referred to above, it is very important to clarify the essential data analysis stages to achieve transparency and validity in the results. According to Pope et al (2000); Stirling (2001), and Braun and Clarke (2006), qualitative data analysis can be summarised into five stages, as shown in Figure 8.2 below.

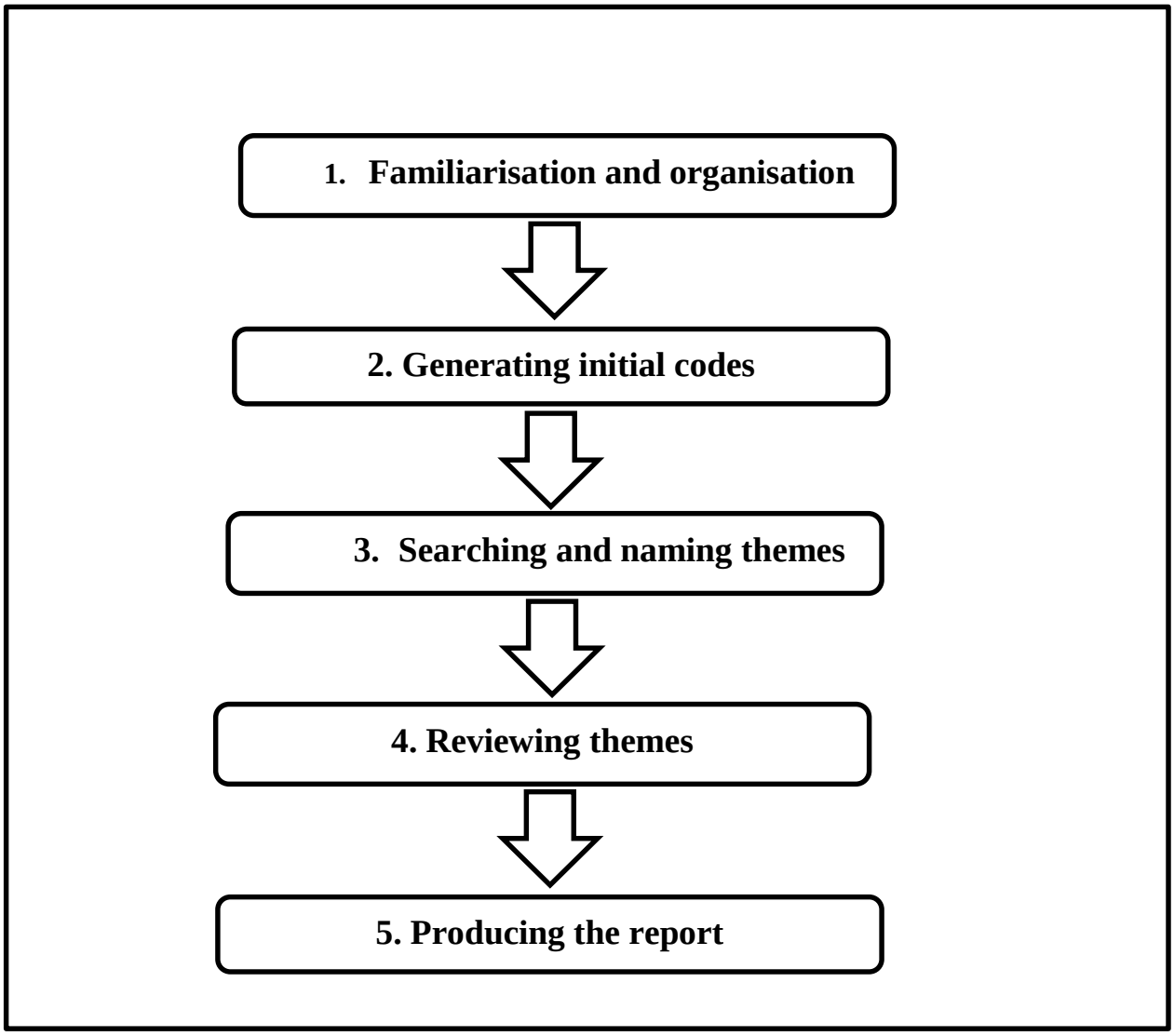

Figure 8.2: The five qualitative data analysis stages (By researcher)

8.4.1 Familiarisation and organisation

The first stage of qualitative data analysis is the process of the researcher familiarising themselves with the data that they have collected. In other words, it is the initial stage of preparing the data for analysis. This is carried out by organising the vast amount of information, transferring it from spoken or written words to a typed file, and making decisions about it by reading and re-reading the data and then noting down initial ideas. In short, it is the stage where the researcher immerses themselves into the raw data by listening to tapes, reading transcripts, studying notes, and so on, in order to list key ideas and recurrent themes (Pope et. al, 2000; Braun and Clarke, 2006 and Creswell, 2012).

Thus, in the current study, the researcher has taken into account that the preparatory work must be highly organised, and also that it is essential to become familiar with the raw data prior to analysis. To this end, before the interviews were transcribed, the researcher listened to the audio recordings of all the interviews in order to become familiar with them and to formulate initial ideas about the content of the data collected verbally.

All of the interviews were conducted in Arabic, therefore, the data for each interviewee was first converted to an Arabic script. The researcher ensured that the original colloquial style and meaning of the words and phrases used by participants were retained because they represent specific cultural concepts that are useful for interpreting the data. Then, the Arabic script was translated into English by the researcher. This has provided the researcher with a great opportunity to capture the participants' intended meaning, phrases, and concepts.

The English transcripts were reviewed and compared with their original Arabic transcripts more than once. Following this, the data was divided according to the data collection instruments, interviews, and open-ended questions of the questionnaire, and under its appropriate study questions. After this, the name of each interviewee was replaced with a code to ensure anonymity and confidentiality (more details are provided about this in Section 8.4.5 - Reporting Data). Finally, the data was then ready to formally begin coding. Table 8.1 provides an example of some the responses to the research questions from the participants.

Table 8.1: Example of responses to the research questions from the participants

Question	Responses
1. What are the weaknesses of the work processes of the curriculum development and evaluation of the DGC?	**(AM10)** "I do not see any clear vision from the leadership in the DGC".
	(TF5) "In many cases the opinions of the staff are not taken into consideration".
	(TM2) "Lack of professional development programs for employees directly related to their work, and if found, most of them are not of good quality".
	(TM4) "Unfortunately, it can be said that job satisfaction in the DGC is very low because of confusion in making decisions".
	(AF8) "Many technical aids associated with curriculum content are not available".

8.4.2 Generating initial codes

According to Gibbs (2007, p. 55), "Coding is a fundamental analytic process for many types of qualitative research." It is just one way of analysing qualitative data (Saldana, 2016); however, it is one of the significant steps taken during analysis to organise and make sense of textual data (Basit, 2003). In other words, coding is the process of deciding how to conceptually divide up raw qualitative data by cutting and sorting.

It involves identifying quotes or expressions that seem somehow important, then arranging them into groups that go together (Lacey and Luff, 2009 and Ryan and Bernard, 2003). In short, "…it is a way of indexing or categorising the text in order to establish a framework of thematic ideas about it" (Gibbs, 2007, p. 38). Subsequently, it allows the researcher to communicate and connect with the data to facilitate an understanding of the emerging phenomena and to generate theory grounded in the data (Basit, 2003).

In the current study, the researcher carried out the initial coding by determining all of the statements from the interview transcripts with the same meaning and putting them together to discover the most significant or frequent initial codes that made the most analytical sense. These were then given a new code. After reviewing these codes, the same codes came together and formed the larger categories. Table 8.2 below gives an example of the coding process.

Table 8.2: Example of the coding process

Question	Responses	Codes
1. What are the weaknesses of the work processes of the curriculum development and evaluation of the DGC?	**(AM10)** "I do not see any clear vision from the leadership in the DGC". **(TF1)** "Leaders in the DGC make the employees work under constant pressure". **(TM4)** "Some of the leaders see it that we are working *for* them and not *with* them". **(AM7)** "Unfortunately some leaders consider any criticism of their department's work as a personal criticism of them and not the work".	• Weaknesses related to leadership

	(TM2) "Lack of professional development programs for employees directly relating to their work, and if found, most of them are not good quality". **(AM10)** "Human cadres in the Directorate are not trained or qualified well enough to work with quality". **(TM4)** "There are no clear grounds for the nomination of staff for training programs to suit their work". **(AF9)** "There is no database of the training needs of the Directorate's staff".	• Weaknesses related to continuous improvement

8.4.3 Searching and naming themes

In this stage, the researcher collates codes into potential categories or themes, as described in the qualitative data analysis, and then names each theme. According to Creswell (2012, p. 245) "themes (also called categories) are similar codes aggregated together to form a major idea in the database." This is almost always based on similarity (Maxwell and Chmiel, 2014). In other words, the ideas expressed by participants within qualitative data are brought together by the researcher into a single category. There are two ways that themes are determined; the first is called a *"priori*" theme which comes from the literature review and research questions. The second is emergent themes, which come from the data that is collected from the participants (Ryan and Bernard, 2003; Fielding and Thomas, 2016, and Seal, 2016).

In the current study, themes came from both *priori* and emergent methods. In other words, they came from the literature review, the study questions, and the data derived from the interview questions and open-ended responses that were gathered from DGC staff. Thus, after categorising the codes, the researcher named the themes. Table 8.3 below gives an example of the process of naming the themes.

Table 8.3: Example of the process for naming the themes

Question	Responses	Codes	Theme
1. What are the weaknesses of the work processes of curriculum development and evaluation of the DGC?	**(AM10)** "I do not see any clear vision from the leadership in the DGC". **(TF1)** "Leaders in the DGC make the employees work under constant pressure". **(TM4)** "Some of the leaders see it that we are working *for* them and not *with* them". **(AM7)** "Unfortunately some leaders consider any criticism of their department's work as a personal criticism of them and not the work".	• Weaknesses related to leadership	Weaknesses in the DGC work
	(TM2) "Lack of professional development programs for employees directly related to their work, and if found, most of them are not good quality". **(AM10)** "Human cadres in the Directorate are not trained or qualified well enough to work with quality". **(TM4)** "There are no clear grounds for the nomination of staff for training programs that suit their work". **(AF9)** "There is no database of the training needs of the Directorate's staff".	• Weaknesses related to continuous improvement	

8.4.4 Reviewing themes

According to Schreier (2014, p.177), *"Once all categories have been generated and defined, it is time to take a step back, look at the structure of the coding frame once again, and 'tidy up' any loose ends. If subcategories are very similar, it might be best to collapse them. Some subcategories may be much more comprehensive than others and might be better conceptualised as main categories. These and other considerations may lead to a revision of the structure of the frame. If the coding frame has so far been based on part of the data only, the frame should, in a next step, be expanded to include the next part."*

At this stage, the researcher has reviewed all the codes, which have then become themes and sub-themes. Thus, the researcher then made sure that he was satisfied with the work at this stage. Once

satisfied he continued to the following stage of analysis, namely reporting the data. Table 8.4 below shows the themes and sub-themes of the current study.

Table 8.4: Main themes and sub-themes

No	Main Themes	Sub-Themes
1	Strengths of the curriculum development and evaluation work at the DGC.	
2	Weaknesses of the curriculum development and evaluation work at the DGC.	- Weaknesses related to leadership - Weaknesses related to employees' involvement - Weaknesses related to continuous improvement - Weaknesses related to staff satisfaction - Weaknesses related to technical work
3	DGC staff perspectives of the application of TQM principles.	- General perspective of applying TQM principles - Benefits of applying TQM principles
4	Obstacles in the application of TQM principles, proposed suggestions, and solutions.	- Financial obstacles - Administrative obstacles - Strategic obstacles - Technical work obstacles - Suggestions and Solutions
5	Overview	

8.4.5 Writing up (reporting data)

The type of approach that researchers should follow to present the findings of qualitative research depends on different factors, such as the purpose of the study, the research design, and the research methods. In other words, what is the most appropriate way? What does the report want to accomplish (Ausband, 2006)? According to Gill et al. (2008, p. 432), "There are two main approaches to writing up the qualitative research findings. The first is to simply report key findings under each main theme or category by using appropriate verbatim quotes to illustrate those findings. This is then accompanied by linking a separate discussion chapter in which the findings are discussed in relation to the existing research. The second is to do the same, but to incorporate the discussion into the findings chapter."

In this study, initially the researcher selected a way to separate the findings from the discussion. In this way, a separate chapter was allocated to discuss the findings of the quantitative and qualitative research together. The next two sections concentrate on reporting the data gathering from the interviews and the open-ended questions of questionnaire.

8.5 Interview analysis

This section presents the analysis of the data gathered through semi-structured interviews conducted with (10) DGC staff members. As stated in Chapter Six - Research Methodology, the mixed-method approach was selected to corroborate the findings from each method. This gave the researcher confidence in the knowledge that the entire study and the explanations for the findings would be enhanced by 'triangulation' and 'complementarity', as each approach focuses on different aspects of the investigation. Thus, the semi-structured interviews were designed to answer the following research questions:

1. To what extent is TQM applied in the curriculum development and evaluation work of the DGC in the MoE in Oman?

2. What are the strengths and weaknesses of the curriculum development and evaluation work processes of the DGC?

3. What is the DGG staff perspective of TQM application to improve the curriculum development and evaluation processes in the DGC?

4. What are the potential benefits of applying TQM to the curriculum development and evaluation work processes in the DGC?

5. What are the potential obstacles to the application of TQM in the curriculum development and evaluation work processes in the DGC, and proposed suggestions and solutions?

The structure of the analysis was guided by the main themes, as illustrated below:

1. Strengths of the curriculum development and evaluation work at the DGC.

2. Weaknesses of the curriculum development and evaluation work at the DGC.

3. Perspectives of the DGC staff of the application of TQM principles.

4. Obstacles facing the application of TQM principles, proposed suggestions, and solutions.

5. General view of the application of TQM principles at the DGC.

The researcher also reported key findings under each main theme and sub-theme using appropriate verbatim quotes to illustrate these findings; for example, (TF1); (TM2); (AF9) and (AM6), as explained below:

(TF1) = Technical_ Female_ No. 1

(TM2) = Technical_ Male_ No. 2

(AF9) = Administrative_ Female_ No. 9

(AM6) = Administrative_ Male_ No. 6

8.5.1 Strengths of the curriculum development and evaluation work processes

The existing reality of curriculum development and evaluation work at the DGC was explored, and the respondents highlighted a number of strengths. One interviewee commented that the organizational structure of the DGC is a strong factor in work development, by stating:

"The organizational structure of the DGC helps the staff participation in the developing and evaluating of curriculum work in terms of planning and implementation". (AM6)

Some respondents pointed out almost the same strength in relation to the personal attitudes and abilities of the DGC staff. One of the interviewees commented:

"Despite the many challenges with the work, there is still dynamic work. In other words, there is a tangible achievement for the work of the DGC staff". (AM10)

Another said:

"The staff do the work entrusted silently to them with all sincerity and honesty; they do not raise problems, and this is due to their cultural and scientific level". (AM6)

One of them added:

"The largest proportion of the Directorate's employees is Omanis who have a national sense of service to the homeland". (AM7)

Another respondent focused on the abilities, commenting:

"The administrative and technical human expertise in the Directorate is capable of developing the work and we can rely on them by giving them confidence and providing the necessary requirements". (AM8)

Two interviewees referred to the positive relationships in the DGC. One respondent commented:

"There is a positive relationship among employees which is reflected positively in our work". (AF9)

Another interviewee added:

"The relationships between management and employees are friendly and humanitarian". (TF5)

In addition, two of the respondents highlighted strengths that are related to feeling the importance of developing and improving the work. One interviewee said:

"There is a conviction shown by the staff and some leaders of the importance of developing the whole work system in the DGC". (TM4)

Another commented:

"The staff try to modify the status of the DGC in an elegant manner whenever they have the opportunity to discuss it with the leadership". (AM6)

One of the respondents highlighted the advantage of the DGC work associated with the shared spectra of educators in curriculum development and evaluation. She said:

"The participation of members representing the DGC and the field of education ranges from curriculum specialists, teachers, supervisors, and experts in curriculum development and evaluation". (TF1)

Respondents indicated some strengths relating to their interest in curricula evaluation studies. One interview respondent commented:

"The existence of evaluation studies carried out by a competent department within the DGC". (AM8)

Another interviewee said:

"The existence of a specialized department to evaluate the curriculum that provides technical feedback in addition to dependence on some independent studies to evaluate the curricula; such as universities and international expertise houses, which is considered a positive point". (TM3)

There are a range of strengths identified by the participants. While the organizational structure was one area, relationships and attitudes were also seen as strengths, including the positive attitudes of staff towards their work in the DCG, their interest, and their sense that this work is important in Omani education. The table below summarizes the strengths of the DGC's work, raised by the respondents.

Table 8.5: Strengths of the DGC Work

Strengths of DGC work
• The organizational structure of DGC assists the improvement of work. • Personal positive attitudes and abilities of the DGC staff towards work. • Positive relationships amongst DGC staff. • Feeling the importance of developing and improving work. • Shared spectra of educators in curriculum development and evaluation. • Interest in curricula evaluation studies.

8.5.2 Weaknesses in the work processes of curriculum development and evaluation

Respondents raised a number of weaknesses with the current curriculum development and evaluation work at the DGC associated with leadership, employee involvement, continuous improvement, staff satisfaction, and technical work.

8.5.2.1 Weaknesses related to leadership

The present work practices of the DGC leadership have received much criticism by the majority of the respondents. Firstly, there is no clear vision for the leadership in the DGC which is based on specific criteria. One of the participants commented:

"I do not see that there is a clear vision from the leadership in the DGC". (AM10.

Another interviewee continued:

"We recognize that there are some leaders in the DGC trying to reach the satisfaction of the employees through development and participation, but they still retain individual efforts, and this is not based on clear and specific criteria". (TF1)

One interviewee concentrated on the characteristics and attributes of the DGC leadership and said:

"The leadership system in the DGC does not have the characteristics of successful leadership". (AM10)

Another commented:

"In the DGC there is no leadership, only managers, and there is a great difference between the leadership and the managers". (TF1)

Some of respondents indicated a clash of ideas and decisions between staff and leadership. One interviewee said:

"There is a lack of leadership response to the ideas raised by the staff, especially with regards to the technical work, resulting in a clash of ideas and decisions". (AM10)

A statement made by one respondent inferred that leaders make their own decisions; he said:

"Many leadership decisions are individual decisions that are not collective or shared with all concerned; also, they do not consider the result of studies and research. For example, a department director says that this work is difficult to implement because they have a solid idea in their mind, rather than as a result of looking at the study from all angles". (AM6)

The following statement highlights the differing views and opinions of the participants:

"They do not accept the opinions of others; some of the leaders see that we are working for them and not with them". (TM4)

Another added:

"Unfortunately, some leaders consider any criticism of their department's work as a personal criticism of them and not the work itself". (AM7)

Another weakness that relates to leadership was in relation to DGC leaders making the employees work under pressure. One respondent commented:

"Leaders in the DGC make the staff work under constant pressure; for example, giving the employees work and asking them to accomplish it in a short period of time, leading to the work being produced with poor quality. Another example is that some of the leaders in the DGC are encouraging roles in improving the work and some are frustrated. So, their main priorities are to control the employee by checking when he comes and where he goes, rather than focusing on the quality of their work". (TF1)

Consequently, some of the leadership methods at work compel the staff to work outside their roles. One of the respondents said:

"The method of leadership at work compels the staff to work outside their specializations and the roles assigned to them. Sometimes the leadership does not realize that a particular subject is for any department so it might direct it to the wrong place". (TM4)

Finally, leadership in the DGC is viewed as ‘emergency leadership’. According to (TF5):

"Leadership in the DGC is what I would call ‘emergency leadership’ in the sense that it seeks to cover the failures in the results of the work through solving some of the immediate problems but not the basic ones. They do not seek to find out the causes of these problems and try to solve them thoroughly".

Participants highlighted a number of weaknesses associated with leadership practices at the DGC. Among the most prominent of these weaknesses is the fact that there is no clear vision for the DGC’s leadership because there are no specific work criteria. There is a clash of ideas and decisions between staff and leaders. So, leadership decisions are made individually, and the technical decisions made by leaders are not based on the results of studies and data. For example, a department director says that this work is difficult to implement because he has a solid idea in their mind, rather than as a result of participation in decision making. Also, there appears to be a lack of consultation as leaders consider any criticism of the work as a personal criticism towards them, which is seen as a weakness which makes the employees work under pressure. Furthermore, leadership methods at work compel staff to work beyond their remit. The table below summarizes the leadership weaknesses at the DGC raised by the respondents.

Table 8.6: DGC Work Weaknesses Related to Leadership

Leadership Weaknesses
• No clear vision for the DGC’s leadership based on specific criteria. • DGC leaders lack the characteristics of successful leaders. • There is a clash of ideas and decisions between staff and leaders. • Leadership decisions are made individually. • Technical decisions made by leaders are not based on the results of studies and data. • Leaders do not accept the opinions of others. • Leaders consider any criticism of the work as a personal criticism towards them. • Leaders make the employees work under pressure. • Leadership methods at work compel staff to work outside their roles. • Leadership in the DGC is classed as emergency leadership.

8.5.2.2 Weaknesses relating to employee involvement

In exploring the extent to which the employees are involved at the DGC, the majority of the participants explained their criticism concerning their level of engagement in the DGC work. A number of critical issues emerged, one of the most important being that staff are not involved in decision-making. One of the interviewees commented:

"The DGC staff are only involved in implementing the decisions of the leaders but are not involved in decision-making". (TF1)

Another participant continued:

"Employees do not have knowledge of the track of some work, for example, the employees are required to complete work without knowing who is requesting the work and for what. This example is based on the fact that there are some things which are unclear and declared". (AM6)

Another emphasized:

"In many cases, the opinions of the staff are not taken into consideration". (TF5)

Some of the interviewees were focused on engagement in the technical decision-making processes that relate to curriculum development and evaluation work at the DGC. One of them said:

"The opinions of employees, especially technicians, are not taken into account when applying new programmes and projects related to curriculum development. the curriculum specialists must take forward the decisions and are not involved in them". (AF9)

Another interviewee continued:

"The employees' participation in decision-making is unfortunately limited. The DGC employees feel isolated from participating in decision-making, especially in decisions relating to technical work to develop and evaluate curricula". (AM7)

Furthermore, the participants referred to another difficulty associated with employee involvement in the DGC in that there is no encouragement for creative ideas. One participant commented:

"There is no encouragement for creative ideas in technical and administrative work". (AM8)

Another continued:

"The work system in the DGC does not encourage creativity". (TF1)

Another interviewee added:

"There is no encouragement for individual creativity because the work environment does not encourage creativity … curriculum specialists are not consulted in technical decisions". (TM2)

There were two main areas of weakness in relation to the involvement of employees, identified by several participants. The first key area of weakness is the lack of employee involvement in relation to the technical aspects of their core role in curriculum development and evaluation. This was compounded by the lack of opportunity which a number of participants reported in relation to opportunities to contribute to creative ideas and bring about innovation and improvement. The table below summarizes the weaknesses raised by the respondents in relation to employee involvement in the DGC work.

Table 8.7: DGC Work Weaknesses That Relate to Employees Involvement

Employee Involvement Weaknesses
• DGC employees are excluded from decision-making, particularly in the technical work associated with curriculum development and evaluation. • There is no encouragement for creative ideas because the work environment does not enhance creativity.

8.5.2.3 Weaknesses related to continuous improvement

A large number of interviewees asserted that there are many weaknesses in the DGC's work relating to continuous improvement. Some of them indicated that the available training programmes are not characterized by quality. One of the participants commented:

" The staff groups in the DGC are not trained or qualified well enough to work with quality". (AM10)

One added:

"It can be agreed that the quality of the training programmes currently provided to the administrative and technical staff are not effective and do not support the employee very much in his work. In some training courses, the trainer has a lower level of trainee than the content and skills of the course subject". (AM6)

Another interviewee continued:

"The theoretical side prevails over the practical side of the application of many of the existing training programmes". (AM7)

One respondent mentioned a lack of correlation with some of the training programmes and the employees' work. According to (TM2):

"There is lack of professional development programmes for employees directly relating to their work, and, if found, most of them are not of good quality".

One participant raised the issue of there being no clear criteria for participating in workshops and conferences. He stated:

"There are no clear standards of posts in international seminars and conferences in curriculum evaluation and development". (TM3)

Another commented:

"Training programmes are not available to all and do not target a large proportion of employees. At times, some employees participate in multiple programmes; with others being marginalized on the pretext that their position at work does not allow them to leave their work or that they do not need training". (AF9)

One of interviewee added:

"Some training workshops go to those who do not deserve it or go to people whose work has nothing to do with these workshops. For example, some technical programmes are attended by administrative staff and vice versa". (TM4)

Another participant emphasized:

"There is no database of the training needs of the Directorate's staff; there is no system to measure performance; and the Directorate relies on its indicators in the development of our work". (AM7)

Participants believed that the DGC staff training programmes are not characterized by quality, and also the theoretical side prevails over the practical side of the application of many of the existing training programmes. This has led to a lack of correlation between training programmes and the employees' work. The absence of clear criterion for staff participation in workshops and conferences and no plan for the training needs of the Directorate's staff were also among the weaknesses associated with continuous improvement. The table below summarizes the weaknesses in continuous improvement training for staff at the DGC raised by the respondents.

Table 8.8: DGC Work Weaknesses that Relate to Continuous Improvement

Weaknesses in Continuous Improvement
• Staff training programmes are not characterized by quality. • The theoretical side prevails over the practical side of the application of many of the existing training programmes. • There is a lack of correlation between training programmes and the employees' work. • There is no clear criterion for staff participation in workshops and conferences. • There is no plan for the training needs of the Directorate's staff.

8.5.2.4 Weaknesses relating to staff satisfaction

In general, according to the interview participants' responses, there is very little, if any, job satisfaction amongst the DGC staff, due to a variety of reasons. Employees are given no respect for their work efforts and have a lack of confidence in management. One interviewee stated:

"In general, the DGC employees are not satisfied with the services provided to them and the fact that there is no respect for their efforts. The lack of confidence between the leadership and staff reflects negatively on the performance of staff. In fact, some employees do not even trust the work of their colleagues". (TF1)

Another reason for employee dissatisfaction is the expectation for them to carry out work which is outside of their job description. According to (TF5):

"Staff do not feel job satisfaction because often they are doing things that are not their specialties".

Another participant emphasized this in detail, stating:

"The Directorate staff have become increasingly demotivated to work because of blurred vision. The environment is not attractive to work in because of the lack of a clear description of the work tasks and the lack of clarity of the duties and rights of the employees in the DGC. We see the employee working on more than one side which is not related to the field of his work; there is an overlap of the technical work with the administrative work". (TM3)

One respondent (AM6) focused on the slow response to solving challenges as another reason for employee dissatisfaction. He said:

"Job satisfaction in the DGC is weak the employee felt there is no clear future development of their work. There is resentment by the staff of the DGC as a result of the lack of or the slow response to solving the challenges and obstacles associated with the work".

One of interviewees added that the lack of involvement in decision making, the lack of financial incentives, and the accounting system are all reasons which contribute to a lack of job satisfaction of the DGC staff. He stated: *"Unfortunately, it can be said that job satisfaction in the DGC is very low because of the current working methods, the confusion in making decisions, the lack of financial incentives and moral encouragement, and the lack of an accounting system and accuracy in follow-up work". (TM4)*

Two of the participants explained that the high incidence of staff resignations is directly linked to the lack of job satisfaction amongst DGC employees. One of them commented:

"I do not think there is any work satisfaction with GDC staff, and the evidence of this shows through the increasing proportion of resignations by staff - and most of them are experienced". (TM2)

Another said: *"Lack of interest in experiences from the Directorate due to the situation is not encouraging in the Directorate". (AM7)*

Respondent (AF9) concentrated on the physical work environment, stating:

"There is no employee satisfaction because the work environment is not encouraging to work in. Even in terms of the physical environment of the offices, it is not suitable for the mental work in the sense that there is no privacy in the work".

One of the reasons leading to a lack of DGC staff satisfaction was employees work efforts are not acknowledged, there was a lack of confidence between staff and the leadership, and staff not just working in their specified roles. The lack of financial incentives and moral encouragement, the lack of an accounting system and accuracy in follow-up, and a physical work environment are all factors discouraging the workers, as well as factors affecting staff satisfaction. In addition, a high proportion of resignations of experienced staff indicate a lack of job satisfaction amongst DGC employees. The table below summarizes the reasons associated with lack of staff satisfaction at the DGC, raised by the respondents.

Table 8.9: Reasons Associated with the Lack of Staff Satisfaction

Reasons for the Lack of Staff Satisfaction
• Employees work efforts are not acknowledged. • Lack of confidence between staff and leadership. • Staff are not working in the specified roles. • Slow response to solving work-related challenges. • Confusion in making decisions. • Lack of financial incentives and moral encouragement. • Lack of an accounting system and accuracy in follow-up. • Physical work environment is not encouraging to work in. • High proportion of resignations of experienced staff indicates a lack of job satisfaction amongst DGC employees.

8.5.2.5 Weaknesses related to technical work

Interestingly, the interviewees raised many issues related to the technical work which reflected negatively on curriculum development and evaluation. One participant highlighted that there is no clear mechanism for minimizing the technical errors of curricula content when she said:

"It is true that the criticisms of the curricula are healthy because they touch all segments of society, but by continuing to ignore the errors and not taking these criticisms and comments on board, trying to solve it becomes a tragic situation". (TF1)

Another note is there is no clear mechanism of the benefits of the curriculum evaluation studies. Respondent (AM6) said:

"There are no clear indications of the mechanisms and the extent of the benefits of the results of the evaluation studies in the DGC. This situation makes the staff feel that their efforts in these studies are not invested and are in vain".

Another respondent pointed out:

"The results of evaluation studies are often not taken". (TF5)

Two participants referred to the fact that there is no clear feedback provided on the work completed. One commented:

"There is no comprehensive feedback given about the work done in the DGC in order to improve it, so we do not know the strengths and weaknesses in our work". (AM6)

Another indicated:

"We do not know the course of observations and suggestions that require the staff to represent a particular topic. In other words, we do not know whether they were introduced or not, or what measures have been taken. This has generated a lack of trust between the employees and the leadership". (AF9)

Another point was raised relating to the issue of there being no prioritization of the work. According to (AM6):

"There is no prioritization of work in the sense that there is no priority for the most important work. The work is going on with the so-called 'emergency rule' in the sense that every new and urgent piece of work is requested to be completed immediately at the expense of the basic work".

Another added:

"Work priorities in the DGC are to finish the new work first and then complete the basic work". (TM4)

One interviewee focused on the fact that there is no clear vision of curriculum development. He said:

"There is no clear basis for curriculum development. In other words, we do not know why we develop it or what the product should be as a result of this development". (TM4)

Some of participants pointed out that there is no clear mechanism for the selection of curriculum specialists. One of them said:

"There is no mechanism based on technical criteria in the selection of curriculum specialists to work in the DGC". (TM3)

And another emphasized:

"We find that most of the curriculum specialists are chosen from teachers, some of whom move only through the desire to change their job or to obtain financial incentives, only to be surprised when they find this to be non-existent when joining the work. This will negatively affect their work and thus, will negatively affect the quality of the work of the DGC". (AM8)

The weaknesses relating to technical work concentrated on the absence of a clear mechanism for minimizing the technical errors in curricula content, no clear mechanism to benefit from curriculum evaluation studies, and no mechanism for the selection of curriculum specialists. These were caused by the absence of clear vision for curriculum development. The table below summarizes the weaknesses in the technical work at the DGC raised by the respondents.

Table 8.10: Weaknesses in the Technical Work at the DGC

Weaknesses in the Technical Work
• There is no clear mechanism for minimizing the technical errors in curricula content. • There is no clear mechanism to benefit from the curriculum evaluation studies. • There is no clear feedback or appraisal on completed work. • There is no prioritization of work. • There is no clear vision for curriculum development. • There is no mechanism for the selection of curriculum specialists.

8.5.3 Perspective of the Directorate General of Curriculum staff on the application of TQM

All participants emphasized the availability of TQM criteria in the curriculum development and evaluation work in the DGC as being an important factor in ensuring a high level of quality assurance work.

8.5.3.1 General perspectives of TQM application

Generally, the application of TQM in DGC work is viewed positively by the DGC staff. Indeed, all of the interviewees appeared excited about the introduction of the TQM principles in their work, this was partly because they have some background knowledge about TQM principles from the ISO 9001 project that the MoE began using in some ministry's directorates, (section 2.5 chapter 2), and from the document setting out the TQM principles that the researcher sent to them and then explained it to each interviewee before the interviews. One of participants focused on implementing a system of TQM as being an urgent matter, and said:

"Implementing a system of TQM in the work of curriculum evaluation and development is an urgent matter. The application must be done by ensuring visibility; with a system designed to strengthen and maintain the accountability of the employee and development of the entire system of work, starting from rules and legislation. This will help to achieve efficiency and become more sophisticated". (AM10)

Another emphasised this in detail and stated:

"There is a very urgent demand for the development of the system of curriculum development and evaluation within the DGC based on the principles of quality. The fact is that every individual in the DGC aims to and aspires to ensure that work of the Directorate is of a very high quality, but under the current conditions, obstacles and limitations of the work, it is very difficult to achieve this. Unorganized work will produce a product with many flaws. I said clearly, at least five years ago, that the DGC's work was not developed due to all these obstacles". (TM3)

Another stressed that the DGC's work system must be completely changed. She said:

"Our system of work must be completely changed because our work is in fact random and unorganized". (TF1)

While another interviewee concentrated on awareness issues, and said:

"We need to be aware of the importance of implementing a system of TQM in the work of the DGC and then establish a system of work which is based on these principles". (TF5)

Furthermore, one of the interviewees highlighted the confidence issues between the leadership and staff in respect of the application of TQM principles. According to respondent (AF9):

"We are with implementing the TQM system in the work of the DGC, with emphasis being placed on restoring confidence between the leadership and the staff".

Another participant also focused on the importance of leadership in relation to applying the TQM principles in the DGC. She commented:

"Emphasis must be placed on leadership, as it is the foundation and engine required to achieve the rest of the principles of TQM". (TF1)

Another emphasised in detail the significance of leadership and the application of TQM in the DGC; he said:

"The main responsibility for the quality of curriculum development and evaluation work is the senior leadership, headed by the Minister of Education. If the Minister wants it to be a high-quality curriculum, it must work to develop human competencies through training, and provide the technical and financial

requirements. The leadership in the DGC is a central leadership that acts as a mediator between the senior leadership and the internal beneficiary; namely, the staff of the DGC. Therefore, the role of the leadership of the DGC is limited in light of the dominance in the decision-making by the senior leadership". (AM8)

Respondent (AM7) concentrated on establishing a culture of quality. He commented:

"The aim of applying the TQM system should be to establish a culture of quality at work, rather than to obtain an international certificate".

A range of views regarding the application of TQM in the DGC were determined by the participants. While implementing a TQM system as a matter of urgency was one perspective, there was also an awareness of the importance of implementing a system of TQM in the DGC's work, including the significance of the leadership roles in the application of TQM at the DGC, and the importance of establishing a culture of quality. The table below summarizes the general perspective of DGC employees regarding the application of TQM, highlighted by the respondents.

Table 8.11: General Perspectives of DGC employees regarding the Application of TQM

General Perspective of TQM Application
• Implementing a TQM system is a matter of urgency. • The existing work system at the DGC must be completely changed. • Awareness of the importance of implementing a system of TQM in the DGC's work. • The significance of leadership roles in the application of TQM at the DGC. • The importance of establishing a culture of quality.

8.5.3.2 The benefits of applying TQM

The majority of the participants felt that the introduction of TQM principles would add benefit to the DGC by creating a culture of organization of the work; and ultimately create a culture of quality. One participant said:

"TQM will create a culture in the organization of work among employees by framing roles and responsibilities within the clarity of an action plan. This will lead to the establishment of a culture of quality

in the administrative and technical work and thus, will reflect positively on the quality of the products of the DGC". (TF5)

Another interviewee commented:

"I think the work will be organized to achieve the objectives set, with the ability to achieve goals and shorten time and effort. The accuracy of the product is the curriculum; work processes will be clear and specific; the work vision will be clear and easy to apply, and we will be able to know the location of the defect and avoid it quickly". (AM10)

Respondent (AM6) added to this point by saying:

"It will develop the spirit of working as a team, develop the spirit of positive competition in work, and will also be more integrated and more organized; then we can produce a strong curriculum and thus build a strong Omani generation".

Another participant emphasized this view by stating:

"If we apply the system of TQM it will create a working environment to help the continuous development and the work will be integrated between the departments of the DGC. It will positively affect the quality of the Omani curriculum". (AF9)

Another benefit of TQM will be the improvement in the quality of work; consequently, this will create a positive reflection of the quality of the curriculum content. According to (TF1):

"Quality curriculum content is a reflection of the quality of curriculum development and evaluation processes; if the work is good, the curriculum content will be good, and vice versa. If the leadership develops; the administrative and technical work will improve and this, therefore, will positively reflect on the quality of the curriculum. We need a TQM system to improve the curriculum content, change the ways of thinking, change the culture of work and change convictions".

Respondent (TM4) focused on the reduction in curricula errors, and said:

"TQM will reduce the product errors, which is the curriculum, and therefore, there will be satisfaction for the internal and external beneficiaries. Also, it will let us know and believe that the way we work is correct; thus, employees will be more positive and dedicated to their work".

TQM will enable employees to clearly recognize their roles, rights, responsibilities, and duties. (AM8) commented:

"The work will be organized; there will be a clear action vision and strategy; the employee will clearly recognize his roles and there will be a system to monitor, audit and evaluate the work".

Another interviewee added to this point, stating:

"Employees will know their responsibilities, rights, and duties in the sense that they will know what they have and what they are; they will know where to start and where it ends; the work will be smooth and the employee will feel relaxed. Thus, they will be a product of the Directorate". (AM7)

Another benefit highlighted was the reduction in the randomness of work. Respondent (TM2) said:

"If the administrative and technical work is characterized by quality, it will reflect positively on the curriculum by reducing the randomness of work and raising the responsibility in the work".

As a result of this, satisfaction will be reached. According to respondent (TM8):

"It will give positive motivation to work; plans will be implemented with ease; the level of employee satisfaction will increase; we will gain time and effort in completing work and will reach a culture of quality in our work".

The participants focused on a set of benefits of applying TQM in the DGC. Firstly, applying TQM would create a quality culture in the organization of the work, and then positively reflect on the quality of the curriculum content through reducing the incidence of curricula errors. Secondly, if applying TQM would enable employees to clearly recognize their roles, rights, responsibilities, and duties, thereby reducing the randomness of work, and enhancing employee satisfaction. The table below is a summary of the benefits of applying TQM principles in the DGC, as identified by the respondents.

Table 8.12: Benefits of the Application of TQM Principles in the DGC

Benefits of Application of TQM Principles in DGC
• It will create a quality culture in the organization of work. • It will positively reflect on the quality of the curriculum content. • It will reduce the incidence of curricula errors. • It will enable employees to clearly recognize their roles, rights, responsibilities, and duties. • It will reduce the randomness of work. • Employee satisfaction will be reached.

8.5.4 Obstacles facing the application of TQM: Proposed suggestions and solutions

This section concentrates on obstacles facing the application of TQM in the DGC, and the proposed suggestions and solutions raised by the interviewees.

8.5.4.1 Obstacles facing the application of TQM

Added to the weaknesses that currently exist in the DGC's work, several participants highlighted some financial, administrative, technical, and strategic obstacles which may affect the application of TQM principles in the DGC.

8.5.4.1.1 Financial obstacles

Some respondents made reference to financial issues being an obstacle that could hinder the application of TQM in the DGC. One interviewee said:

"The biggest challenge that may affect the improvement of work is the financial challenge". (AM8)

The financial support of the DGC is not commensurate with the reality of the work, as (AM6) indicated:

"The financial support associated with the implementation of the work is very limited. Many projects do not achieve some of their objectives due to the lack of financial support. It can be said that the material support of the DGC is not commensurate with the actual reality of the work. In general, there should be special

financial and administrative regulations for the Ministry of Education which are separate from the Civil Service Law".

Two participants pointed out specific problems associated with the DGC from a financial perspective. Currently, there are no clear criteria for the promotions and rewards system; as such, employees are not afforded their financial rights in relation to promotions and rewards. One commented:

"We demand our financial rights. Can you imagine that staff promotions have been suspended for more than seven years?". (TM2)

The second respondent asserted:

"There is a lack of material incentives as rewards for participation in many committees and teams; employees often work outside of their contracted working hours and spend a considerable amount of time to complete additional work at the expense of the time allocated to complete their basic work. Also, the promotions that employees are rightfully entitled to are delayed". (AM7)

There were two main areas of financial obstacles in relation to the obstacles facing the application of TQM, as identified by several participants. The first main area was that financial support in the DGC is not commensurate with the actual reality of the work. In addition, DGC employees are not awarded their financial rights in respect of promotions and rewards. The table below summarizes the financial obstacles facing the application of TQM in the DGC.

Table 8.13: Financial Obstacles Facing the Application of TQM in the DGC

Financial Obstacles
• The financial support in the DGC is not commensurate with the actual reality of the work. • DGC employees are not awarded their financial rights in respect of promotions and rewards.

8.5.4.1.2 Administrative obstacles

The majority of the participants believed that the traditional management of the DGC's leadership and bureaucracy in its administrative processes could be an obstacle in implementing TQM principles. One interviewee referred to the ineffective management of work and stated:

"There is a mismanagement of work within the DGC - the effective management of quality work within the Directorate is missing". (AM7)

Another concentrated on the inability of DGC leadership to acknowledge the abilities of their employees. According to (AF9):

"The leadership does not give authority and confidence to the expertise and competencies of the DGC staff for development in the work; this may be due to the inability to invest in these competencies to contribute to the development of the work".

Three of the respondents referred to the fact that there is no clear integrative relationship between the DGC and the rest of the Directorates within the MoE. According to (AM6):

"The work in curriculum development and evaluation is linked to many quarters outside the DGC, such as the Directorate of Finance, the Directorate of Educational Evaluation, and the Directorate of Human Resources Development. Therefore, any shortcomings or weakness in cooperating with these bodies negatively affects the work".

Another added to this, saying:

"Some of the DGC work is interrupted or hindered due to its association with the work of other directorates, such as providing financial input through the Directorate of Finance, and, if it is achieved, it requires a great deal of communication between these departments that can last for months". (AM8)

The third participant emphasised this by saying:

"There is no clear integrative relationship between the DGC and other relevant bodies within the MoE, such as the Directorate of Educational Evaluation and the Department of Educational Supervision". (AF9)

Another administrative obstacle highlighted by the respondents related to there being no published documents explaining the job descriptions, rights, duties, clear work foundations, principles, and tasks for employees**.** Respondent (AM10) commented:

"The absence of mechanisms governing the work in the DGC has created many gaps in the work of curriculum development and evaluation. There are no published documents which explain employee job descriptions, rights, and duties".

Respondent (TF5) also said:

"The current work is not based on any clear foundations, principles, tasks, or roles, so a great deal of time and effort is needed to change this work culture".

Most of the feedback relating to curriculum development and evaluation comes from schools. Thus, one participant suggested that the lack of a clear mechanism to communicate with schools could be an administrative challenge that could impact negatively on the application of TQM in the DGC. According to respondent (TM3):

"There is a lack of a clear mechanism to communicate with schools and this negatively affects the provision of information and guidance to supervisors and teachers. For example, there is no department or member of staff whose mission is to communicate with schools; rather, they have to rely on the guidelines sent to the provinces which are supposed to arrive at the schools. Not only that, some schools have not received these guidelines resulting in problems in the application of the curriculum. Thus, the schools' feedback that relates to the curricula will be weak".

Participants explained a number of administrative obstacles facing the application of TQM in the DGC. Among the most prominent of these obstacles is that the DGC's work is ineffectively managed, and the DGC's leadership does not invest in staff competencies and skills. Also, the segregated relationships between the DGC and other directorates within the MoE results in negatively affect the quality of DGC work. Moreover, the absence of published documentation, such as job descriptions, for DGC employees which means that it is more difficult to quality assurance in the DGC work. The table below is a summary of the administrative obstacles facing the application of TQM in the DGC.

Table 8.14: Administrative Obstacles Facing the Application of TQM in the DGC

Administrative Obstacles
• The DGC's work is ineffectively managed. • The DGC's leadership does not invest in staff competencies. • Segregated relationship between the DGC and other directorates within the MoE. • No published documentation, such as job descriptions, for DGC employees. • No clear communication mechanisms with schools.

8.5.4.1.3 Technical obstacles

Two respondents raised issues relating to the technical work at the DGC. According to (TF1), the lack of accurate databases and the migration of competent technical staff are obstacles that could have a negative impact on the successful application of TQM. He commented:

"The lack of rich databases in the composition of the curriculum will impact the technical work associated with curriculum development and evaluation".

Respondent (TM3) added:

"The loss of specialized competencies through staff either resigning from the DGC or moving to other institutions is a negative factor that affects the work of curriculum evaluation and development".

The technical obstacles shown by the participants concentrated on two issues. The first was the lack of rich databases that relate to curriculum development and evaluation, and the second issue was the reduction of employees with technical expertise due to migration and resignation. The table below summarizes the technical issues that could hinder the application of TQM in the DGC.

Table 8.15: Technical Obstacles Facing the Application of TQM in the DGC

Technical Obstacles
• The lack of rich databases that relate to curriculum development and evaluation. • The reduction of employees with technical expertise due to migration and resignation.

8.5.4.1.4 Strategic obstacles

The majority of the respondents raised concerns about the lack of clarity and vision at the DGC. Moreover, they believe that a clear strategy is necessary for the successful application of TQM principles. According to respondent (AM6):

"There is no clear strategy for the development process; this should be co-developed with all involved in the curriculum development and evaluation work within the MoE and beyond at least every ten years".

Respondent (TM3) commented in detail:

"The lack of clarity of the Ministry's vision in the development and evaluation of the curricula will impact negatively on the application of TQM in the DGC. So far, we have not had a strategic plan announced to the curriculum specialists. For example, the Ministry of Education has implemented projects related to the curriculum, such as the Standards Project, without considering the specialists' views. This project began in 2003 and, up until now, 2018, it has not been published.

It was then replaced with the Global Chains Project of Science, Mathematics and English, without a clear and documented strategy. It came without warning and, in my opinion, any project needs to be prepared and trained for, and convictions formed among the curriculum specialists, supervisors, and teachers".

The lack of strategic plans will undoubtedly be problematic for the implementation of TQM in the DGC. One interviewee commented:

"There is no clear plan for the mechanism of work in the DGC". (TM4)

Another said:

"There is no clear and long-term plan for evaluating and developing the curricula; thus, to change attitudes and establish a culture of quality will take a long time". (AM8)

Respondent (AM7) stated:

"Suffering is caused by the lack of proper planning for the administrative and technical work in the Directorate. Even if there are plans, implementation is unrealistic and weak due to the lack of the necessary implementation requirements and a lack of control".

One of them explained this in detail and said:

"There is a lack of strategic plans for the evaluation and development of curricula. Even when there are plans, they are not implemented in real form, in the sense of ink on paper. They can be temporary for a certain period of time and then new ideas arise from certain people, such as leaders, then they change the plan completely and do not abide by it. This, in itself is a waste of time, effort and money; in other words, there is no long-term vision to develop and evaluate curricula. This is a challenge to the application of TQM in our work". (TF1)

It can be argued that lack of clarity and vision and then lack of strategic plans were the prime technical obstacles confirmed by the DGC staff. The table below summarizes the strategic obstacles facing the application of TQM in the DGC.

Table 8.16: Strategic obstacles Facing the Application of TQM in the DGC

Strategic Obstacles
• Lack of clarity and vision. • Lack of strategic plans.

8.5.4.2 Proposed suggestions and solutions

The respondents proposed some general suggestions and solutions to set in motion the application of TQM principles in the DGC's work. Firstly, the improvement of work has to begin with the DGC's leadership. According to respondent (TM4):

"Improvement begins with the leadership, so the right man must be put in the right place. The leadership in the DGC must be aware of the importance and seriousness of the technical work in the DGC".

Similarly, respondent (TM3) pointed out that:

"Leadership is the focus of the entire work; if the leadership succeeds in its work it will reflect positively on the final product. The commitment of the leadership to apply the principles of TQM through the participation of staff in decision-making, development, providing the necessary work requirements, and establishing a culture of quality in the DGC's work will all have a positive impact in the development of work".

Respondent (TM2) highlighted the need for the development of middle leadership when he said:

"Development of the middle leadership of the DGC is needed to enable them to understand the importance and mechanisms of applying the principles of TQM because they are directly connected with the rest of the staff".

Another interviewee said:

"If the attitudes of these leaders have not changed, they should be replaced by new and efficient leaders who are convinced of the need for development and improvement in the DGC's work". (AM7)

The second issue is that the MoE in general, and DGC in particular, must have a real awareness and understanding of the need for the development of curricula work and the sense that there is a problem. One of participants commented:

"Establishing quality in the work by applying the principles of TQM is a prerequisite. The Ministry must have a real awareness and conviction of development, especially among educational leaders, and the feeling that there is a problem in the curricula work, because the sense of the problem is the starting point for solving the problem". (AF9)

Thirdly, there should be a clear vision of work, as identified by respondent (TF5), who said:

"There should be a clear plan and goals that are based on the real work of the DGC".

Another proposal was to guarantee that the DGC benefits from the application of TQM is inculcating the development culture of staff. According to (TF1)

"Inculcating development culture of staff so as to remove any fear of change for them. It is necessary for staff to be given sufficient time to produce their work and be involved in planned, open meetings between leadership and staff. We must be fully convinced that the work we are carrying out is to implement the policy of the MoE, not the policy of the Minister; and the policy of the DGC, not the policy of the Director General".

Respondent (AM6) focused on the interest in aspects of work, such as planning, implementation, and accounting. He said:

"Work is like a triangle; it contains three angles, which are planning, implementation, and accounting. However, the reality of the work in the DGC is not based on these three issues; for example, if there is good planning and good execution, the accounting is absent".

Other respondents suggested that attention should be given to providing employees with confidence, encouraging staff participation, providing work materials. and unleashing employee creativity. He said:

"It is assumed that we need to change our system of work through the actual participation of employees in decision-making, providing material and administrative requirements, unleashing the employee's creativity … I believe that the principles of TQM are an integrated and continuous series, so if professional leadership is involved in employee development, this will result in job satisfaction. If one of these principles is compromised, it will adversely affect the entire system of work". (TM2)

Another interviewee commented:

"The leadership needs to show confidence in the capabilities of staff and focus on making professional development courses available for them. Also, financial allocations should be disbursed in accordance with the criteria and priorities of work, rather than wasting public funds without accountability". (AM6)

Two interviewees stressed that in order to improve the quality of work, the work should be integrated both within and outside the DGC. In addition, attention should be given to the professional development of staff. According to (TM3):

"There is a very urgent demand for the development of the system of curriculum development and evaluation within the DGC based on the principles of quality … the quality of the curriculum is a collective responsibility. It is the responsibility of the local community, the MoE, the teachers, the principal, and the students, because educational work is integrated work. But the biggest responsibility lies with the MoE represented by the DGC … these curricula must achieve the ambitions of the homeland and the citizens".

Another respondent said:

"There is a need for partnership in decision-making, internal integration in the DGC's work, especially technical work, in relation to the work of development committees and the evaluation committee. Moreover, more focus is needed for the professional development of staff". (AF9)

Finally, to implement TQM principles, an evaluation system is needed in the DGC's work. One of the participants commented:

"We need a system to monitor the work stages; in other words, we need the formative and summative evaluation of the stages of work to provide feedback". (AM7)

Another interviewee said:

"There should be a neutral body to evaluate the work every five years, maybe by a global educational consulting firm". (TF5)

The participants proposed various suggestions and solutions to address the obstacles that face the application of TQM in the DGC. One of these suggestions was that the improvement of work has to begin with the DGC's leadership and awareness of the existing problems and convictions in developing the curricula work. Further suggestions include a clear vision of the work, inculcating evolutionary thought processes and cultural development of employees and interest in all elements of work, planning, implementation and accounting were also solutions proposed by the participants. Furthermore, paying attention to employees to give them confidence, encouraging staff participation, providing work materials, and unleashing creativity will also help to overcome with the obstacles facing TQM application in the DGC. Finally, focusing on integrating DGC work with external stakeholders, facilitating professional development for employees, and implementing an evaluation system for the DGC's work were also suggested. The table below summarizes the respondents' proposed suggestions and solutions to facilitate the successful application of TQM principles in the DGC's work.

Table 8.17: Proposed Suggestions and Solutions for the Application of TQM

Proposed suggestions and solutions
• The improvement of work has to begin with the DGC's leadership. • Awareness of existing problems and conviction in developing the curricula work. • Clear vision of work. • Inculcating evolutionary thought processes and cultural development of employees. • Interest in angles of work, planning, implementation, and accounting. • Paying attention to employees to give them confidence, encourage staff participation, providing work material and unleashing creativity. • Integrating DGC work with external stakeholders. • Facilitating professional development for employees. • Implementing an evaluation system for the DGC's work.

8.5.5 Overview of the application of TQM principles in the DGC

All the of interviewees, both male and female, administrative and technical, generally agreed that there is no application of TQM in the current curriculum development and evaluation work in the DGC.

According to respondent (TF1):

"In general, the system of work in the DGC does not depend on the principles of TQM".

Another interviewee said:

"There is basically no work system in the DGC based on quality in its scientific sense. The issue of quality is raised here and there in the corridors of the MoE, but in reality, it does not exist. The reason for this is that there is no system to measure the quality of work". (TM3)

One participant commented:

"I do not think that the system of work in the DGC is based on the principles of TQM because there is a missing link in the work. For example, in some cases the employee is involved in decision making, but his opinion is not taken. It is realistic that the decisions are made by the leadership, whether high or middle level leadership, but to impose these decisions on the employee results in a lack of job satisfaction". (TM2)

In his opinion, respondent (AM8) stated:

"In general, the daily work in the DGC is not based on the principles of TQM and the evidence shows that there is no internal satisfaction of the Directorate's staff on their work system".

8.6 Open-ended questions

The fourth part of the questionnaire contained three open-ended questions regarding the obstacles that might be facing the dissemination of a quality culture in the DGC and suggestions for improving the quality of work of the DGC, as follows:

1. What are the obstacles facing the dissemination of a quality culture in the curriculum development and evaluation work?

2. What are your suggestions for improving the quality of the curriculum development and evaluation work in the Directorate?

The main purpose of these questions was to add additional validation to the data obtained from the questionnaires and interviews, and to achieve the study's aims more thoroughly. The questions were answered by 45 of the 147 respondents who completed the questionnaire. During both the interviews and questionnaire, most agreed on what they believed to be the obstacles which would prevent the successful implementation of TQM principles in the curriculum development and evaluation work in the DGC, and the proposed solutions. The answers were translated, analysed, and then categorised into four categories; namely financial obstacles, administrative obstacles, technical obstacles, and strategic obstacles.

8.6.1 Financial obstacles

The majority of the respondents focused on the main financial issues facing the application of TQM in DGC. One participant said:

"The financial budgets approved for curriculum development are inappropriate ".

Another focused on financial incentives and said:

"There is lack of financial reinforcement and appropriate rewards".

Another commented:

"There is a lack of material incentives to encourage quality in the completion of work".

The respondents proposed some potential solutions that would help the DGC cope with the financial challenges which could impact the application of TQM principles in the DGC's work, as follows:

- Provide materials to improve curriculum development.
- Introduce a clear financial reward system for employees.
- Give financial rewards to exemplary employees.

8.6.2 Administrative obstacles

The leadership obstacles and involvement in decision-making are also crucial issues highlighted in the answers to the open-ended questions of the questionnaire. One participant said:

"There is no effective communication channel between the leadership and staff to encourage and motivate them".

Another commented:

"There is individual domination of decision making by the leadership in the DGC".

Another respondent added:

"There is a lack of awareness amongst some officials about the importance of instilling a culture of quality at work".

The respondents identified a variety of administrative challenges. One stated:

"There is a lack of clarity about the required work standards and the mechanisms to evaluate it".

Another said:

"The administrative accounting system is not effective".

One of them commented:

"There are no effective communication mechanisms between departments within DGC".

Another participant added:

"There is a lack of positive interaction with work environments linked to the work of the DGC".

The respondents proposed some potential solutions to help the DGC cope with the administrative challenges facing the application of TQM principles, summarized as follows:

- Effective communication between staff and leadership to reflect positively on the work of the DGC.
- Developing the organizational structure of the MoE in general, and the DGC in particular, to allow for decentralized work.
- Participation of staff in decision-making and promotion of their initiatives to develop work.
- Providing the appropriate tools and environment to produce quality work.
- Cooperation and coordination between the various bodies within and outside the MoE linked to the work of the DGC.
- Selection of leaders for the Directorate who are distinguished by competence and the desire for development.
- Intensifying constructive communication between the departments of the DGC to serve the work.
- Accountability of the defaulters according to the clear mechanism of administration.

8.6.3 Technical obstacles

In order to explore the technical obstacles that relate to the curriculum development and evaluation work at the DGC, respondents raised a number of challenges facing the implementation of TQM principles. One of respondents said:

"There is a shortage of qualified cadres scientifically and practically qualified in the development and evaluation of curricula".

Another commented:

"There is a lack of effective development workshops associated with the work of the DGC".

One of the participants added:

"There is limited access to and exchange of experiences between the DGC and related institutions both inside and outside of Oman".

Another focused on the standard specialists of curricula, and said:

"There is lack of clarity on curriculum development standards and specialists in the field of curriculum quality".

Therefore, the respondents proposed some potential solutions that would help the DGC cope with the technical challenges in order to successfully facilitate the application of TQM principles in the work of the DGC, as summarized below:

- Provide adequate training for professional staff in the development and evaluation of curricula, relating to the nature of their work.

- Take advantage of the up-to-date experiences of developed countries in the development and evaluation of the curricula.

- Creating qualified groups who are specialists in the field of curriculum quality.

- Meeting the needs of professional staff to raise the level of work performance.

- Utilizing the current human expertise available in the DGC.

8.6.4 Strategic obstacles

Some of the respondents focused on general strategic issues facing the application of TQM in the DGC. One participant said:

"There is a lack of clarity in the general work strategy at the DGC".

Another commented:

"There is no realistic plan to develop the administrative and technical work in the DGC".

One of them added:

"There is no strategic planning for the work of the DGC".

Furthermore, one of them commented:

"There is a lack of plans and strategies based on the principles of quality".

Therefore, the respondents proposed some potential solutions that would help the DGC cope with the strategic challenges facing the application of TQM principles in the DGC's work. These potential solution factors are summarized in the following points:

- Adopting a flexible general strategy for the work of the DGC which is applicable to existing possibilities.

- Developing a clear plan for the process of curriculum development and evaluation based on the results of research and studies.

The table below summarizes the obstacles facing the application of TQM principles in the work of the DGC, and the possible solutions suggested by the respondents.

Table 8.18: Obstacles and potential solutions of application of TQM principles in the DGC

Themes	Obstacles	Proposed solutions
Financial obstacles	• The appropriateness of financial budgets approved for curriculum development. • Lack of financial reinforcement and appropriate rewards. • Lack of material incentives to encourage quality in the completion of work.	• Providing material needs for curriculum development. • Continuous financial enhancement of good employees. • Introducing a clear financial system to reward employees.
Admin obstacles	• There is no effective communication for leadership with staff to encourage and motivate them. • The lack of clarity of work standards and a mechanism to evaluate it. • Lack of an effective administrative accounting system. • Centralization of work. • Individual domination of decisions by the leadership in the DGC. • A lack of trust between the leadership and the staff of the DGC. • Lack of positive interaction with work environments linked to the work of the DGC. • Slow procedures and faltering development projects. • The prevailing work system is unstimulating, and some leaders refuse to change or improve it.	• Effective communication between staff and leadership to reflect positively on the work of the DGC. • Developing the organizational structure of the MoE in general and the DGC in particular to allow decentralized work. • Participation of staff in decision-making and promotion of their initiatives to develop work. • Providing the appropriate tools and environment to produce quality work. • Cooperation and coordination between the various bodies within and outside the MoE linked to the work of the DGC. • Dependence on leaders who have managerial decisions development, fruitful and effective. • Intensifying constructive communication between the departments of the DGC to serve the work. • Accountability of defaulters according to the clear mechanism of administration.

	• Lack of awareness among some officials of the importance of instilling a culture of quality at work. • Lack of effective communication mechanisms between departments of the DGC.	
Technical obstacles	• Lack of development workshops with effectiveness associated with the work of the DGC. • Lack of benefit of global experiences. • Lack of access and exchange of experiences between the DGC and related institutions inside and outside the Oman. • Lack of clarity on curriculum development standards. • Lack of specialists in the field of curriculum quality. • Shortage of qualified staff groups scientifically and practically. • qualified in the development and evaluation of curricula.	• Provide adequate training for professional staff in the development and evaluation of curricula related to the nature of their work. • Taking advantage of modern experiences of developed countries in the development and evaluation of curricula. • Qualified staff specialized in the field of curriculum quality. • Meeting the needs of professional staff to raise the level of work performance. • Utilizing the current human expertise available in the DGC.
Strategic obstacles	• Lack of clarity of the general strategy of the work of the DGC. • Lack of a realistic plan to develop the administrative and technical work in the DGC. • Lack of specific targets for measurable work. • Absence of strategic planning for the work of the DGC. • Lack of plans and strategies based on the principles of quality.	• Adopting a flexible general strategy for the work of the DGC, which is applicable according to existing possibilities. • Develop a clear plan for the process of curriculum development and evaluation based on the results of research and studies.

8.7 Conclusion

This chapter has discussed the analysis of the qualitative data collected from the GDC staff at the MoE. The theoretical background associated with qualitative data analyses was explained; then, the manual thematic analyses was adopted. The familiarisation and organization of the data was then stated. Following this, the process of generating the initial codes and searching for themes was detailed. Finally, the findings derived from the interviews and open-ended questions were reported.

Although there are some strengths in the curriculum development and evaluation work at the DGC, the findings displayed a number of weakness in the work which relate to leadership, employee involvement, continuous improvement, staff satisfaction, and technical work. Furthermore, the data shows that there are obstacles which might affect the successful application of TQM principles in the DGC work associated with financial, administrative, technical, and strategic issues. The next chapter fully discusses the findings of the quantitative and qualitative data collected from the DGC staff.

Chapter Nine: Discussion

9.1 Introduction

The main aim of this study is to fully explore the current application of TQM in curriculum development and evaluation in the DGC in the MoE in the Sultanate of Oman. More specifically, it seeks to explore and establish the extent to which the curriculum development and evaluation processes in the DGC are based on the principles of TQM, by identifying the strengths and weaknesses of the work of the DGC.

Furthermore, this study aims to identify the DGC staff perspectives on the application of TQM for the purpose of improving the curriculum development and evaluation processes. In order to achieve the goal of the study, Chapters 7 and 8 present the findings of the data gathered from the questionnaires and interviews respectively, in relation to the following research questions:

1. To what extent is TQM applied in the curriculum development and evaluation work of the DGC in the MoE in Oman?
2. What are the strengths and weaknesses of the work processes of the curriculum development and evaluation of the DGC?
3. What is the DGC staff perspective on the application of TQM to improve the curriculum development and evaluation processes in the DGC?
4. What are the potential benefits of applying TQM to the curriculum development and evaluation work processes in the DGC?
5. What are the potential obstacles in the application of TQM in the curriculum development and evaluation work processes in the DGC, and the proposed suggestions and solutions?

This chapter is divided into five sections based on the research questions. The first section explains the extent to which the TQM principles are applied in the curriculum development and evaluation work of the DGC in general. The second section examines the strengths and weaknesses of the curriculum development and evaluation work processes at the DGC. The third section discusses DGC staff perspectives surrounding the application of TQM, and whether, in their opinion, it has improved the curriculum development and evaluation processes in the DGC in Oman.

The fourth section highlights the potential benefits of applying TQM within an organization. The final section first highlights the potential obstacles facing the curriculum development and evaluation work processes arising from the application of TQM; and second, it details various suggestions and possible solutions to overcome these obstacles.

As outlined in the Chapter 7, the overall statistical findings reveal no significant differences regarding the participants' responses of the current practices of the application of TQM principles based on gender, type of job, and work experience in the DGC. Consequently, the researcher decided to discuss the findings based on the participants' overall results, regardless of whether they are male or female, technical or administrative, or number of years' work experience. In addition, the focus has been on discussing the decisions that obtained high and low levels statistically in the quantitative analysis because it has given an indication of the strong and weak approvals related to the application of the TQM principles in curriculum development and evaluation work in the DGC.

9.2 Q1: To what extent is TQM applied in the curriculum development and evaluation work of the DGC in the MoE in Oman?

The issue of quality in education is a concept which is complex, multi-dimensional and has a variety of processes (Sreenivas et al., 2014, and Adams, 1993). According to IBE (2016; p. 4 & p. 13),

> *"… given the essential role of the curriculum in enabling quality learning and in articulating and supporting education that is relevant to holistic development… curricula development should follow a transparent and publicly known process and be well-managed. It should focus on the curriculum's vision, conduct effective development activities, and adhere to timelines and budgets."*

The results of a study carried out by Denton and Surendra (2005) reveal that the place of curriculum design assumes that the needs of the internal and external customer are considered at all levels of the product design matrix.

In the Omani context in particular, the literature indicates that the main challenge facing the education sector in the Sultanate is its ability to achieve the required standard of quality in learning outcomes. This can be achieved only through the application of quality in the daily work practices of all involved in the educational development process. Although the MoE is making a concerted

effort to apply quality in its administrative and technical work, with the latest approach being the implementation of the ISO 9001 system, Section 2.5.1, it is still not clear whether there is a comprehensive strategy in place to manage these efforts, or a clear evaluation procedure designed to take and act on feedback (Gonzalez et al., 2008; Rassekh, 2004).

The quantitative and qualitative data of the current study reveals that the majority of the respondents, both male and female, administrative and technical, agree that there is a narrow application of some of the TQM principles' procedures in the DGC's work. In other words, the work in the DGC is not based on the comprehensive application of TQM principles.

Added to this, it can also be seen that there is little satisfaction amongst DGC staff in terms of leadership practices, employee involvement, and continuous improvement. The DGC staff emphasised that employees are working under constant pressure. For example, employees are given work tasks to carry out in a short period of time, which leads to the results of the work being rushed, and produced without considering quality. Thus, it can be argued that the system of work in the DGC is not based on the principles of TQM. Moreover, there is basically no work system in the DGC based on quality, in its scientific sense, because there is a missing link in the work.

In some cases, the employee is involved in the decision-making discussions, but their opinion is not taken account. Hence, it is expected that all decisions are made by the leadership, regardless of whether they are high or middle level leaders, and then these decisions are imposed on the employee. Consequently, this results in a lack of job satisfaction amongst staff. Added to this, the DGC staff consider that the issue of quality is sometimes raised in the MoE, but in reality, it does not exist because there is no system to measure the quality of work.

These findings do not align with results of Al-Sawafi's (2012) study, which implied that all quality practices proposed in his study are currently in existence in the MoE. He also claimed that the management is committed to encouraging employee involvement, and this is the practice which most commonly exists. This difference in the findings might be explained by the fact that the participants targeted in Al-Sawafi's study were school principals and senior teachers from various Omani Education Governorates. However, the target group of the current study was DGC staff. Otherwise, there could be no logical reason for the results to be generalised across the MoE as a whole when the study was only applied in some Omani schools.

In contrast, this study's findings are in line with several other studies carried out in Oman. For example, according to the MoE and the World Bank (2012), there is an incomprehensible

weakness in the performance and outcomes of Omani students in English, Mathematics, and Science, and as such, a comprehensive search for the factors that negatively affect curriculum development and evaluation work is required.

The same report also recommends that the DGC should ensure that enough time is allocated to the preparation of the curricula (ibid, 2012). Furthermore, the essential skills, teaching strategies, and curriculum content are also not helping students to improve their skills and are often characterized by repetition. This may be due to problems in the curriculum preparation planning (Al Najar, 2016).

On the other hand, Al-Jardani (2007) claims that the annual authoring of the curricula for BE and PE causes linguistic and scientific mistakes which arise as a result of pressure and the speed of authoring. This, in turn, leads to the late arrival of textbooks for the students at the beginning of each year. More generally, in his study, Al-Maamari (2014) aimed to discover the reality of applying the principles of total quality in the administrative practices of school principals. The study found that the practice of adopting a culture of quality is very poor, and recommended that awareness of the importance of basing administrative practices on the principles of total quality be strengthened, with the MoE adopting this philosophy at work.

The conclusions in this study also support the findings documented in the available literature; for instance, Yek and Penney's (2006) study emphasized that many challenges regarding the development of the education system also remain, including dealing with curriculum. Thus, there must be a firm focus on education and training with a constancy of purpose, continued commitment, and support for publicly funded education, continuous professional development of staff and continuous professional development of staff based on both theoretical and practical aspects. Therefore, the DGC must take into account all levels of work processes to improve and develop its work. According to Lo and Sculli (1996), TQM as defined by Feigenbaum, stresses the word 'total', that is, it must have an organization-wide impact involving all staff at all levels of the organization.

9.3 Q2: What are the strengths and weaknesses of the work processes of curriculum development and evaluation of the DGC?

9.3.1 Strengths of the curriculum development and evaluation work at the DGC

Despite there being many problems and challenges currently being experienced in the curriculum development and evaluation work at the DGC, the employees were still very optimistic about improving the work process of the DGC based on TQM principles. They indicated the strengths being relied upon to begin the application of the TQM project in the DGC's work.

According to the DGC staff, the leadership is convinced of the usefulness of change and development for quality, theoretically, through open discussions between the different levels. However, the staff view this as being 'just talk and discussion', as it still has not reached the adoption phase, at the very least. In a sense, at this stage, starting the development of the DGC work process is more a point of optimism.

The outcomes of this study support the findings of previous studies in respect of the change culture. In order to implement the overall quality of educational institutions, Al-Ruwaili (2012) stressed that the culture of change must be directed towards collective awareness and collective action instead of individual roles. Rampa (2004); Widrick et al. (2002), and Sulaiman et al. (2013) emphasized that the changing culture in educational institutions is a change of behaviour and ideas related to values and beliefs before changing plans, structures, and processes.

Another strength is the organizational structure of the DGC (see Figure 2.5; MoE, 2008b), which helps improve the employees' work. In other words, the DGC contains departments and sections to help to implement TQM principles which, up to the time of writing, has not been activated in the correct way. This result of the current study integrates with the study results of Al-Hinai (2008). This study aimed to highlight the reality of the management of Cycle-One schools in the Sultanate of Oman in light of global changes, and to develop a proposal for the development of these in light of TQM. The study concluded that in order to implement TQM in first cycle schools, effective organizational structures in these schools and continuous evaluation by management would be required.

In addition, there are positive personal relationships among DGC staff and positive personal attitudes towards completing the work, which is the result of feeling the importance of developing and improving the work. In a sense, the work is dynamic, as can be noticed in the tangible

achievements in the work of the DGC staff. The staff do the work entrusted to them with all sincerity and honesty. In addition, they do not raise problems due to their cultural practices and educational level. The staff do not raise too many objections during the work in order to take into account the interest of the work, despite all the obstacles and challenges facing them in their work. Moreover, the staff try to modify the status of the DGC in a polite manner whenever they have the opportunity to discuss it with the leadership. Barbar's (2014) study describes the same issue in a context which is almost similar in importance to the co-operation among staff to improve the work. Hence, it was emphasized that the educational management quality is the primary way to retain efficiency, and no one wants to work in a place characterized by poor management; thus if the working atmosphere is characterized by collaboration and ambition, this will lead to improvement in the efficiency of staff which will ultimately improve the institution.

In terms of the technical work, there is a variety of educators in curriculum development and evaluation, for example, the development and evaluation committees are represented by experts, curriculum officers, supervisors, and teachers with the relevant key competencies and skills. This will enhance the relevant employees' involvement both within the DGC and externally. However, the participants stressed that despite the strengths that exist in the work environment of the DGC, they are not enough to develop the professional and institutional work in the DGC.

This result supported the decree of the Minister of the MoE number (29/2006) of the formation of curriculum authoring and reviewing teams. The Sultanate of Oman states that the authoring team is usually composed of curriculum officers, teachers, supervisors, evaluation officers, and educational or academic experts, and the review team consists of an educational researcher who specializes in curricula evaluation, teachers, supervisors, a measurement and evaluation officer, and an educational or academic expert (MoE, 2006).

9.3.2 Weaknesses of the curriculum development and evaluation work at the DGC

Despite the efforts made by the DGC represented in the above strengths, both the quantitative and qualitative data displayed some weakness that expose another aspect of DGC work, as discussed in the following sub-sections.

9.3.2.1 Weaknesses related to leadership

The literature stresses the importance of leadership in the implementation of TQM. In his book, ‘Out of the Crisis’, Deming (1986, p. 248) states that management, in particular top management,

must recognize the importance of quality. Quality is everyone's responsibility; however, the ultimate responsibility lies with leaders. According to Jabnoun and Al-Jhasyah (2005), leaders play an important role in the application of TQM. Also, Soltani (2005, p. 463) emphasized that "…top management commitment is essential for successful TQM implementation".

In the education sector context, according to Rago (1996), if the education leaders are unable to change the attitudes and behaviours of the organization's members towards the application of TQM, it is unlikely that there will be an opportunity for useful cultural change in the organization. In other words, educational leaders need to understand the change process in order to lead the educational staff and manage the change and development efforts effectively (Fullan, 1995). This means that the leaders in educational organisations should define the desired and intended outcomes of the changes and developments proposed.

The study results highlight various weaknesses associated with leadership practices in the DGC. The staff argue that leadership in the DGC is the main generator for the work and where there is failure in leadership, it will reflect negatively on all elements of work. Most participants mention that there is no clear vision from the leadership in the DGC. This has led to a lack of serious pursuit by the leadership to avoid or reduce the curricula mistakes resulting from work errors. Some staff members mentioned that there might not be an awareness by the leadership in the MoE generally, according to the significance and workload of the DGC's work.

Some participants have speculated that the leadership system in the DGC does not have the characteristics of successful leadership, and that it is similar to 'contingent leadership' in the sense that it seeks to cover the failures in the results of the work in order to solve problems in a timely manner. They do not seek to find out the causes of these problems and try to solve them thoroughly. According to Gupta (2009), the contingency theory is not a leadership development process and it does not blend well with the career growth of a leader. In other words, if the leaders do not adapt or changes their style, they might never be productive at the higher levels of the organization. This is one of the most common problems in large organizations. For instance, leaders are promoted since they perform well at a particular level, but since they are not fit for the new responsibilities, they lead to overall ineffectiveness of whole organization.

One of the participants mentioned that some of leaders feel that the employees are working for them and not with them. This could possibly be explained by the fact that in the DGC there is no leadership, only managers, and there are great differences between the leadership and the manager. According to GTC Scotland (2012, p. 5), leadership is central to educational quality and

the ability to develop a vision for change, which leads to improvements in outcomes for learners and is based on shared values and a robust evaluation of evidence of current practice and outcomes. In a sense, leadership should mobilise, enable, and support others to develop and follow through on strategies for achieving development and improvement, while management is the operational implementation and maintenance of the practices and systems required to achieve this development.

There is much evidence to confirm this perception, such as the lack of leadership response to the ideas raised by staff, especially with regards to the technical work, resulting in a clash of ideas and decisions. There are some leaders in the DGC who strive for their employees to feel job satisfaction through development and participation, whilst retaining individual efforts, which is not based on clear and specific criteria. In other words, the decisions of leaders are individual; they are not collective or shared with all concerned. In sense, they do not give a space for staff to participate in the decision making process. For example, some directors judge a certain idea or project as difficult to implement, due to them already having a solid idea in their own mind, rather than as a result of a study or consequences to collective decisions.

In addition, the leadership manner at work compels the staff to work outside their specializations and roles, which makes them work under constant pressure. One employee said, "… despite our awareness of the fact that although we are aware of the fact that there are confidential matters at work that the leaders do not reveal to the public, it must be clear with the staff and they should give justifications for what they do in some of the work". Otherwise, despite the leadership believing in the importance of moral and material encouragement for DGC staff, there is no serious action to provide these incentives. For example, there are no rewards for creative ideas, and no interest in specialized training programs to raise employee efficiency.

The findings documented in the available literature emphasize that the leaders in education play a great role in the application of TQM in order to enhance the efficiency of the educational outcomes. Assaf et al. (2013) and The Baldrige National Quality Program (2015) emphasized that educational leaders are the critical factor to achieving quality, through their effective participation in the development of strategies and plans. Consequently, the efforts of the education leaders in improving and motivating an organisation's members and processes plays a great role in reaching excellence, and consequently, achieving its customers' requirements.

Thus, excellent leadership skills are not only essential to facilitate formal organizational change, they are also essential for modifying behaviour and changing people's attitudes (Das and Uma

Kumar, 2011). This is also confirmed by Rampa (2004); Lakshman (2006); Luria (2008) and Latham (2014), who state that the leadership of TQM in educational institutions should establish a relationship based on trust with all its employees in order to reach the commitment stage to continuous improvement. This then enables staff to become an integral part of the organisation.

These findings concur with the study findings of Al-Mushaifri (2019) which aimed to investigate the quality practices and application of TQM principles by education leaders in the MoE and their impact on the Omani education system. The study found a weak positive correlation between the leadership practices of the education leaders and TQM principles and confirmed that leadership practices do have an impact on the Omani Education system. The results of Al-Mushaifri's (2019) study also show that the issue of training is considered another obstacle; the educational leaders complained about this issue, particularly regarding the shortage of training in leadership skills and quality management.

This problem can also be found in some neighbouring countries, such as Saudi Arabia. In his study, Alholiby (2018) aimed to develop a framework to enhance the operation of the quality assurance process in Saudi Arabia's higher education institutions, whilst giving consideration to educational management, the potential of e-management, and stakeholders' perspectives. The study found that there is a wide belief that senior management is responsible for the failure to achieve quality assurance objectives, because some management stakeholders have a lack of understanding of the concept and procedures of quality assurance. This issue does not seem to be a priority for senior management, and there is a lack of support provided by management, such as human and technological resources.

Also in the Omani context, the recommendations of several studies confirmed the importance of leadership in the success of work. In his study, Al-Jahoori (2015) aimed to identify the reality of human resource development in the Ministry of Education in light of the introduction of knowledge management. The study recommended moving away from bureaucratic management and adopting more flexible and creative management styles.

Al-Amiri's (2017) study aimed to establish the contribution of organizational trust in improving employee performance in the Directorate General for Human Resources Development at the Ministry of Education. The study recommended that the leadership within the Directorate should be interested in providing opportunities for creativity and innovation, encouraging personal initiatives, and providing incentives and rewards that contribute to the development of work.

9.3.2.2 Weaknesses relating to employees' involvement

According to Nadim et al. (2016), in order to achieve a quality culture in an educational institution, employees must be involved at every stage which pertains to their work environment, administrative and technical practices, and outcomes. According to Zabadi (2013), an educational institution is supposed to provide a broad space which encourages the participation of all staff to implement TQM in the education sector in a sustainable manner. Furthermore, an educational institution should give staff the opportunity to maximize their potential and create a functional awareness and belief of their importance in raising the efficiency and effectiveness of the organization. This partnership gives all employees the broad space needed for innovation and responsibility in decision making (Dale et.al, 2016).

The majority of participants in this study concentrated on two main issues associated with employee involvement. Firstly, DGC staff are not involved in decision-making, particularly with regards to the technical work associated with curriculum development and evaluation. For example, although staff are occasionally invited to take part in meetings which facilitate discussions between the employees and leadership, nevertheless, the opinions of the employees are normally not taken into consideration, particularly with the curriculum specialists and technical decisions.

In reality, the findings show that the DGC staff are only involved in implementing the decisions made by the leaders but are not actively involved in making these decisions. In most cases, the employees do not have any prior knowledge of the track and aim of some of the work. For example, they are required to complete work without knowing who is requesting the work or what it is for.

A problem also exists whereby decisions are taken from a person or persons who may be close to the top leaders or who adopt the same opinions as these leaders. A possible explanation for these results may be due to the fact that there are some areas which are unclear and unspecified, and thus, the work is very random.

The second issue is that no encouragement is given to produce creative ideas because the work environment does not enhance creativity. One DGC staff member commented that, in general, employees have no opportunity to be creative in their work due to the heavy pressure they are put under to accomplish the work. This often occurs in the case of ‘work emergencies’, where

staff are given work and expected to complete this immediately and forget about their assigned work which will suffer as a result.

This study's findings support the findings of several other studies, for example, to use the application of TQM to highlight teachers' problems in Oman relating to educational development. Al-Rashidi (2009) found that teachers were not being allowed to participate in the planning activities, nor were their proposals shown any interest. They were not provided with appropriate incentives or told that work in schools is not based on the principles of total quality.

As a result of his findings, Al-Rashidi deemed it necessary to identify the degree of psychological empowerment of teachers and increase their confidence in educational supervisors. This corresponds with the observations made by Al Harthi (2016), who highlighted the importance of increasing work which is designed to enhance the psychological empowerment of teachers, and their participation in decision-making within schools.

In the Arab Gulf context, in their study of the benefits, practices, and obstacles of TQM in Kuwait, Jaeger and Adair (2016) found that both study groups agreed that a lack of employee involvement, followed by a lack of resources, were the most significant obstacles of TQM. In his study conducted in Saudi Arabia, Alholiby (2018) reported a conflict between management and stakeholders in higher education institutions. The conflict was due to senior management expecting staff working in institutions to apply their decisions, without giving them the opportunity to participate in the initial planning and decision-making stages. This led to staff to feeling frustrated because the management ignored their views.

Blankstein (1999) emphasized that when TQM fails to achieve quality in an institution, this is largely due to the fact the employees are unable to participate in making appropriate decisions at the right time; consequently, they fail to achieve quality in the outputs sought by the institution.

9.3.2.3 Weaknesses relating to continuous improvement

Continuous and comprehensive improvement within an organization to achieve quality includes customer focus, process understanding, and quality commitment (Stone, 1997 and Dale et al. , 2016). According to Fisher and Harricks (1993, p. 346) "TQM is the management philosophy that seeks continuous improvement in the quality of part or all of the processes, products and services of an organization". In the context of education, according to Pourrajab et al. (2011), the continuous-improvement approach requires educators to meet and agree on a strategy to achieve

the required level of excellence and efficiency in all processes. So, continuous improvement must be an integral part of the school process in particular, and the educational system in general (Zwain et al., 2014).

It can be observed that there is a general agreement amongst the respondents in this study that the continuous improvement strategies afforded to the GDC staff are weak. For example, performance monitoring and measuring procedures are not in place; in other words, there is no system for anticipating problems and obstacles at work. A possible explanation for this might be that there is no clear mechanism for the continuous evaluation of work performance in the DGC. Thus, available training programmes are not characterized by quality.

Furthermore, professional development plans are not linked to the general objectives of the DGC. In a sense, training programmes do not support the requirements and updates of the work of the Directorate, and do not rely on accurate and clear data on the optimization process. Moreover, the training programmes do not take into account the balance between theoretical and practical training and all levels of the Directorate's work. This could be attributed to the fact that the laws and legislation are not regulated and monitored to ensure that the quality and standard of work is maintained and adheres to specified guidelines.

This finding is consistent with various previous Omani studies; for example, the Education Council (2014a) states that one of the major challenges facing the process of curricula development is the lack of training programmes for curriculum experts and officers, as well as the intensity and pressure of work. Also, in her study which aimed to explore educational managers' perceptions of the characteristics of training programmes in the MoE, Al Arimi (2015) found that training programmes in the MoE had various drawbacks, such as ineffective needs analysis and a mismatch between training content and the implementation period. AL Nabhani (2007) suggested that in order to apply TQM successfully, continuous training is required in order to have knowledgeable implementers and supporters.

Therefore, the quality of the curriculum content completely relates to the quality of the curriculum production processes, hence, the focus of efforts should not be applied solely to the content, without taking into consideration the administrative procedures, regulations, and laws that affect them (Reid, 2012).

9.3.2.4 Weaknesses relating to technical work

Al-Wakil and Al-Mufti (2011) identified a link between the evaluation of the curriculum and its development. They stated that the development of the curriculum is to improve the curriculum evaluation processes, including all of the curriculum elements that need to be improved, as well as raising the adequacy of the curriculum in general so the desired goals can be achieved.

According to Abdul Jabbar (2017), in order to ensure the quality of the curriculum, it is imperative that quality standards and application processes are provided in its construction. In order to have a good curriculum, curriculum development processes are supposed to be of good quality (Stabback et al., 2011). In other words, curriculum development processes are planned and systematic, led by professionals and supported by specialised centres. Curricula development should encompass good research and practice in and beyond a particular country. Also, there should be well-considered and contextually appropriate plans for the development of the curriculum which allow for expert input, specialist drafting, and consultation, IBE (2016, p.13).

The main work of the DGC is to produce the Omani curricula. Subsequently, the results of the management processes in the DGC will affect the curriculum development and evaluation work and have either a positive or negative impact on staff satisfaction. According to the research participants, the process of curricula development and evaluation is not based on clear strategies, detailed plans, specific criteria, or the factual results of research and studies. As a result, there are no procedures in place to ensure that objectives are achieved accurately and within pre-determined deadlines. For instance, there are no established or clear criteria for measuring the quality of the curriculum content and there is no integration and linkage between the DGC and the Technical Directorates in the MOE. In addition, some of them raised the issue that there are no databases or other sources of rich information available which are used to evaluate and develop the curricula, and some of the administrative and financial requirements needed for the development and evaluation of the curricula are not provided.

Consequently, the participants believe this could lead to a higher level of technical errors in curricula content and make it more difficult to deliver the Omani curricula at the same level as international curricula.

The findings of this study correspond with those documented in the available literature. According to the MoE and the World Bank (2012), a number of teachers and educational supervisors have highlighted several scientific and linguistic errors in the school curriculum in Oman. This coupled

with the delayed arrival of textbooks, which often arrive after the students at the beginning of each school year, could potentially have a negative effect on the Omani education system. This arises from an imbalance in overlapping processes.

To address the frequent occurrence of administrative and technical problems in the Omani curriculum, Al-Jardani et al. (2012) suggested that a TQM framework should be formulated which could facilitate its development and evaluation. Moreover, in order to provide education at a standard which meets the global trends, the entire education system requires re-structuring. Emphasis should be focused on the education quality standards and accountability and building empowered leadership teams at all levels (Chang, 2010). Strong partnerships within the administration teams in education are also required to overcome the conventional bureaucratic styles in the work processes (Davis, 2010).

Al Sawafi (2012) confirmed that if the MoE wants a radically positive shift in its administrative and technical system, it should consolidate the quality of work which is based on the planning, implementation, monitoring, and commitment, focus on the beneficiaries, and continue with internal and external evaluation. Thus, there is an urgent need for more effort to improve the quality of all educational levels, increased demands for quality outcomes. The level of education outputs should correspond to the actual needs of the labour market, both locally and internationally (Supreme Council for Planning, 2012).

In particular, the Omani education system needs to emphasize the importance of adopting the MoE's comprehensive TQM system. The TQM system will significantly contribute to solving the existing administrative problems, and address the exclusion of some sectors within and outside the MoE from making decisions relating to educational policy in Oman (Al-Nabhani, 2009). According to Karimi et al. (2012, p. 147), "…one of the problems facing educational institutions is their lack of cooperation with other organizations. So, centralization in curriculum planning needs to be reduced".

Consequently, the New Zealand Education Consortium and the MoE (2017) recommended allocating key accountabilities and responsibilities for educational policy development in an efficient and effective manner. Heywood (1984), Neary (2002), and Scott (2016) emphasized that pressure on completing the curriculum evaluation and development work may be due to the limited time allocated from the start of the process until the production is released. In such cases, the curriculum being evaluated and developed may be deemed invalid.

9.3.2.5 Weaknesses relating to staff satisfaction

TQM, by definition, is a philosophy oriented to meet customer requirements (Deming, 1986; Juran, 1992; Crosby, 1979). Silvestri et al. (2017) stressed that satisfying beneficiaries must be considered as one of the most important principles of TQM. According to Wadhwa (2016), the beneficiaries in the education sector are the students, teachers, parents, employers, and the wider community, whose viewpoints reflect the quality of education within organizations. These can be described as the internal and external beneficiaries. According to Salih (2008) and Mădălina Militarua et al. (2012), educational beneficiaries can be classified as either internal or external. Internal beneficiaries include students, teachers, and staff, and the external beneficiaries are parents, governments, and society as a whole.

The findings of this study reveal that the degree of DCG staff career satisfaction as a principle of TQM is low. The data suggests that this is due to the work approach followed by the DGC.

The results point to several issues which influence employee satisfaction, for example, the DGC plans and strategies are not linked to the needs of staff, the management have no confidence in the capabilities and potential of the staff, the slow response to solving challenges and absence of a fair and effective remuneration system to encourage, motivate, and reward staff. In addition, there is no system for measuring and controlling employee satisfaction. This has resulted in the widespread view that achieving employee satisfaction is not a priority of the DGC, because no attention is given to the needs of the employees. Consequently, the work environment in the DGC is not attractive for them.

The outcomes of this study support the findings of other previous studies related to staff satisfaction in the school education sector in Oman. In 2009, Al-Rashidi conducted a study regarding the use of TQM to highlight teachers' problems with educational developments. The study found that teachers were less satisfied with the status quo for reasons which included being unable to participate in planning, no interest given to their proposals, not being provided with appropriate incentives or explanations regarding the basis of their work, which was not based on the principles of total quality.

In 2016, Al-Mahdy et al. aimed to define the Omani teachers' perceptions of leadership and job satisfaction. The study results show that teachers demonstrated moderate levels of satisfaction relating to their jobs, and the leadership of school principals.

The issues surrounding the lack of functional satisfaction can also be found in the Omani higher education sector, which is closely linked with the school education sector. In her study, AL-Hinai (2013) aimed to explore the factors affecting faculty teachers' job satisfaction in the academic sector of Sultan Qaboos University in the Sultanate of Oman. The results of this study show that generally the level of job satisfaction amongst the teaching staff at Sultan Qaboos University was low for several reasons. These included issues such as wage development, management support, student-related factors, work-related fellowships, and workloads; all of which in turn affect the level of aspirations regarding higher education in the Sultanate of Oman.

9.4 Q3: What is the perspective of the DGC staff on the application of TQM to improve the curriculum development and evaluation work in the DGC?

Many interesting issues arose in the results regarding the importance of the application of TQM principles in the DGC to improve the curriculum development and evaluation work. There was an overall agreement among participants that implementing TQM is urgent, and the current work system of the DGC must be completely changed. A possible explanation for this result might be due to the current weaknesses in curriculum development and evaluation work in the DGC.

The participants highlighted the need for all interested parties to be made aware of the importance of TQM in the work of the DGC, and the significance of the leadership's role regarding its application, in order to establish a culture of quality before TQM is implemented.

The results of this study support the findings of previous studies which emphasise the importance of applying TQM principles in the education sector in Oman. For example, in 2009, Al-Harazi conducted a study which aimed to evaluate some of the principles of TQM in the management departments of basic education schools in the Sultanate of Oman. The study also aimed to establish the criteria and determinants that define the quality of the processes and outputs of the education processes. The study concluded that the application of TQM in basic education schools is an urgent priority. Moreover, the study proposed that school principals need to understand, implement, and know how to apply TQM.

In 2002, Al Ghanboosi examined the extent to which the environment of Sultan Qaboos University (SQU) is suitable for the implementation of TQM. The study was based on the views of SQU staff members, and secondary data obtained relating to the implementation of TQM principles. The findings of this study revealed that in order to improve their outcomes and services, TQM principles are necessary for the educational and administrative processes, and for the academic

activities of higher educational institutions. The study also recommended that the MoE in Oman apply TQM principles in its work because both the public and private sectors would benefit from the outcomes of this application in the long-term.

In general, according to the Education Council (2014b), there is an urgent need to identify the correct approach and procedures to ensure the successful application of the education philosophy. The Philosophy of Education document in the Sultanate of Oman is important in unifying the vision and practices in the education sector, from education foundations through to principles and theories. This represents the general framework that guides education towards improvements and developments which are inevitably reflected on the quality of educational outcomes.

This study's findings are also consistent with the recommendations in some other studies previously conducted in Oman. For example, Al Shidi (2010) recommended expanding the deployment of a quality culture among the employees of the MoE. Moreover, the study highlighted the need for more effort and attention to be given to characterizing staff work tasks accurately, outlining staff performance indicators through the MoE, and the dependence on professional and clear standards for the different functions, especially in the teaching, administrative, and technical fields.

The findings in this study also concur with the outcomes of Alholiby's (2018) study conducted in Saudi Arabia. His study found that there is a widespread belief in the research context that quality is very important in higher education. However, bureaucratic procedures emerged as one factor which negatively affected quality outcomes due to the fact that quality assurance operations move very slowly. The development requires the implementation of major changes in terms of how to understand and measure progress.

In 2019, Assarlind and Gremyr carried out a study in the business sector to identify the critical aspects of adopting quality management in small businesses. This report stressed the importance of initiating TQM implementation as an iterative process.

9.5 Q4: What are the potential benefits of applying TQM in the curriculum development and evaluation work processes in the DGC?

According to Pourrajab et al. (2015), TQM is a process used for providing teachers and principals with school and classroom management skills. He also points out that the implementation of TQM

in educational institutions will minimize errors, have clear systems and procedures, and that a good team works through careful and thoughtful planning. Mazen (2002) stated that in terms of its objectives, processes, outputs, and developing the management of education in accordance with the requirements of the age, TQM can benefit decision makers and those interested in issues associated with improving educational work.

Similarly, Herman and Herman (1995) indicate that quality in education should reach all the institution's processes. The aim is to be able to develop an education service that will result in the delivery of high-quality services in a manner that will create maximum satisfaction in society. Thus, the objective of TQM is to establish continuous improvement mechanisms for all processes of the education system to improve their performance (Cowles and Gilbreath; 1993; Cruz et al. 2016).

The findings of this study show that DGC stakeholders emphasise the importance of the role of applying TQM principles to create a culture in the organization of work which will positively reflect on the quality of the curriculum content. For example, it will clearly recognize the employees' roles, rights, and duties, reduce the randomness in the work and ultimately, employee satisfaction will be achieved. In addition, these results can be considered a good indication of the DGC staff's willingness to apply TQM principles in curriculum development and evaluation work.

Nevertheless, there is some criticism and controversy regarding the implementation of TQM in the current working environment. The participants emphasized that every individual in the DGC aims and aspires to produce high quality work. However, under the current conditions, with the obstacles and disadvantages with the work, it is very difficult to achieve this. Unorganized work will undoubtedly produce a product with many flaws. One participant clearly stated that the DGC work had not been developed over the last five years at least, due to the above mentioned obstacles.

In the Omani context, this result supports the conclusion of Al-Mahrouqi (2012), who noted that the importance of quality standards in education is because it has become the most widely used tool to judge how successfully the education institutions achieve their objectives and tasks. It also provides accurate information and data on the performance of the educational institutions.

These findings are also consistent with other previous studies. For example, Breja, et al. (2016) and Mendes and Jesus (2016) explained that applying TQM results in improved work processes propels organisations to higher performance levels. The findings also suggest that TQM-based

quality improvement programmes are good options for public organisations wishing to enhance organisational commitment.

Furthermore, the results suggest that public institutions wishing to embark on a TQM-based strategy will be able to raise employee commitment and satisfaction. In addition, it highlights the importance for public organisations to improve their employees' perceptions of TQM-based human resource management practices, through training and development opportunities, teamwork, and motivation-based initiatives which meet their expectations.

This finding is in line with previous studies in various Arab and European countries. Ismail (2012), who conducted his study in United Kingdom and Jordan, stated that the benefits of TQM are that the staff skills, processes, and procedures, as well as the service provided to customers, are sure to improve. Consequently, this will result in internal efficiency and customer satisfaction and retention, which are extremely important. The results of the study by Wiśniewska and Szczepańska (2014) show that Polish offices look for many ways and opportunities to improve their performance. They use a variety of quality management approaches at all the levels of the administration hierarchy. This confirms that stakeholder satisfaction and customer-orientation has become a driving force for local governments in Poland to increase their efficiency in service delivery. It can also be argued that applying TQM in the public sectors can help to promote a real culture of excellence, with the idea of benchmarking and continuous improvement. They undoubtedly prepare local government organizations for ongoing development for the good of the public.

9.6 Q5 What are the potential obstacles in the application of TQM in the curriculum development and evaluation work processes in the DGC, and proposed suggestions and solutions?

TQM is an obligation for all; it will succeed when all members of the organization are committed, but will fail when individuals do not show their commitment and determination in applying its principles (Omachonu and Ross, 2004; Al-Jalahma, 2012; Youssef, 2006).

The data obtained in this study has identified numerous obstacles which could negatively impact the successful application of TQM principles in the DGC’s work. With regards to the financial obstacles, participants felt sure that much of the funds are spent on Omani curriculum development and evaluation, but in reality, nothing tangible ever seems to emerge. This suggests that the financial budgets approved for curriculum development might be inappropriate.

Furthermore, it also questions whether these funds are being mismanaged. These are important questions which, unfortunately, remain unanswered.

For example, there is a lack of financial reinforcement, appropriate rewards, and material incentives to encourage quality in the completion of work. One participant said, "...we demand our financial rights…can you imagine that staff promotions have been suspended for more than seven years؟ In addition to this, there are deficiencies in all the training programmes and the materials needed for the production of educational aids to support the curriculum".

Thus, DGC staff claim to provide the materials needed for curriculum development, such as educational sources and modern curriculum design programs, financial enhancements and rewards for good employees, and the introduction of a clear financial system to reward employees as being urgently needed within the DGC.

The study also exposed some administrative obstacles and challenges which hinder any attempt to improve the curriculum development and evaluation work in the DGC. These obstacles will undoubtedly be a drawback when applying TQM principles in the organisation.

The internal stakeholders, DGC staff, agree that the leadership is instrumental in ensuring that the main principles of TQM impact strongly throughout the organisation. Furthermore, whilst the leaders within the DGC are primarily responsible for delivering quality in the curriculum development and evaluation work, the senior leadership, headed by the Minister of the MoE, have a larger degree of responsibility, and are ultimately responsible and accountable. According to one participant, if the Minister wants a high-quality curriculum, the MoE must work to develop human competencies through the provision of adequate training, technical, and financial requirements.

The data obtained in this study has identified several administrative challenges associated with leadership, such as - no effective communication channels between the leadership and staff, leaders do not encourage or motivate staff, individual domination of decisions made by the leadership, lack of trust between the leadership and the staff and vice versa, and an inability and unwillingness from leaders to invest in competencies.

The feedback from the participants indicates that these obstacles are likely to be the result of some of the leaders' refusal to change and renew, as well as their lack of awareness of the

importance of instilling a culture of quality at work. This is confirmed when considering the following administrative issues:

- Lack of clarity of work standards and mechanism to evaluate them
- No published documents outlining employee job descriptions
- Slow procedures and faltering development projects, and
- Lack of effective communication mechanisms between the internal departments in the DGC

All of these administrative problems are likely to influence the implementation of TQM. A possible reason for this, as the data suggests, might be due to the lack of effective management of work within the DGC, the relationship between the DGC and the other directorates within the MoE which is not integrative, and the lack of an effective administrative accounting system. The participants proposed various possible solutions to address these issues, such as developing the organizational structure of the MoE in general, and the DGC in particular, so as to allow for the decentralization of work, effective communication between staff and leadership to reflect positively on the work of the DGC, staff participation in decision-making, and promotion of their initiatives to develop their work, cooperation and coordination between the various bodies within and outside the MoE linked to the work of the DGC, and dependence on leaders who make fruitful and effective managerial decisions.

The study also found that the technical issues relating to curriculum development and evaluation work could be a challenge in the application of TQM in the DGC. The DGC staff reiterated that the primary purpose of applying TQM principles in the DGC work is to reach a high level of quality in curricula content. They highlighted the technical drawbacks in this regard as:

- Lack of effective development workshops with effectiveness associated with the work of the DGC
- Failure to benefit from the global experiences of other organisations
- Absence of access to and exchange of experiences between the DGC and other related institutions nationally and internationally
- Lack of rich databases that relate to curriculum development and evaluation; and
- The migration of human technical competences in the DGC

All of these issues have a negative effect on the quality of curricula and as explained in the data, will result in the lack of clarity of curriculum development standards, a reduction of curriculum quality specialists, and also a shortage in cadres scientifically and practically qualified in curricula

development and evaluation. Thus, these issues are obstacles which will negatively affect the quality of the DGC product, namely, the curriculum.

The participants suggested that it is very important to solve this challenge and the DGC must focus on taking advantage of the modern experiences of developed countries in the development and evaluation of curricula, qualifying groups of staff specialized in the field of curriculum quality, meeting the needs of professional staff to raise the level of work performance and utilizing the existing human expertise available in the DGC.

The lack of clarity of the general vision strategy of the DGC was the final obstacle considered to have a detrimental effect on the implementation of TQM. The study data indicates that this will lead to the omission of specific targets for measuring work standards, the absence of strategic planning for the work, and the lack of plans and strategies based on the principles of quality. For example, according to some interviewees, the Ministry of Education has implemented projects related to the curriculum, such as the Standards Project, without considering the specialists' views. This project began in 2003 and, up until now, 2018, it has not been published. It was then replaced with the Global Chains Project of Science, Mathematics and English, which came without warning and without a clear and documented strategy.

In the researcher's view, all projects need to be prepared and trained for, with acceptance from the curriculum specialists, supervisors, and teachers. So, in order to deal with this challenge, the participants proposed the introduction of a clear plan for the process of curriculum development and evaluation, which should be based on the results of research and studies and adopt a flexible, general strategy for the work of the DGC, which is applicable according to existing possibilities.

Moreover, the participants also proposed some general solutions to rectify the current situation in the DGC and enable the TQM system to be implemented successfully and effectively in the DGC's curriculum development and evaluation work. These proposed solutions nclude:

- improvement in the DGC's work has to begin from the top (leadership) down;
- recognition of the current problems in the work and awareness in the importance of development of curricula work;
- a clear vision for the work;

- inculcating the evolutionary thought and culture of development in the staff;

- interest in the all aspects of work, planning, implementation, and accounting;

- attention given to employees to instil confidence, such as ensuring staff participation, continuous professional development, providing up-to-date and accurate work materials, and unleashing the employee's creativity;

- integration of the work within and outside the DGC; and

- the implementation of a fair evaluation system to monitor the quality of work outputs and staff performance.

This study's findings are in line with several other studies. In 2016, Yarahmadi and Magd summarized the major obstacles for the successful implementation of TQM in higher education institutions in Oman. They included lack of management commitment, poor vision and plans, lack of highly qualified professionals, lack of knowledge about self-assessment mechanisms, resistance to institutional assessment and change, poor co-ordination between employees and departments, lack of interest in training, expectation of immediate results, instability of leaders and departments, rigid organizational structures, lack of clarity of roles and responsibilities, and lack of employee commitment.

In the Arab context, in his 2012 study, Alruwaili found that bureaucratic decision making, at every layer of management, resulted in slow processes and prolonged procedures for all decisions, thus leading to work delays. Also, the absence of an adequate reward system was a potential challenge to the implementation of TQM. The findings also discovered that negative relationships within the workplace which generated an unhealthy working climate, a tangible conflict and, sometimes, disturbing competition, presented further challenges to the success of TQM initiatives.

These findings were attributed to bureaucratic attitudes and behaviours, as well as organisational challenges, such as outmoded regulations which encourage bureaucracy at work, ill-defined job descriptions, and overlaps in tasks and responsibilities. From another angle, Al Jalahma (2012) observed that planning was not being taken seriously by the leaders in the survey population who did not recognise the importance of strategic planning to provide the guidelines for the execution of TQM initiatives.

These obstacles can also be found in the findings of some of the analytical studies of TQM previously carried out. Mosadeghrad (2014) analysed 54 TQM empirical studies. He indicated the most frequently mentioned reasons for failures in TQM implementation as being inadequate resources, lack of a quality-oriented culture, lack of a plan for change, and employee resistance to the change programme.

In their paper, Anastasia and Maria (2017, p.132) reviewed and summarised 52 studies from 2006 to 2016 in quality management within higher education institutions. The aim of this paper was to submit evidence regarding the level of quality management in higher education institutions, particularly in developing countries, and also to enhance research in the field of quality management. The findings reveal that infrastructure limitations focused on human and financial capital, limited involvement of stakeholders, and measurement of a complex range of performance indicators, as the barriers which face the application of quality management.

The findings of this study support Valmohammadi and Roshanzamir's (2015) and Jaeger and Adair (2016) study results, which found that a lack of employee involvement, followed by a lack of resources, are the most important obstacles of TQM. Moreover, the organizational culture is critical for TQM due the positive direct effects of organizational performance and culture which then has a positive effect on TQM. Managers should be aware of the cultural values emphasized in the organization because of their influence on TQM practices and performance.

The solutions proposed by the participants in this study to cope with the challenges of applying TQM principles are also in line with some previous studies' results and recommendations. The results of Valmohammadi and Kalantari's (2015) study emphasized that the importance of organizational change, which requires consideration of issues such as managers' motivation, knowledge, and awareness of quality management, having systems in place for continuous improvement, and employee participation and involvement.

In his recommendations, Al-Rahbi (2017) referred to the necessity for commitment and support from senior management regarding the application of TQM. Also, caring for the empowerment and participation of employees to create a great interest in them, and in the tasks and duties that they perform in their work is important. By doing so, employees feel a sense of belonging within their company which encourages them to be more concerned about its success. Also, there is a need to pay attention to the evaluation of quality and work to continually improve it, which in reality is the essence of TQM.

9.7 Conclusion

This chapter has discussed the quantitative and qualitative findings to provide answers to the research questions, critically comparing them to the previous research results and linking them to the literature review provided. The researcher has adopted the particular general method to compare the current findings with previous studies' results. In a sense, it started with the Omani contextual studies, then the Arab studies, and finally, global studies. The comparisons also began with the TQM studies conducted in the school education sector, then the higher education sector and lastly, the studies in other sectors.

Five main topics were raised and discussed based on the research questions; these were the current application of TQM principles in the DGC work, the strengths and weaknesses of the work processes in the curriculum development and evaluation of the DGC, DGC staff perspectives on the application of TQM to improve the curriculum development and evaluation work in Oman, the potential benefits and obstacles of applying TQM principles in the curriculum development and evaluation work in the DGC, and the proposed suggestions and solutions.

The study results disclose that there is no real application of TQM principles in the current curriculum development and evaluation work in the DGC. This study has also revealed that TQM has a management philosophy that is perhaps valid to the development of any management system in any sector and any type of work, regardless of its nature.

Based on this discussion, the following chapter concentrates on providing a general conclusion to this study, contributions to knowledge, and potential implications, the specific research recommendations, suggestions for future research, and a personal reflective.

Chapter Ten: Conclusion

10.1 Introduction

This study aims to fully explore the current reality of the application of TQM principles in the curriculum development and evaluation work in the DGC in the MoE in Oman. To answer the study's questions, a mixed method approach involving both qualitative and quantitative methods has been used, with questionnaires and semi-structured interviews being used for data collection. Finally, the most suitable statistical processes and analysis methods were applied to obtain the data and discuss the results.

This chapter presents a summary of the main findings, followed by an explanation of the contributions to knowledge and potential implications. From this, a set of recommendations have been developed specifically for those concerned with the MoE, followed by suggestions for future research associated with this study. The chapter concludes with a reflection from the researcher on the overall research design, findings, processes, and the researcher's development during the period of the research. Finally, the key points of the chapter are summarised.

10.2 Summary of research findings

The information provided by the DGC staff, as outlined in the previous three chapters, has been reviewed and analysed. A summary of the main points which are categorised in accordance with the research questions is set out below.

10.2.1 Question One

To what extent is TQM applied in the curriculum development and evaluation work of the DGC in the MoE in Oman?

The stakeholders have revealed that there is a narrow implementation of TQM principles in the daily work of curriculum development and evaluation in the DGC. In a sense, the work in this directorate is not based on the real application of TQM principles. In other words, there are basically some elements and aspects in the DGC work that are not based on the principles of TQM.

10.2.2 Question Two

What are the strengths and weaknesses of the processes in the curriculum development and evaluation work of the DGC?

10.2.2.1 Strengths of the curriculum development and evaluation work at the DGC

The DGC employees were extremely confident that the quality of work produced within the curriculum development and evaluation department would significantly improve following the implementation of TQM principles. Also, highlighting the strengths of TQM, such as the benefits of change and development for quality, was theoretically acknowledged and anticipated by the leaders within the DGC as a whole. This, in itself, is a good indicator of a positive start to the DGC's quality-driven work.

It is clear that the DGC is enthusiastic about embracing TQM and the potential it has to improve the outputs of the curriculum development and evaluation work. Added to this, the DGC's organizational structure is such that it helps employees to improve in their work. Consequently, there are divisions and sections in the DGC which will help to implement the concepts of TQM, thus making the transition to the development phase much easier.

There are also some very strong relationships between DGC staff members and positive personal attitudes towards task completion. These attitudes are the direct result of the pride and significance that the staff feel about creating and improving the quality of their work on a personal level, and for the department as a whole. Moreover, because of their high educational qualifications, they attempt to alter the status of the DGC's work in an amenable way when given the opportunity to examine this with their managers.

In terms of the technical work, there are a variety of educators involved in the technical work delivered by the curriculum development and evaluation department at the DGC. For example, specialists, curriculum members, educational supervisors, and teachers with the appropriate core competencies and skills serve the development and evaluation curriculum committees. This will strengthen the participation of related staff both within and outside of the DGC.

10.2.2.2 Weaknesses of the curriculum development and evaluation work at the DGC

In spite of the endeavours in curriculum development and evaluation work made by the DGC, the participants demonstrated a few issues that uncovered another dimension of the DGC's work in

respect of management, employee engagement, continuous development, technical work, and employee satisfaction.

According to the staff, senior management are the primary initiator of all DGC work; consequently, when leadership is not doing well, this is undoubtedly evident in all components of the work. The staff also made reference to a lack of a definitive strategy and vision from the leaders in the DGC. Indeed, the leadership displays an absence of genuine interest in minimising and preventing the mistakes which occur in the curriculum arising from mistakes in the work, and does not try to discover the reasons for these issues or attempt to settle them completely.

This observation is corroborated by the vast amount of evidence provided. For example, the absence of effective management reaction to the ideas and suggestions offered by staff, particularly pertaining to the technical work, brings about a conflict of thoughts and choices. At the end of the day, any decisions made are singular; they are not inclusive or imparted to all concerned. Additionally, these choices do not arise from the consequences of studies relating to the work. Furthermore, the approach taken by management encourages the staff to work outside their work remit and job specifications, thus putting them under continual immense strain and pressure at work. In other words, the DGC leadership in this case is far from the model of consultative and distributed leadership.

This subsequent weakness is identified with workers' contributions. Most of the staff focused on two principal issues relating to employee inclusion. Firstly, senior management does not engage with the DGC staff, who feel excluded from basic requirements, such as making decisions relevant to their own work. This is particularly pertinent to the technical work, which is specialised work and thus, these ideas would be extremely valuable. The second issue is that no recognition is given for inventive indies, in light of the fact that the workplace does not reward innovative ideas. As a result, any attempts made by the DGC staff to be imaginative in their work are stunted because of the overwhelming weight they are put under to deliver the work.

The third issue identifies shortcomings with ongoing development. It is commonly agreed by the majority of the participants that there is a poor standard of career development offered to the DGC staff. Furthermore, their work is not monitored, and they are not given any incentives nor benchmarks to work towards. Added to this, there are no systems in place to mitigate any potential problems or hurdles which may arise. Furthermore, proficient advancement plans are not connected to the general goals of the DGC.

It seems apparent that any training provided is not in line with the actual work being carried out within the Directorate. Moreover, the training is not based on the precise and up to date information around standardised improvement procedures. Besides, the preparation programmes do not consider the harmony between theoretical and practical training and among all sites of the Directorate's work.

The fourth vulnerability has to do with technical work. The DGC's main job is to develop the Omani curriculum. The outcomes of management processes in the DGC will ultimately have an effect on the curriculum development and evaluation work and have either a positive or negative impact on employee satisfaction. The cycle of curriculum development and evaluation is not focused on simple policies, detailed plans, objective requirements, or analysis and study results. This has resulted in no procedures being put in place to ensure that targets are correctly met and within fixed deadlines. For example, there are no defined and consistent standards for evaluating the performance of the content of the curriculum and there is no coordination and interaction in the MoE between the DGC and the other technical directorates.

The fact that there are no databases or other rich information sources available to test and improve the curricula was also raised as a concern. The DGC staff felt that such databases or other rich information sources are needed to guarantee the accuracy and quality of the curriculum. Thus, the DGC accept that this could result in an increase in the occurrence of technical mistakes in the educational programmes, and make it increasingly more difficult to bring the Omani curricula to a similar level as that of global curricula.

The final shortcomings have to do with the satisfaction of the workers. This study's findings show that as a TQM concept, the DGC staff's degree of job satisfaction is weak. The data suggest that this is because of the DGC's job strategy. It may be that the many weaknesses outlined above lead to a lack of staff satisfaction.

The findings have highlighted many issues that affect employee fulfilment, such as, for example, the DGC plans and objectives do not relate to staff needs, the management has no trust in staff abilities, there is a slow reaction to understanding difficulties and solving problems, and there is no reasonable and powerful compensation framework set up to empower, spur, and reward staff or monitor staff satisfaction. This has brought about the conclusion that accomplishing worker fulfilment is not acknowledged by the DGC, in light of the fact that no consideration is given to the requirements of the staff. As a result, the workplace in the DGC is not alluring for employees.

10.2.3 Question Three

What is the perspective of the DGC staff on the application of TQM to improve the curriculum development and evaluation work in the DGC?

There was, by and large, an understanding among DGC staff that the implementation of TQM principles is an urgent matter, and the present work arrangement of the DGC must be totally changed. A conceivable clarification for this outcome may be because of the present shortcomings in the curriculum development and evaluation work in the DGC. The members featured the requirement for every single involved individual to be made mindful of the significance of TQM, and the importance of its influential position with respect to its application, in order to build up a culture of quality before TQM is executed.

10.2.4 Question Four

What are the potential benefits of applying TQM in the curriculum development and evaluation work processes in the DGC?

The DGC's partners have stressed the significance of applying TQM principles in order to create a culture in the association of work which will positively reflect on the quality of the curriculum content. For instance, it will take on board the jobs, rights, and obligations of the employees, decrease the randomness in the work, and finally, staff satisfaction will be accomplished. Undoubtedly, this will be well received and will ultimately diminish the level of technical mistakes. Also, these outcomes can be viewed as a reasonable sign of the DGC staff's eagerness to apply TQM principles and quality standards in the work produced.

10.2.5 Question Five

What are the potential obstacles in the application of TQM in the curriculum development and evaluation work processes in the DGC, and the proposed suggestions and solutions?

The data generated from this research for this question has identified various barriers which could adversely affect the fruitful use of TQM standards in the DGC's work. In relation to the financial issues, the respondents were convinced that the budgetary spending plans endorsed for curriculum development are not adequate to meet requirements. Besides, there is an absence of, budgetary support, suitable rewards, and material motivation to empower quality in the culmination of work.

Furthermore, there are financial gaps in all of the training programs and resources needed to support the curriculum for the development of educational aids. The DGC staff, therefore, believe that the provision of the necessary materials for the design of the curriculum, the financial changes and incentives for exemplary employees, and the creation of a clear financial reward system is of paramount importance.

The findings have also highlighted several administrative obstacles and difficulties that obstruct attempts to strengthen the DGC's curriculum development and evaluation work. The prevalence of such obstructions will undoubtedly have a negative impact on the effective implementation of TQM principles within the DGC.

The common consensus of the DGC employees is that the senior management has the responsibility of guaranteeing that the fundamental principles of TQM influence shape fully the organisation. Moreover, the DCG employees also highlighted a number of difficulties relating to the administration. Some of these issues include the omission of adequate correspondence channels between the leaders and staff, a lack of trust felt by both parties, the dominance of management in implementing decisions, and the failure and reluctance of management to contribute to up-skilling employees.

The criticism from staff members demonstrates that these impediments are probably going to be the consequence of a portion of the directors refusal to implement change, just as their absence of consciousness of the significance of ingraining a culture of value at work. It is likely that these issues will have a detrimental effect on the successful implementation of TQM. The respondents offered a number of suggestions that could possibly mitigate these problems.

These include developing the organizational structure of the MoE in general, and the DGC in particular, so as to allow for the decentralization of work, effective communication between staff and leadership to reflect positively on the work of the DGC, staff participation in decision-making and the promotion of their initiatives to develop their work, cooperation and coordination between the various bodies both within and outside of the MoE linked to the work of the DGC, and a dependence on leaders who make fruitful and effective managerial decisions.

Likewise, the research has also established that the technical issues identified with the curriculum development and evaluation work could be a test in the use of TQM in the DGC. The DGC staff repeated that the basic role of applying TQM standards in the DGC work is to arrive at an elevated level of quality in the content of the curriculum. Thus, the technical barriers, for example, the lack

of clarity of curriculum development standards, and a lack of investment in existing curriculum quality specialists and experts. Also, there is a shortage groups of staff who are qualified scientifically and practically in curriculum development and evaluation in some units in the DGC. Along these lines, these issues are impediments which will adversely influence the nature of the DGC outputs.

The participants recommended that it is very important to solve this challenge, and the DGC must be centred around exploiting the modern experiences of developed countries in the development and evaluation of school curricula, global qualified organizations with practical experience in the field of curriculum quality, addressing the needs of expert staff to raise the degree of work execution, and capitalizing on the present human mastery accessible in the DGC.

Absence of any lucidity of the general vision and strategy of the DGC was the last area considered to detrimentally affect the execution of TQM, leading to the omission negatively of specific targets for measuring work standards, the absence of strategic planning for the work and plans, and the system's dependence on the principles of quality.

To deal with this challenge, the participants proposed the introduction of a clear plan for the process of curriculum development and evaluation. This should be based on the results of previous research and studies, and adopt a flexible, general strategy for the work of the DGC which should be applied according to the existing reality in terms of the available human and financial capabilities.

10.3 Contributions

In the following section, the researcher highlights the original contributions in four key areas; namely, fundamental contribution, literature review and methodology contribution, and educational contribution.

10.3.1 Fundamental contribution

This study contributes to increasing awareness of the importance of the TQM program to raise the quality standards of school education in general, and to improve the curriculum development and evaluation work, which could help the DCG's leadership and staff to develop a better understanding of the mechanism of applying TQM principles.

Also, this study's results contributed to the findings that the commitment to TQM and its application in practice is not easy in the current curriculum development and evaluation work in the DGC. In other words, the findings display weaknesses of the DGC work relating to leadership, employee involvement, continuous improvement, technical work, and staff satisfaction.

10.3.2 Literature review and methodological contribution

This study adds to the literature on TQM in the following ways. Firstly, this study has researched the relationship between the applications of TQM in the education sector and, more specifically, in school curriculum work, and has established clear connections between them. Thus, this study enriches the literature review of TQME by combining the application of TQM to the curriculum development and evaluation work. These two aspects have infrequently been linked in previous literature.

Secondly, this study shows that the philosophy of TQM is a management philosophy that is perhaps valid to the development of any management system in any sector and any type of work, regardless of its nature. For example, the application of this philosophy does not differ in any aspect of the educational sector, such as curriculum development and evaluation work, educational assessment and evaluation, or human resource development, in the sense that management as a philosophy does not differ according to the type of work. Thirdly, this study shows the important role and impact of leadership as a principle of TQM on the rest of the principles of TQM. In a sense, leadership can affect positively or negatively in the application of the rest of the TQM principles.

Another contribution of this research relates to the methodologies that the researcher has employed in order to explore the issues relating to research. The researcher has used two instruments for the study - the questionnaire and the interview - which confirm the value of an established paradigm. Also, two innovative aspects are shown in the design of this study. The first is that the study was not limited to the one category of DGC staff, rather it targeted all of the Directorate's technical and administrative staff and all functional levels, including the leaders, experts, and specialists in the design and production of the curricula, and educational researchers to the level of auxiliary functions, in other words, all employees who are associated with the daily work of the DGC.

The second innovative aspect relates to the compositions of the questionnaire and interview questions. As the study took place in the DGC, the contents of study's instruments were not

limited to TQM principles, but also covered other relevant elements linked to curriculum development and evaluation work in DGC. Both aspects helped to provide a deeper and wider insight into the findings of study and create a better understanding of the complex and intricate issues relating to the current work situation at the DGC during the study period.

10.3.3 Educational contribution

To the researcher's best knowledge, this is the first study to explore the application of TQM in the curriculum development and evaluation work in the education sector, represented by the DGC at the MoE in the Sultanate of Oman. Most of the previous studies in the Omani context focus on the MoE in general or educational governorates, directorates, or schools. The educational significance of the study lies in the provision of an overview of the current status of the DGC's work, and also, that it will provide an original contribution to the educational literature on TQM and school curriculum work in Oman. Furthermore, the importance of the positive or negative influence of leadership to create an organizational culture at DGC work in particular, and education sector in general, based on TQM principles.

This study is also original because it differs from the focus of previous Omani studies. This study has assessed the quality of the curriculum development and evaluation work, and whether this affects the curricula content positively or negatively. However, previous studies have focused only on the quality of the curriculum content. This current study demonstrates the reflection and impact of quality of curriculum development and evaluation work on the quality of curriculum content.

10.4 Implications of policy and practices

This study tackles new topics in regard to the application of TQM in the DGC in Oman. The results of this study will be a catalyst in the development and improvement of work in the DGC. This study may also encourage and help leaders in the MoE and the DGC to identify the strengths and weaknesses that are present in the curriculum development and evaluation work, specifically relating to leadership, employee involvement, and continuous improvement. Furthermore, it may help to enhance the existing procedures to improve the standard of future work.

This study's findings should provide the necessary information to encourage the DGC to begin to adopt the philosophy of TQM in the curriculum development and evaluation work. It will also help them to better understand the potential benefits of applying these principles to enhance the quality

of the work of the DGC, as well as highlighting the possible obstacles that may accompany the application process during its implementation.

Finally, the results of this study can be disseminated to all internal beneficiaries in the DGC to increase understanding and spread awareness of the current situation in the curriculum development and evaluation work. This could motivate both the leadership and the DGC employees to work as a team in order to begin the processes of improvement and development.

10.5 Recommendations

Based on the findings, this study has made some recommendations with a view to improving the quality of the education system in the MoE in general, and the DGC in particular, as listed below.

1. The MoE is represented by the Quality Department and develops the ISO project which is currently applied in some of the Ministry's Directorates; however, this should be made available to all directorates, including the DGC. The aim is not to obtain an international certificate from the organizations that adopt these models and focus only on administrative transactions. But in order to emphasize and spread a culture of quality at work, the following points should be considered:

    - Develop a comprehensive work strategy for all directorates of the MoE based on TQM principles, and provide clear instructions and detailed guidelines for the application which takes into account the specific work of each of the directorates in the MoE.

    - Future leaders should be selected in accordance with professional standards of leadership such as career progression, experience, personal and social skills and abilities.

    - Training courses should be available to employees to ensure their duties and roles are successfully achieved, and to establish quality in the work.

    - Involve employees in making decisions, especially technical decisions, paying attention to their suggestions and creative ideas.

    - Facilitate the development and professional improvement of staff, providing training and qualification programs which are in line with their specific job roles.

- Acknowledge employee satisfaction by providing all the necessary materials, as well as offering financial incentives, to help and encourage staff to deliver a high standard of work.

- Administrative systems should be based on specific standards in accounting and remuneration and measure the quality of performance in the work.

- Focus on both the short and long-term evaluation of the proposed work system under the supervision of a main committee which includes representatives or sub-committees from each of the Ministry's directorates.

2. The DGC, represented by its decision-makers and policy makers, should take into consideration the strengths of the current work to encourage staff to maintain a high standard in their performance. The DCG also needs to be aware of any weaknesses so as to avoid them during the implementation of the TQM principles.

3. The DGC should address the obstacles that may hinder the application of TQM, as highlighted in this study, taking into account the proposed solutions.

10.6 Suggestions for future research

The results and the conclusions presented in this study remain open to various interpretations. Consequently, the need for further research in this area becomes more apparent. It is through continued research that the leaders in education come to better understand of the true picture and, thus, improve practices in the future. This research points to the avenues for additional research in the following areas:

- As this study sample only comprises the DGC, further studies could be carried out on a larger sample that includes all technical directorates in the MoE in order to explore the application of TQM principles. This might help to provide a clearer picture of the work situation in other areas.

- More research is needed to further explore the role that the Omani work culture plays in shaping the ability to consolidate quality culture in the DGC’s work.

- Further research is needed to discover the best TQM model for the Omani work environment in the MoE.

- More research is needed to explore the quality assurance methods at work in the DGC (possibility - barriers).

- It is also recommended to study the effects of quality in the training programs and the development of the DGC staff.

- A study of the impact of internal and external stakeholders' engagement in quality application and assurance operations is needed in the DGC.

- More research is needed to understand the relationship between the quality of the curriculum development and evaluation work in the DGC, and the quality of the Omani curricula content.

10.7 Reflections

This study draws on a mixed methods approach. Utilising a qualitative instrument, semi-structured interview, focused on obtaining more in-depth responses and detail of the DGC staff, compared with the quantitative instrument, the questionnaire. The researcher was aware of the possibility that the questionnaire's respondents may have found it difficult to talk deeply about the curriculum development and evaluation work in the DGC because the questionnaire did not provide the participants with enough space to express their opinions. This was a potential challenge for the researcher. However, applying the two instruments (questionnaire and interview) enabled the researcher to compare them in a process referred to as ‘triangulation’. In other words, to corroborate the findings from one method with the other leading to the confidence that the entire study would be enhanced, and also ‘complementarity’ which means that one instrument is used to complement the other in the sense that each instrument focuses on different aspects of the investigation which helps to enhance the explanations for findings. This is one of the strength issues in this study. Therefore, if the researcher has the opportunity to carry out an advanced study of this research in the DGC in the future, he would try to increase the sample size for the interviews and questionnaires to reach greater credibility of the results of the study.

However, a positive outcome is the findings of this study that may take into consideration the application of TQM principles in improving the curriculum development and evaluation work in the DGC in particular, and the educational system under the supervision of the MoE in general. This is a key focus of the National Strategy of Education in the Sultanate of Oman 2040, which stresses the need for quality in education through defining the roles, responsibilities, and aspects of the relationship for the specialized councils and education stakeholders so that the entire educational

system can effectively achieve its national goals, and also upgrade the quality of the educational system, to keep pace with international levels, which contributes to building high-quality students that support the Omani labour market (Education Council, 2020).

Also, the Oman Vision 2040 priorities include education, learning, scientific research, and national capabilities by achieving inclusive education, lifelong learning, and scientific research that leads to a knowledge-based society and competitive national talents (National committee of Oman Vision 2040, 2019). Moreover, the new Sultan of Oman, Sultan Haitham bin Tariq Al Said, was the general supervisor of the committee formed to formulate this vision before he became Sultan of Oman, which he confirmed in his second speech after taking office in January 2020, emphasizing that attention to the quality of schools and higher education is a priority during the next twenty years. This makes the researcher motivated and encouraged that the results of this study may be taken into account by the MoE due to one of the Oman vision 2040 priorities being education work improvement. The results of this research are very close with the Oman Vision 2040, and the researcher is looking forward to improving the curriculum development and evaluation work in the DGC as a scholarship student from the MoE to search the current state of DGC work, and to improve it in the future through action plans including workshops and seminars for DGC directors and staff, to activate the application of TQM principles in the daily work of the DGC.

In terms of reflecting on the personal development of the researcher during his four year PhD journey, the researcher acquired many research skills. Since deciding on the research topic and identifying the study dilemma, the researcher learnt how to sequence the steps of conducting educational research through the application of the study's instruments, data analysis and synthesis and discussing the findings. Also, to understand the research philosophy and research paradigms, which developed my thinking in adopting the appropriate research methodology and methods for this study. The researcher has become more confident and transparent in all stages of the study, particularly when speaking about the data gathering procedures, tests and methods selected to analyse the quantitative and qualitative data, which is another important element of learning that the researcher experienced.

During this journey, the researcher's critical academic writing and thinking skills and accuracy, honesty, and objectivity during the transmission of information have also developed and greatly improved. Effective time management, remaining patient and focused, as well as prioritizing workloads are all skills which have evolved and improved over the period of study. Moreover, engaging with the participants and focusing on research ethics has also been extremely beneficial

in terms of gaining research ethics skills. Research has also allowed the researcher to pursue his interests, to learn something new, to hone his problem-solving skills and to challenge himself in new ways, which have all led to the researcher generating a sense of desire in the search for knowledge to discover everything that is new and exciting, prompting him to think critically, and providing him with the ability to analyze and evaluate the existing situation in the DGC.

The researcher also learned that to effectively communicate his ideas and to think critically in the research, there is a need to keep changing, rephrasing, refining, and focusing on all parts of the research until arriving at a suitable stage for the overall aims, specific questions, as well as methodologies and methods. Reflection on the researcher's thinking is one of the important characteristics and requirements of educational research. In other words, to be critical, the researcher has learned how his voice emerges by criticizing reality, whether this be for or against various areas. In addition to criticizing the thinking of others, it also requires me to criticize his own thinking, knowledge, and beliefs. For example, the researcher learned to try to avoid prejudice and from the preconceptions that he adopts in judging any phenomenon or issue as being a part of it, while at the same time preserving his own knowledge and experience to help himself as a researcher to evaluate the reality of the study.

Furthermore, the research period has helped the researcher to look at the work environment (DGC) in Oman critically through the eyes of scientific research enquiry, which provided insights and understanding which may hopefully help improve and develop new ways of thinking about (DGC) work. In the longer terms, the researcher plans to publish a book about the application of TQM in the education sector based on the literature of this study, and plans to conduct future studies on the quality of work in the education sector in general, and school education in particular in the Omani context.

This study has enabled the researcher to learn about different cultures and how to deal with them appropriately; firstly, through communication with the local environment and community; and secondly through interaction with British and other international research students of different nationalities.

This journey has provided many varying opportunities and positive challenges which have resulted in the researcher becoming more confident and having a greater understanding of the world from many different perspectives. Interacting with his supervisor and building trust have been paramount in assisting the researcher to successfully complete this study. Moreover, moving from his country of residence to enjoy academic life at the University of Glasgow, as well

as experiencing the way of life in UK, has had a profoundly positive impact on the researcher, and created memories that will remain with him forever.

With respect to effect of the COVID-19 pandemic, there has not been any direct impact on the study because the researcher was in the last stages of the research when the pandemic struck. Most of the study's work under this pandemic was the online final review of the study with supervisor. As for the impact of this pandemic on the DGC work - during the pandemic, the DGC staff worked from home, sharing news and useful information relating their work via online meetings. Also, the DGC transferred the curricula electronically in cooperation with some of the technical directorates at the MoE in order to provide distance learning to students through educational platforms.

However, there are many difficulties in providing online learning for Omani students, such as including providing a high-quality network, ensuring the availability of computers for all students, training teachers on the use of distance learning, and all of these issues are beyond the scope of the current study, which focuses only on the quality of curriculum development and evaluation work in the DGC.

In terms of the application of study results in curriculum development and evaluation work in the DGC in particular, and in the MoE in general, the pandemic may accelerate the focus of the application of TQM principles to ensure the quality of work and the ability to face any urgent issues. Also, one of the positive results of this pandemic may be focusing on the continuous development of employees via the internet to attend training courses, seminars, and conferences relating to the field of curriculum development and evaluation work, which may reduce financial expenses.

10.8 Conclusion

The main aim of this study was to fully explore the existing reality of the application of TQM principles in the DGC in the MoE in Oman. Current literature relates to TQM in general, however, in this study, TQM in education was reviewed to build the study's instruments. A mixed method approach involving both qualitative and quantitative methods was used to fulfill the main aim of the study. A questionnaire and semi-structured interviews were used for data collection from the DGC staff. The findings show that the approval level of the current practices of application of TQM in DGC is medium.

An important point to note is that there is no career satisfaction among DGC employees due to leadership practices. Moreover, there are weakness in the employees' involvement and continuous improvement. However, there are some strengths in the DGC's work based on TQM principles. The results of this study will be the first step to help decision makers in the DGC to build an appropriate framework for evaluating and improving the existing work processes based on TQM principles, in order to apply and consolidate a culture of quality in the DGC's work.

The conclusion chapter has provided a summary of the main findings, contributions to knowledge, potential implications, as well as specific research recommendations, and has provided suggestions for future research. Lastly, the researcher's personal reflective thoughts on the overall research design have been presented.

The researcher has searched, analysed, and discussed the findings to improve the education system in Oman in general, and the work systems in the DGC in particular. During this journey, the researcher's view of applying TQM principles has changed from being a theoretical philosophy that can be understood simply to the fact that its difficulty lies in adhering to it, assuring, and ensuring its continuity through the work stages. The researcher hopes that positive conditions for the implementation of the Oman Vision 2040 will contribute and accelerate in the education sector by the transmission and application of the results of this experiment in the curriculum development and evaluation work.

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Appendices

Appendix A: Ethical Approval

College of Social Sciences

Tuesday, 31 July 2018

Dear Khalil Nasser Saif Al hashami

College of Social Sciences Research Ethics Committee

Project Title: Exploring the Application of Total Quality Management (TQM) in Curriculum Evaluation and Development at the Directorate General of Curriculum in the Ministry of Education in the Sultanate of Oman

Application No: 400170191

The College Research Ethics Committee has reviewed your application and has agreed that there is no objection on ethical grounds to the proposed study. It is happy therefore to approve the project, subject to the following conditions:

- Project end date: __01.09.2020_____
- The data should be held securely for a period of ten years after the completion of the research project, or for longer if specified by the research funder or sponsor, in accordance with the University's Code of Good Practice in Research: (http://www.gla.ac.uk/media/media_227599_en.pdf) (Unless there is an agreed exemption to this, noted here).
- The research should be carried out only on the sites, and/or with the groups and using the methods defined in the application.
- Any proposed changes in the protocol should be submitted for reassessment as an amendment to the original application. The *Request for Amendments to an Approved Application* form should be used: http://www.gla.ac.uk/colleges/socialsciences/students/ethics/forms/staffandpostgraduateresearchstudents/

Yours sincerely,

Dr Muir Houston

College Ethics Officer

Muir Houston, Senior Lecturer - College of Social Sciences Ethics Officer

Appendix B: Ministry of Education Approval

الفاضل /مدير عام المديرية العامة لتطوير المناهج المحترم ،،،
السلام عليكم ورحمة الله وبركاته،،،

الموضوع :تسهيل مهمة باحث

أود إفادتكم بأن الفاضل /خليل بن ناصر الهشامي طالب دراسات عليا دكتوراه في التربية والمعنونة (استكشاف تطبيق مبادئ إدارة الجودة الشاملة في تقويم وتطوير المناهج بالمديرية العامة لتطوير المناهج بوزارة التربية والتعليم بسلطنة عمان)، ويرغب المذكور في تطبيق أداة الدراسة على عينة من الموظفين التابعين لمديريتكم.

عليه المرجو التكرم بتسهيل مهمة الباحث وذلك وفق الإجراءات المعمول بها لديكم، وفي حالة وجود أي استفسار يمكن للمعنيين لديكم الاتصال بالباحث مباشرة على هاتف رقم 99880948.

شاكرين لكم حسن تعاونكم

وتفضلوا بقبول فائق التقدير والاحترام

سعاد بنت مبارك بن سعيد الفورية
مديرة المكتب الفني للدراسات والتطوير

Appendix C: Plain Language Statement - Questionnaire

University of Glasgow

College of Social Sciences

Plain Language Statement

1. Study title and Researcher Details

"Exploring the Application of Total Quality Management (TQM) in Curriculum Evaluation and Development at the Directorate General of Curriculum in the Ministry of Education in the Sultanate of Oman".

Khalil Nasser Saif Al hashami

This research is part of my PhD study.

2. Invitation paragraph

I would like to take the opportunity to invite you to participate in the online survey questionnaire designed for this research study. I am a PhD student studying at the University of Glasgow and I have received ethical approval for the study. You will be provided with all the required information regarding the scope and aims of this research study. If you are unsure about any aspect of the research or the items in the survey, please feel free to contact me. It is very important that you have complete understanding of the questions before participating in survey.

Your participation in the online survey will be highly appreciated, as it will enable the researcher to contribute for improving the quality of development and evaluation work system in the Directorate General of Curriculum (DGC) at Ministry of Education (MoE) in the Sultanate of Oman. In order to participate in the online survey, please copy and paste the following link ***"here link will be pasted after developing the online survey"*** in your browser, and follow the on-screen instructions to fill in the questionnaire. The survey will not take more than 25 minutes of your time and the consent will be assumed by the completion of the online survey. Thank you for taking time to go through all this.

3. What is the purpose of this study?

The present study is being undertaken in order to discover the extent of the application of TQM in development and evaluation of curriculum practices in Oman. The results of this study will clarify the existing reality of the practices and highlight the weakness and strengths and determine the starting point

for the application of TQM at the DGC in the MoE in Oman the potential and will recognise benefits of applying TQM to the curriculum development and evaluation work processes. Furthermore, this study will also provide recommendations to the decision makers, directors and experts, in the (DGC) in the MoE which help them improve the curriculum development and evaluation processes in the DGC. It is hoped that this will result in increasing the overall efficiency and effectiveness of the DGC work system and increase the level of implementation of TQM for restructuring the Omani Curricula work system.

4. Why have I been chosen?

The participants of this research study will be affiliated with the DGC in the Ministry of Education in the Sultanate of Oman, working on the curriculum development and evaluation in the DGC. You are being invited to take part because of your involvement in these areas.

5. Do I have to take part?

No, you do not have to take. It just if you do decide to take part and you can withdraw from the study at any stage of the survey.

6. What will happen to me if I take part?

You will be asked various items relating to the total quality management principles. You will be given limited choices under each item to tick for the appropriate ones. All of your responses will be saved securely in the response database for this study.

7. Will my participation in this study be kept confidential?

As this is an online survey your identity will be unknown to the researcher. The data collected will be used according the ethical guidelines for researchers at the University of Glasgow. An identity code will be given to each interviewee and the data will be stored in a safe location (online – only accessed by password). This data will remain secure and all data used for the publication of the project will be de-identified. All data will be kept for 10 years – destroyed after this period and confirmed to supervisor if possible.

All efforts will be taken to prevents the confidentially of all participants of the research. However, you should be aware the electronic communications and survey may be monitored by third parties which is not under the control of the researcher. The role of the Ministry of Education is to issue the initial invitation for participation on behalf of the researcher. The researcher undertakes that information regarding participation / non-participation will not be available to nor accessible by the Ministry of Education. Similarly, data generated by the research will not be available to, nor accessible by the Ministry of Education. The researcher will endeavour to preserve the safety, privacy and confidentiality of the participants and their data at all times. There will be no intervention by the Ministry other than to provide official logistics

facilities for research procedures such as formal communications to facilitate the conduct of research and to overcome any obstacles that may face data collection.

8. What will happen to the results of the study?

The results of this study will be derived from analysing the survey data, which will presented in the results chapter of PhD thesis. Later on, the results of this study, as the chapter of my PhD thesis, will be used to provide recommendations to suggest improvements in work system of curriculum development and evaluation at the DGC. Also, the results can be published as a book, journal article and conference papers. The copy of final manuscript presented to Ministry of Education and Presentation to representative participants or all.

9. Possible Risk

There are no risks to participants in this study. As the online questionnaire is anonymous the identity of participants will not be available.

Taking into account some of the confidentiality limitations such that the use of such electronic survey can be accessed, electronic communications can be monitored, and ISPs can be recorded by third parties. However, the role of the Ministry of Education is to issue the initial invitation for participation on behalf of the researcher. The researcher undertakes that information regarding participation / non-participation will not be available to nor accessible by the Ministry of Education. Similarly, data generated by the research will not be available to, nor accessible by the Ministry of Education. The researcher will endeavour to preserve the safety, privacy and confidentiality of the participants and their data at all times. There will be no intervention by the Ministry other than to provide official logistics facilities for research procedures such as formal communications to facilitate the conduct of research and to overcome any obstacles that may face data collection.

10. Who is organising and funding the research? (If relevant)

The researcher is a PhD student funded by the Ministry of Education in Oman.

11. Who has reviewed the study?

The project has been reviewed by the College of Social Sciences Research Ethics Committee.

To conduct this research project, I will be working under supervision of

Dr . Margery McMahon

Tel No: +44(0)1413303018

Email Address: Margery.McMahon@glasgow.ac.uk

13. Contact for Further Information

If you wish to have further information about this study, you may contact me by email at

k.al-hashami.1@research.gla.ac.uk. Or by mobile **+96899880948**

Should you have any concerns regarding the conduct of the research project you can contact the School of Education Ethics Officer by contacting **Dr Muir Houston: Muir.Houston@glasgow.ac.uk**

return of survey implies consent

THANK YOU FOR YOUR TIME AND CONSIDERATION

Appendix D: Letter of Request - Questionnaire

University of Glasgow

College of Social Sciences

Letter of Request

TO WHOM IT MAY CONCERN

You are being invited to take part in a doctoral level research study entitled "Exploring the Application of Total Quality Management (TQM) in Curriculum Evaluation and Development at the Directorate General of Curriculum in the Ministry of Education in the Sultanate of Oman". Details of the study and researcher will be provided to you in a "Participation Information Sheet" (Plain Language Statement). The consent will be assumed by the completion of the online survey. Your participation in this online survey will be greatly appreciated, as it will enable the research to contribute to improving the quality of the development and evaluation work system in the Directorate General of Curriculum (DGC) at the Ministry of Education (MoE) in the Sultanate of Oman. In order to participate in the online survey, please copy and paste the following link **"*here link will be pasted after developing the online survey*"** in your browser, and follow the on-screen instructions to fill in the questionnaire. The survey will not take more than 25 minutes of your time to be completed.

Yours sincerely

Khalil Nasser Saif Al hashami

PhD researcher – University of Glasgow

Appendix E: The structure of the questionnaire

University of Glasgow

College of Social Sciences

- **Before filling in the questionnaire, I would like you to consider the following:**

 This questionnaire consists of **four Sections** as follows:

Section one: personal information.

Section two: Total quality management principles:

- Leadership.
- Staff satisfaction.
- Employees participation.
- Continuous improvement

Section three: Curriculum development and evaluation processes.

Section four: Open-ended question

 Names are not required and all information gained from this questionnaire will be used confidentially and for research purposes only.

 Your participation is valuable to this study. However, you have the right not to participate if you do not wish to.

Section 1: Personal information

Please (√) as appropriate

1. **Sex:** Male **( )** Female **( )**

2. **Job:** Technical **( )** such as experts, curriculum officers, educational researchers

Administrative **( )** such as directors, deputy directors, heads of departments.

3. No. of years' work experience in DGC

Less than one year -5 years ( ) 6-10 years ( ) More than 10 years ( )

Section 2: Total Quality Management Principles

Part one: Leadership

This section is about the leadership roles in the DGC.

How would you best describe the leadership practices as an administrative system in the Directorate General of Curricula?

Please (√) as appropriate

No.	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Don't Know
1	Convinced of the usefulness of change and development for quality.						
2	Attempts to spread the culture of quality amongst employees within the Directorate.						
3	Motivates employees morally on the quality of work.						
4	Has a plan in place to minimise and eradicate any problems with the curriculum content.						
5	Has clear vision of work.						
6	Able to create a culture of trust and commitment amongst employees.						

No.	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Don't Know
7	Provide staff with the resources required to ensure that the quality of curriculum evaluation and development is achieved and maintained.						
8	Flexible in applying the Ministry's instructions and decisions.						
9	Discusses Ministry's future plans with the staff.						
10	Feedback is provided to staff.						
11	Closely monitored and supported to ensure that the work is completed accurately.						
12	Encourages collective action in achievements by staff.						
13	Involvement of staff in decision-making.						
14	All concerns relation to staff material needs.						
15	Clear objectives and roles for task forces are established.						
16	Good role models for staff.						
17	Strong channels of effective communication with staff.						
18	Strong relationships are built with employees.						
19	Provide clear instructions to staff on the mechanism and processes for completing work.						
20	Decentralisation depends on administrative work.						
21	Innovative and proposed initiatives are encouraged.						
22	Ability to change in order for development.						

Part two: Staff satisfaction

This section is about Staff's satisfaction in the DGC.

How would you describe the staff satisfaction in the Directorate General of Curricula?

Please (√) as appropriate

No.	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Don't Know
1	Roles and responsibilities are clear to all employees.						
2	There is a system for measuring and controlling employee satisfaction.						
3	The Directorate's objectives positively exceed the expectations of the employees.						
4	The Directorate's plans and strategies are linked to the needs of staff.						
5	There is a system for managing social relations between employees to achieve continuous success.						
6	The Directorate's priorities are to achieve employee satisfaction.						
7	Attention is given to the needs of staff.						
8	A fair and effective remuneration mechanism is given to encourage, motivate and reward staff.						
9	Confidence in the capabilities and possibilities of the staff.						
10	The annual assessment is fair for employees and is in accordance with clear and specific criteria.						
11	There is effective communication between staff and managers.						
12	There is awareness that employee satisfaction is a positive factor for the development of work in the Directorate.						

13	There is clear affiliation of employees who work in the Directorate.						
14	The work environment in the Directorate is attractive.						

Part three: Employee Involvement

This section is about employee involvement in the DGC.

How would you describe the employees' participation in the Directorate General of Curricula?

Please (√) as appropriate

No	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Don't Know
1	Giving employees powers to develop the work.						
2	Strong cooperation is prevalent throughout the Directorate.						
3	Open discussions between the different levels of work are encouraged and facilitated.						
4	Motivate employees to adopt initiatives.						
5	A culture of self-evaluation among employees is actively promoted.						
6	Feedback from employees is welcomed.						
7	Staff participate in the development of action plans and strategies.						
8	Staff participate in decision-making.						
9	All staff working in the Directorate are part of a team.						
10	Staff participation is considered an important factor for organisational development.						
11	Meeting the material and moral needs of employees.						
12	All staff participates in the development of the professional development plan.						
13	The professional plan meets staff requirements.						

Part four: Continuous improvement

This section is about continuous improvement in the DGC.

How would you describe the continuous improvement in the Directorate General of Curricula?

Please (√) as appropriate

No.	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Don't Know
1	Staff are encouraged to develop and improve in all areas of work.						
2	Performance monitoring and measuring procedures are in place.						
3	Work efficiency is reviewed on a continuous basis.						
4	Laws and legislation are regulated and monitored to ensure the quality and standard of work is maintained and adheres to specified guidelines.						
5	Investment is made into individual initiatives to develop the work of the Directorate.						
6	Five-year plans are in place that take into account the specific work requirements, aims and objectives of the Directorate.						
7	Curriculum development keeps pace with recent global developments.						
8	Visits from international organisations and external bodies are organised to enable staff to benefit from their expertise.						
9	To benefit from international competency experiences in the development and evaluation of curricula.						
10	There is a clear mechanism for continuous evaluation of work performance in the Directorate.						
11	Professional development plans are linked to the general objectives of the Directorate.						
12	Benefiting from internal and external beneficiary proposals in the optimization process.						
13	Training programs take into account all levels of the Directorate's work.						

No.	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Don't Know
14	There is a balance between theoretical and practical training.						
15	Training programmes support the requirements and updates of the work of the Directorate.						
16	There is a system for anticipating problems and obstacles at work.						
17	Employing technology in the process of optimization						
18	Training programmes available for newly appointed and existing staff.						
19	Rely on accurate and clear data on the optimization process						
20	There are clear future plans for the professional development of the employees of the Directorate.						
21	A long and short-term professional development plan is clear and explicit.						
22	Training programs focus on quality of work.						

Section 3: Curriculum development and evaluation processes

This section is about curriculum development and evaluation processes in the DGC.

How would you describe the curriculum development and evaluation processes in the Directorate General of Curricula?

Please (√) as appropriate

No.	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Don't Know
1	The process of development and evaluation of curriculum is based on clear strategies, plans and criteria.						

No.	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Don't Know
2	The development process is based on the results of researches and studies.						
3	Employment of evaluation studies results of curricula in curriculum development.						
4	Development and Evaluation Committees are represented by experts, curriculum officers, supervisors and teachers with relevant key competencies and skills.						
5	Technical work is linked and integrated between the departments and offices of the Directorate.						
6	The Evaluation Committees works and the Authorship Committees works are linked and integrated.						
7	There is integration and linkage between the Directorate of Curricula and the Technical Directorates in the MoE.						
8	Proposals made by external beneficiaries, such as teachers and students, in relation to curriculum development and evaluation, are acknowledged and considered.						
9	There are procedures in place to ensure that milestones are achieved accurately and within deadlines.						
10	Adequate time is spent on curricula development and evaluation.						
11	Any errors in the curriculum content are immediately addressed.						
12	There are established and clear criteria in place for measuring quality of curriculum content.						
13	There are rich information sources and databases available which are used to evaluate and develop the curricula.						

No.	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Don't Know
14	The organisational and administrative structure of the Directorate helps it to achieve its objectives and vision.						
15	All administrative and financial requirements facilitations related to the development and evaluations of the curricula are provided.						
16	The penalty and reward system promotes and strengthens the work system of the Directorate.						

Section 4: Open-ended question

3. What are the obstacles facing the dissemination of quality culture in the curriculum development and evaluation work?

.....
.....
.....
.....

4. What are your suggestions for improving the quality of the developing and evaluating curriculum work in the Directorate?

.....
.....
.....
.....

• Another data collection instrument for this study is the interview, if you want to be among the participants in the interview please put (√) and write your email

If you do not want please put (×) ☐ ☐ ☐

Thank you so much

Appendix F: Plain Language Statement – Interview

University of Glasgow

College of Social Sciences

Plain Language Statement

1. Study title and Researcher Details

"Exploring the Application of Total Quality Management (TQM) in Curriculum Evaluation and Development at the Directorate General of Curriculum in the Ministry of Education in the Sultanate of Oman".

Khalil Nasser Saif Al hashami

This research is part of my PhD study.

2. Invitation paragraph

I am taking this opportunity to invite you to participate in ***an interview about the issues in application of total quality management (TQM) in curriculum development and evaluation at the Directorate General of Curriculum.*** I am a PhD student studying at the University of Glasgow and I have received ethical approval for the study. You will be provided with all the required information regarding the scope and aims of this research study. If you would have any questions about any aspect of the research or if you wish me to rephrase any of the questions, please feel free to ask me. Please be aware that you can withdraw from the interview at any stage and you do not need to provide me with an explanation. You are also free to opt out of answering any question if you choose to do so. The interview will not take more than 60 minutes of your time. After reading this Plain Language Statement if you are happy to take part in the interview please give your consent by filling out the attached consent form. Thanks for taking time to go through all this.

3. What is the purpose of this study?

The present study is being undertaken in order to discover the extent of the application of TQM in the development and evaluation of curriculum practices in Oman. The results of this study will clarify the existing reality of the practices and highlight the weakness and strengths and determine the starting point for the application of TQM at the DGC in the MoE in Oman the potential and will recognise benefits of applying TQM to the curriculum development and evaluation work processes. Furthermore, this study will also provide recommendations to decision makers, directors and experts, in the (DGC) in the MoE which help them improve the curriculum development and evaluation processes in the DGC. It is hoped that this

will result in increasing the overall efficiency and effectiveness of the DGC work system and increase the level of implementation of TQM for restructuring the Omani Curricula work system.

4. Why have I been chosen?

The participants of this research study will be affiliated with the DGC in the Ministry of Education in the Sultanate of Oman, working on the curriculum development and evaluation in the DGC. You are being invited to take part because of your involvement in these areas.

5. Do I have to take part?

No, you do not have to take. If you do decide to take part and you can withdraw from the study at any stage of the interview.

6. What will happen to me if I take part?

You will be asked various questions relating to the issues in application of the total quality management in the curriculum development and evaluation at the Directorate General of Curriculum. You will be free to express your opinions and discuss your experiences about the quality of curriculum development and evaluation processes. The interview will be audio recorded and the recording will be kept in a secure location. The audio recording will be transcribed by me and will then be used for analysis purposes to identify common themes collected from other interviews with other participants.

7. Will my participation in this study be kept confidential?.

Yes, all the information provided by you in the form of answers to the questions will be kept confidential and will not be revealed to a third party. The data collected will be used according the ethical guidelines for researchers at the University of Glasgow. An identity code will be given to each interviewee and the data will be stored in a safe location (online – only accessed by password). This data will remain secure and all data used for the publication of the project will be de-identified. All data will be kept for 10 years – destroyed after this period and confirmed to supervisor if possible.

The role of the Ministry of Education is to issue the initial invitation for participation on behalf of the researcher. The researcher undertakes that information regarding participation / non-participation will not be available to nor accessible by the Ministry of Education. Similarly, data generated by the research will not be available to, nor accessible by the Ministry of Education. The researcher will endeavour to preserve the safety, privacy and confidentiality of the participants and their data at all times. There will be no intervention by the Ministry other than to provide official logistics facilities for research procedures such as formal communications to facilitate the conduct of research and to overcome any obstacles that may face data collection.

Each of interviewees shall individually determine the place or room that will be suitable for him/ her for the interview, which should insure for him/ her that the interview procedures are complete confidential. Thus, it is expected that the place of the interview will be within the Directorate General of the curriculum but in different rooms or offices as desired by the participant. I will ensure that the place chosen for the interview by the participants is confidential and private, after discussing the matter with them.

8. What will happen to the results of the study?

The results of this study will be derived from analysing the interview data, which will present in the results chapter of PhD thesis. The data will be also serve to supplement online questionnaire data which have been sent to all officials at the DGC via Survey Monkey. Later on, the results of this study will be used to provide recommendations, as the chapter of my PhD thesis, to suggest improvements in work system of curriculum development and evaluation at the DGC. Also, the results can be published as a book, journal article and conference papers. The copy of final manuscript presented to Ministry of Education and Presentation to representative participants or all.

9. Possible Risk

As I have a collegial relationship with the some of the interview participants of this study I will minimize any risk by clearly stating that no pressure will be put upon participants to be interviewed due to my working relationship with them. Also deciding to take part/not take part will not affect your employment status or your professional development within the DGC in the MoE in Oman.

10. Who is organising and funding the research? (If relevant)

The researcher is a PhD student funded by the Ministry of Education in Oman.

11. Who has reviewed the study?

The project has been reviewed by the College of Social Sciences Research Ethics Committee.

To conduct this research project, I will be working under supervision of

Dr . Margery McMahon

Tel No: +44(0)1413303018

Email Address: Margery.McMahon@glasgow.ac.uk

13. Contact for Further Information

If you wish to have further information about this study, you may contact me by email at

k.al-hashami.1@research.gla.ac.uk. Or by mobile +96899880948

Should you have any concerns regarding the conduct of the research project you can contact the School of Education Ethics Officer by contacting **Dr Muir Houston: Muir.Houston@glasgow.ac.uk**

THANK YOU FOR YOUR TIME AND CONSIDERATION

Appendix G: Letter of Request - Interview

University of Glasgow

College of Social Sciences

Letter of Request

TO WHOM IT MAY CONCERN

You are being invited to take part in a doctoral level research study entitled "Exploring the Application of Total Quality Management (TQM) in Curriculum Evaluation and Development at the Directorate General of Curriculum in the Ministry of Education in the Sultanate of Oman". Details of the study and researcher will be provided to you in a "Participation Information Sheet" (Plain Language Statement). To take part in the study asked to sign a formal consent letter to express your willingness to participate, It will be prior to the beginning of the interview. Your participation in this interview will be greatly appreciated, as it will enable the researcher to contribute for improving the quality of development and evaluation work system in the Directorate General of Curriculum (DGC) at the Ministry of Education (MoE) in the Sultanate of Oman. The interview will take more than 60 minutes to complete.

Yours sincerely

Khalil Nasser Saif Al hashami

PhD researcher – University of Glasgow

Appendix H: Consent Form - Interview

University of Glasgow

College of Social Sciences

Consent Form

Title of Project: Exploring the Application of Total Quality Management (TQM) in Curriculum Evaluation and Development at the Directorate General of Curriculum in the Ministry of Education in the Sultanate of Oman

Name of Researcher: Khalil Nasser Saif Al hashami

1. I confirm that I have read and understand the Plain Language Statement for the above study and have had the opportunity to ask questions.

2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason.

3. I consent to the interview being audio-recorded.

4. I acknowledge that participants will be referred to by pseudonym.

5. I acknowledge that there will be no effect on my employment arising from my participation or non-participation in this research.

6.
   - All names and other material likely to identify individuals will be anonymised.
   - The material will be treated as confidential and kept in secure storage at all times.
   - The material will be destroyed once the project is complete.
   - I agree to waive my copyright to any data collected as part of this project.

7. I agree to take part in this research study ☐

   I do not agree to take part in this research study ☐

_____	_____	_____
Name of Participant	Date	Signature

Khalil Nasser Saif Al hashami

_____	_____	_____
Researcher	Date	Signature

Appendix I: Questions of Interview

Interview Questions

1. What are the strengths in the curriculum development and evaluation work?
2. What are the weaknesses in the curriculum development and evaluation work?
3. Who is responsible for curriculum quality? Why?
4. Do you think that the system of work in the Directorate General of Curricula is based on the TQM principles? Why?
5. Do you think we need to change the work system of curriculum development and evaluation? Why?
6. What are the obstacles facing the dissemination of quality culture in the curriculum development and evaluation work? What are the proposed solutions?
7. Are the employees who work within the Department satisfied with the services provided to them? Please describe how this is measured?
8. Does the staff working within the DGC receive positive feedback, rewards or incentives for producing a high standard of work and for the quality of the curriculum content? please provide details?
9. What is the role of DGC's leadership to improve of curriculum development and evaluation work processes?
10. Do you think that the quality of curriculum content associated with quality of curriculum development and evaluation work processes? Could you explain more please?
11. What is the most important principle of quality that has the greatest impact on the quality of the curriculum development and evaluation work? Why?
12. Are the improvements made to the quality of the administrative and technical work positively reflect on the quality of the curriculum content? How?

13. Does the Directorate aim to reach zero defects in the curriculum content? Why?

14. Do you feel it is important to establish a system of work to develop and evaluate the curricula so it is based on the TQM principles? why?

15. Are there any other issues that you want to highlight or talk about?

Appendix J: The link between Research questions and questions of interview and open-ended of questionnaire.

Research Questions	Data instruments Questions
1. To what extent is TQM applied in the curriculum development and evaluation work of the DGC in the MoE in Oman? ➢ The instrument: interview	- Do you think that the system of work in the Directorate General of Curricula is based on the TQM principles? Why? - Are the employees who work within the Department satisfied with the services provided to them? Please describe how this is measured. - Does the staff working within the DGC receive positive feedback, rewards or incentives for producing a high standard of work and for the quality of the curriculum content? please provide details. - What are the strengths in the curriculum development and evaluation work? - What are the weaknesses in the curriculum development and evaluation work? - Are there any other issues that you want to highlight or talk about?
2. What are the strengths and weaknesses of the work processes of the curriculum development and evaluation of the DGC? ➢ The instrument: interview	- What are the strengths in the curriculum development and evaluation work? - What are the weaknesses in the curriculum development and evaluation work? - Does the Directorate aim to reach zero defects in the curriculum content? Why? - Are there any other issues that you want to highlight or talk about?

3. What is the perspective of the DGC staff of the application of TQM to improve the curriculum development and evaluation processes in DGC? ➢ The instrument: interview and questionnaire	- What are your suggestions for improving the quality of the evaluating and developing curricula work in the Directorate? - Who is responsible for curriculum quality? Why? - Do you think we need to change the work system of curriculum development and evaluation? Why? - What is the role of GDC's leadership to improve of curriculum development and evaluation work processes? - What is the most important principle of quality that has the greatest impact on the quality of the curriculum development and evaluation work? Why? - Do you feel it is important to establish a system of work to develop and evaluate the curricula so it is based on the TQM principles? why? - Are there any other issues that you want to highlight or talk about?
4. What are the potential benefits of applying TQM to the curriculum development and evaluation work processes in the DGC? ➢ The instruments: interview	- Do you think that the quality of curriculum content associated with quality of curriculum development and evaluation work processes? Could you explain more please? - Are the improvements made to the quality of the administrative and technical work positively reflect on the quality of the curriculum content? How? - Do you feel it is important to establish a system of work to develop and evaluate the curricula so it is based on the TQM principles? why? - Are there any other issues that you want to highlight or talk about?
5. What are the potential obstacles in the application of TQM in the curriculum development and evaluation work processes in the DGC and Proposed suggestions and solutions?	- What are the obstacles facing the dissemination of quality culture in the curriculum development and evaluation work? - What are your suggestions for improving the quality of the developing and evaluating curriculum work in the Directorate?

➢ The instrument: interview and questionnaire	- What are the weaknesses in the curriculum development and evaluation work? - Are there any other issues that you want to highlight or talk about?