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**DEVELOPMENT OF A BENCHMARKING FRAMEWORK TO
ASSIST EDUCATIONISTS AND SCHOOLS ON SHARING
STRATEGIES AND APPLICATION OF BEST PRACTICES**

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ABSTRACT

Benchmarking is used by organisations for comparing performance and for the learning and implementation of best practices. While benchmarking remains a widely recognised improvement tool for practitioners, its application by school systems and schools still remains to be investigated. In this research, an exploratory pragmatic multiphase mixed methods research approach is adopted to investigate the use of benchmarking by school systems and schools. Through the preliminary literature review, school systems and schools were recognised to be using benchmarking informally without being aware of its application. Further research showed that informal benchmarking brought improvements to school systems and schools. It is envisaged that school systems and schools can obtain greater improvements through the systematic use of benchmarking. Therefore, a benchmarking framework has been developed to assist school systems and schools in the planning and application of benchmarking.

At the start of the research, a preliminary conceptual model of effective benchmarking was developed and this model has guided the research methodology. Then, a literature review was conducted to validate the use of benchmarking by school systems and schools. Next, a quantitative-qualitative survey was administered to school systems (n = 20) and schools (n = 183) to determine the frequency of benchmarking used by school systems and schools and its contribution to their performance, along with an identification of the benchmarking techniques used. The survey also recognised school systems and schools obtaining effective performance through benchmarking. Subsequently, qualitative structured interviews were conducted with these school systems (n = 4) and schools (n = 19) for an exploration of their benchmarking techniques and success factors. Finally, findings from all three phases of the research were integrated to develop a benchmarking framework to assist school systems and schools in the planning and application of benchmarking for the learning and implementation of best practices. The theoretical contributions of the research include the acknowledgement of use of benchmarking by school systems and schools and the confirmation of the association between benchmarking and performance improvement. The practical contribution is the Benchmarking Framework developed to assist school systems and schools in the application of benchmarking approaches and to guide them in the identification and implementation of best practices. Finally, the limitations and

future research opportunities have been outlined. One of the most significant research opportunities is to apply the Benchmarking Framework for an actual benchmarking project for the learning and implementation of best practices.

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LIST OF ACRONYMS

APQC	American Productivity and Quality Centre
BPIR	Business Performance Improvement Resource
CLIL	Content and Language Integrated Learning
CSNS	College Street Normal School
CSSD	Charter School of San Diego
GBN	Global Benchmarking Network
IEA	International Association for the Evaluation of Educational Achievement
MCPS	Montgomery County Public Schools
OECD	Organisation for Economic Cooperation and Development
PD	Professional Development
PIRLS	Progress in International Reading Literacy Study
PISA	Program for International Students Assessment
PLC	Professional Learning Communities
TIMSS	Trends in International Mathematics and Science Study

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CHAPTER 1: INTRODUCTION

1.1 Introduction to the Chapter

This chapter presents an introduction to the research area, which is, the use of benchmarking by school systems and schools. The chapter begins by explaining the research background in Section 1.2, Section 1.3 presents the research aim and objectives, Section 1.4 states the significance of the research, and Section 1.5 describes the stakeholders of the Benchmarking Framework. The research benefits are described in Section 1.6 and the working terms are addressed in Section 1.7. Section 1.8 presents the structure of the thesis, which explains how its key elements are linked to one another in maintaining flow, and Section 1.9 illustrates research progression through the linkages between chapters responsible for the achievement of the research objectives. Finally, the chapter summary is presented in Section 1.10.

1.2 Background to the Research

Globalisation is posing greater challenges to individuals and economies by fostering competition and demanding higher levels of efficiency. Research shows that high quality primary and secondary education significantly contributes to economic growth and development by increasing productivity leading to higher average earning (Sahlberg, 2006). In order to determine education quality and student preparedness for contributing to the global economy, school systems¹ and schools² are comparing their performances with their global counterparts and consequently learning best practices from better performers, thus conducting benchmarking. Benchmarking is a structured and systematic approach to learning that operates through the analysis and comparison of performance across organisations or parts of an organisation with a view of improvement through implementing best practices (Searles, Mann & Kohl, 2013). The publication of the Global Benchmarking Network's (GBN) survey with 452 organisations from 44 countries showed that benchmarking can be conducted both

¹A school system is a country or, state or district within a country having an autonomous education system.

formally and informally, to indicate the presence and absence of a systematic approach (Mann, Abbas, Kohl, Orth & Gorner, 2010).

The definition of benchmarking presented by Searles *et al.* (2013) refers to the formal use of benchmarking. Informal benchmarking, on the other hand, is defined as: “the learning of better, smarter or new practices from other sources, including the experience and work practices of others, for the purpose of improving work practices in your organisation” (Samuel, 2017, p. 177). The benchmarking report by American Productivity and Quality Center (APQC) described benchmarking as: “they are accepted as ongoing improvement activities and are implemented as continuous processes” (p. 4); the report identified that approximately 70% of organisations perform some form of informal benchmarking (APQC, 2009). The use of the term, informal benchmarking, has been found in benchmarking publications (Adebanjo, Abbas & Mann, 2010; Mann, 2008; Samuel, 2017; Andersen & Camp, 1995; APQC, 2009) and the GBN survey report (Mann *et al.*, 2010). The GBN survey publication recognised informal benchmarking as the most popular type of benchmarking and one of the top four improvement tools (Mann *et al.*, 2010). Another survey with 453 respondents from 40 countries ranked informal benchmarking as the fourth most popular improvement technique worldwide and predicted it to be the second most frequently used tool in future (Adebanjo *et al.*, 2010). The literature presented here encourages the researcher to suggest that benchmarking can be conducted both formally and informally.

An example of informal benchmarking is the November 2016 visit to New Zealand by a delegation from the Organisation for Economic Cooperation and Development (OECD); the group consisted of education experts from Japan, the Netherlands, Turkey and Mexico sent to learn how to develop innovative learning spaces in schools (Ministry of Education, 2016). The team of experts comprised 17 individuals who were members of an OECD working group that examines and shares information on effective learning environments. This visit served as an opportunity for New Zealand to share its unique approaches to school design with the international community. Since the delegates were interested to learn how school infrastructure could support inclusive education, a group of local school principals were also invited by the Ministry of Education to join the meeting and share their perspectives on effective learning environments (Ministry of

²A school is an institution having a systematic way of teaching. They can either be state administered or independently functioning entities.

Education, 2016). Such visits are often conducted by school systems and schools and are instrumental in learning local and international best practices.

Since the early 1980s, benchmarking has emerged as a powerful means of organisational learning and its application is foreseen to have a noticeable impact on performance (Voss, Åhlström & Blackmon, 1997; Ulusoy & Ikiz, 2001; Fong, Cheng & Ho, 1998). The literature abounds with examples of benchmarking coming from many industry sectors (Davies & Kochhar, 1999; Bhavnani, 2000; Ho & Wu, 2006), including the education sector (Epper, 1999; Alstete, 1995; Levy & Ronco, 2012; Jackson & Lund, 2000; Lund & Schofield, 1998; Massaro, 1998; Farquhar, 1998; Schreiterer, 1998). Several literature sources (OECD, 2011a; Sahlberg, 2006; Barber & Mourshed, 2007; Mourshed, Chijioke & Barber, 2010; Killion, 2016; Tucker, 2016) indicate the use of benchmarking by school systems and schools, however its application therein has yet to be explored and validated. A key aspect of benchmarking is that it could be undertaken for performance comparison and for the learning of best practices (Adebanjo *et al.*, 2010; Searles *et al.*, 2013).

There is a scarcity of research appreciating the prevalence of benchmarking in school systems and schools. Although research has been conducted on performance outcomes of school systems and schools and best practices of better performers, none of this is recognised as benchmarking. It is understood from such research that school systems and schools are primarily involved in benchmarking through assessments, particularly the international assessments (OECD, 2011a, 2016a, 2017c; Mourshed *et al.*, 2010; Barber & Mourshed, 2007; Sahlberg, 2006; U.S. Department of Education, 2011a; IEA, 2017b; Tucker, 2016; Battelle for Kids, 2012; Jerald, 2008). These assessments, recognised as performance assessments programs, monitor the performance of school systems (OECD, 2011a, 2016a; IEA, 2014) and schools (Lewis, Sellar & Lingard, 2016; OECD, 2017c) on their own and relative to one another and thus act as a source of *performance benchmarking* (refer to Section 2.2.1, Chapter 2). The international performance assessment programs have been operating since 1995 and were introduced by the Organisation for Economic Cooperation and Development (OECD) and the International Association for the Evaluation of Educational Achievement (IEA). The established performance assessment programs include: the Program for International Student Assessment (PISA), the Trends in International Mathematics and Science Study (TIMSS) and the Progress in International Reading Literacy Study (PIRLS). The results

of these assessment programs motivate school systems and schools to identify better performers and establish relationships with them for learning their best practices.

In recent years, significant research has been conducted on school systems displaying a promising performance in international assessments (OECD, 2011a; Mourshed *et al.*, 2010; Barber & Mourshed, 2007; Tucker, 2016; Battelle for Kids, 2012; Killion, 2016) and schools demonstrating sustained improvement (Shannon & Bylsma, 2007; McGee, 2004; Battelle for Kids, 2015), in order to elucidate their best practices for sharing them globally. These researches motivate the researcher to deduce that school systems and schools adopt benchmarking to study the policies, structures and processes of well performing³ school systems and schools for learning their best practices, and consequently adapt those best practices to their own context to achieve improved educational outcomes; thus exemplifying the use of *best-practice benchmarking* (refer to Section 2.2.1, Chapter 2).

Despite a plethora of studies indicating the informal use of benchmarking, the literature often does not label the use of benchmarking within school systems and schools as *benchmarking*; instead, benchmarking is recognised to take place through activities, such as ‘national/international assessments’, ‘collaborative planning’, ‘cluster learning’, ‘visits’, ‘observations’ and ‘peer coaching’. The literature review (Voss *et al.*, 1997, Fong *et al.*, 1998, Searles *et al.*, 2013; Mourshed *et al.*, 2010; Tucker, 2016) predicts an association between benchmarking and performance improvement, therefore school systems and schools should be introduced to benchmarking and its systematic application for improved results and sustainability. The researcher believes that a systematic and disciplined benchmarking process is likely to bring optimal improvements within school systems and schools. Thus, there is an opportunity for a research to guide school systems and schools in the planning and application of benchmarking for the achievement of improved performance.

Until the publication of this Thesis, no research has been published to investigate the prevalence of benchmarking in school systems and schools and to develop a framework to assist school systems and schools in the planning and application of benchmarking.

³School systems and schools performing well in national and/or international performance assessment programs and/or displaying a sustained improvement in performance, otherwise called well performers and/or sustained improvers.

While research has concentrated on the outcomes of performance assessment programs (OECD, 2016a; IEA, 2017c) and the characteristics of well performers in these assessments (Barber & Mourshed, 2007; Mourshed *et al.*, 2010; Jerald, 2008; Sahlberg, 2006; Killion, 2016; Tucker, 2016; Battelle for Kids, 2012, 2015; OECD, 2011a; Achieve, 2007; Shannon & Bylsma, 2007; McGee, 2004), no attempt has been made to recognise this as benchmarking and develop a benchmarking framework to assist school systems and schools in the planning and application of benchmarking for the identification and implementation of best practices.

1.3 Aim and Objectives of the Research

The primary aim of this research is to develop a benchmarking framework to assist school systems and schools in the application of benchmarking approaches and guide them in the identification and implementation of best practices.

Four distinct objectives are identified to accomplish this research aim.

Objective 1: To understand benchmarking and determine if it is used by school systems and schools.

Objective 2: Investigate the extent to which benchmarking is used by school systems and schools and its contribution to their performance. Also identify the benchmarking techniques used therein.

Objective 3: Determine those benchmarking techniques that have been effective contributors to the performance of school systems and schools and explore their implementation detail and reasons for effectiveness.

Objective 4: Develop a benchmarking framework for school systems and schools with guidelines for its implementation.

1.4 Significance of the Research

This research is significant due to the following main reasons.

Although previous research indicates the informal use of benchmarking by school systems (OECD, 2011a; Barber & Mourshed, 2007; Mourshed *et al.*, 2010; Killion, 2016; Tucker, 2016) and schools (OECD, 2011a; Lewis *et al.*, 2016; McGee, 2004; Killion, 2016), frequently it is not recognised as *benchmarking*; and the research does

not describe how benchmarking can be conducted in a systematic way. The undertaking of this study would acknowledge the use of benchmarking by school systems and schools and describe its systematic application.

Several literature sources (Mourshed *et al.*, 2010; Tucker, 2016; Voss *et al.*, 1997; Ulusoy & Ikiz, 2001; Fong *et al.*, 1998; Searles *et al.*, 2013) have anticipated a relationship between benchmarking and performance improvement, therefore a rational and structured approach is adopted to empirically validate this association in the context of school systems and schools. The confirmation of this relationship would promote the use of benchmarking for achieving improved performance.

Earlier research has predicted that the benefits of benchmarking could be enhanced if it is practiced consistently by rigorously following an implementation approach (Mourshed *et al.*, 2010; Sahlberg, 2006). Therefore, a framework is developed to assist school systems and schools in the systematic application of benchmarking for the achievement of improved results.

This research has both theoretical and practical contribution. In order to address the knowledge gaps, the researcher determines the application of benchmarking by school systems and schools and assesses the association between benchmarking and performance improvement to make a theoretical contribution; and to promote benchmarking outcomes, a robust and reliable framework is developed to assist with the planning and implementation of benchmarking to make a significant practical contribution.

1.5 Stakeholders of the Benchmarking Framework

The Benchmarking Framework has been developed primarily for three types of stakeholders⁴:

- School systems and schools interested in using benchmarking to learn best practices from other school systems and schools.

⁴A stakeholder is an individual who is significantly affected by the outcomes (Bittner & Spence, 2003) of the Benchmarking Framework and the research in general, such as users (school systems and/or schools), researchers and community of practice (educationists and benchmarking experts).

- School systems and schools interested in getting a better understanding of benchmarking before its application.
- School systems and schools interested in improving their benchmarking outcomes.
- Educationalists and benchmarking experts interested in understanding how benchmarking is used within school systems and schools.

1.6 Benefits of the Research

The Benchmarking Framework is designed to provide practical assistance to school systems and schools planning or undertaking benchmarking. Note that the Benchmarking Framework is pivotal for the systematic planning and implementation of benchmarking and could be used in an equally beneficial way by school systems and schools.

For school systems and schools already involved in benchmarking, the Benchmarking Framework provides guidance on how to improve their benchmarking experience. For school systems and schools planning benchmarking, the Framework provides practical advice on conducting benchmarking effectively. For school systems and schools not familiar with benchmarking, the research introduces benchmarking and explains its distinctive benefits.

This research is designed to lead to a greater understanding of benchmarking and its effective use by school systems and schools. Through the research findings, a benchmark is provided for future research into the field.

1.7 Working Terms

Note that within the thesis there may be several terms which are unfamiliar to the reader. These terms are usually described where they first occur as well as in the Glossary of Terms (Appendix 1). A list of acronyms is provided at the beginning of the thesis.

1.8 Thesis Structure

The thesis consists of seven chapters. The linkage between the chapters is depicted in Figure 1.1 showing how the key components of the thesis are connected to one another to maintain flow.

Chapter 1: Introduction

Chapter 1 introduces the research background, the aim and objectives, the significance of the research, the stakeholders of the Benchmarking Framework, the research benefits and the research plan.

Chapter 2: Literature Review

Chapter 2 presents the literature review, which is the first phase of the research. A preliminary conceptual model of effective benchmarking is derived from the literature review. The chapter identifies the knowledge gaps and determines the application of benchmarking by school systems and schools.

Chapter 3: Research Design and Methodology

Chapter 3 describes the choice of pragmatic mixed methods research design to achieve the aim and objectives of the research. It consists of the selection of research design, research procedure, and data collection methods, ensuring the quality of the research and ethical considerations. All data collection methods (literature review, exploratory online questionnaire survey and structured interviews) are briefly explained in this chapter.

Chapter 4: An Investigation of the Frequency of Benchmarking Used by School Systems and Schools and its Contribution to their Performance

Chapter 4 presents the second phase of the research and explains the planning, implementation and findings of the exploratory online questionnaire survey with school systems and schools. A total of 20 school systems and 183 schools participated in the survey to determine the frequency of use of benchmarking and its contribution to performance. The chapter also presents benchmarking techniques used by school systems and schools and recognises school systems and schools obtaining improved performance from the use of benchmarking.

Chapter 5: An Exploration of Benchmarking Techniques Contributing to Improved Performance of School Systems and Schools

Chapter 5 presents the third phase of the research; it describes the planning and administration of structured interviews with school systems and schools achieving improved performance from benchmarking. A total of 4 school systems and 19 schools participated in the structured interviews to describe

benchmarking techniques producing improved performance and reasons for that performance.

Chapter 6: The Benchmarking Framework

Chapter 6 presents the fourth and final phase of the research. This chapter describes the consolidation of the research findings from the first three phases and presents the refined conceptual model. It further describes how the Benchmarking Framework and the guidelines for its use were developed. The Benchmarking Framework and guidelines are presented in this chapter.

Chapter 7: Discussion and Conclusion

Chapter 7 discusses the main findings in relation to the research aim and objectives and research questions. It explains the contribution of the research to theory and practice and describes the research limitations and suggestions for future research. The chapter also presents the linkage between the research problem, aim and objectives and data collection methods.

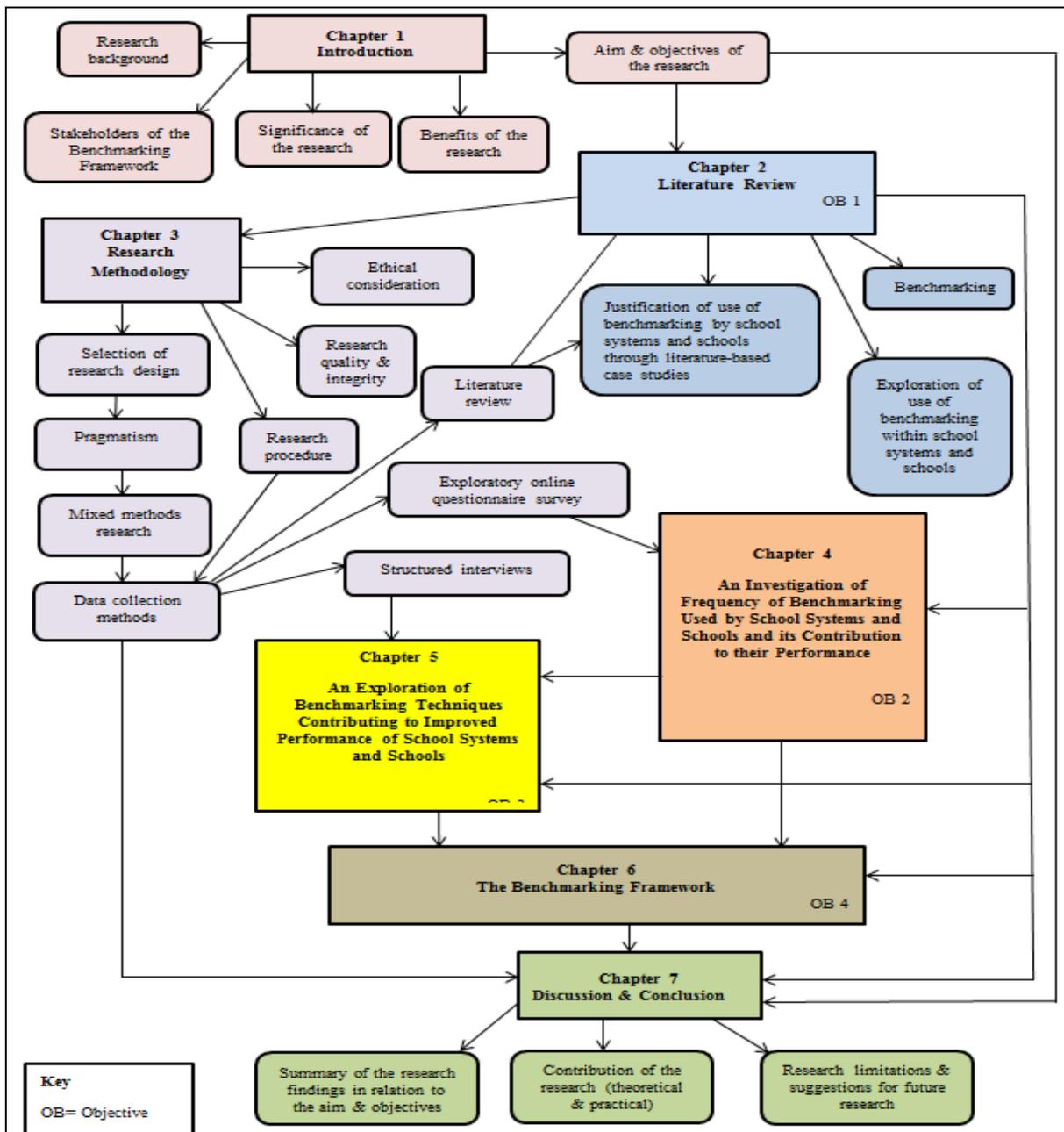


Figure 1.1 The Structure of the Thesis

1.9 The Research Plan

The research plan presented in Figure 1.2 depicts the linkages between the chapters associated with the achievement of the research objectives. Chapters 2, 4 and 5 mainly report on the key research findings in regard to the first three research objectives (refer to Section 1.3). The findings from each of these chapters feed into the succeeding chapters (refer to Figure 1.1). Finally, the findings from all these chapters are integrated to fulfil the fourth research objective (refer to Section 1.3), which primarily deals with the development of the Benchmarking Framework.

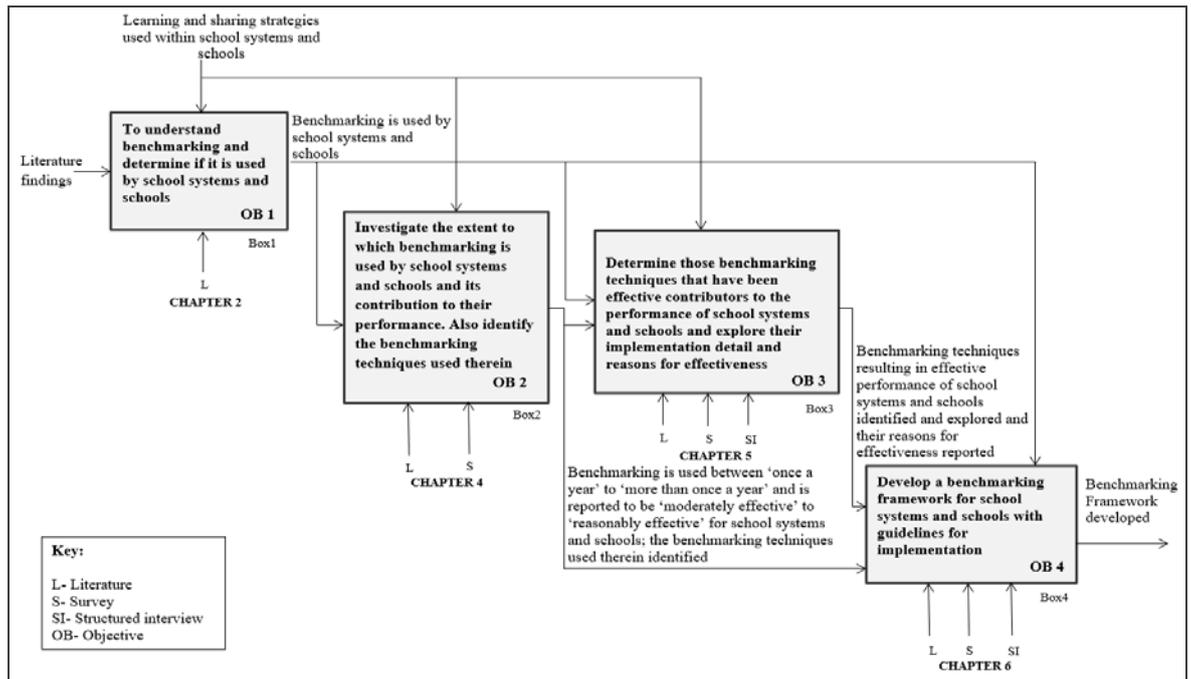


Figure 1.2 Research Plan for the Development of Benchmarking Framework

1.10 Chapter Summary

This chapter articulates how the aim and objectives of the research would address the research problem through the development of a Benchmarking Framework. The significance and benefits of the research are presented and the stakeholders of the Benchmarking Framework identified. Finally, the thesis structure is presented along with a diagrammatic explanation of the research plan illustrating the research progression for the development of the Benchmarking Framework. The next chapter presents the literature review for the understanding of benchmarking, identification of knowledge gaps, and for determining the use of benchmarking by school systems and schools (1st research objective).

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction to the Chapter

This chapter presents a review of the literature important to the research and represents Phase 1 of the multiphase mixed methods research design (refer to Figure 3.1, Chapter 3). The contextual literature relevant to the research area and the identification of knowledge gaps are presented in this chapter. The knowledge gaps guide the development of the research questions that will be answered to achieve the aim and objectives of this research.

In addition, the literature review ascertains if benchmarking is used by school systems and schools. Since the literature review is an integral component of this research, it is also reported in subsequent phases of the research (refer to Figure 3.1, Chapter 3).

This chapter accomplishes the following purposes:

1. To develop research questions to fulfil the aim and objectives of the research.
2. To recognise key themes related to effective benchmarking from the literature and demonstrate associations between them to develop the preliminary conceptual model.
3. To understand benchmarking and determine if it is used by school systems and schools (1st research objective).

The first research objective is important for exploring the use of benchmarking by school systems and schools, and for recognising examples describing the use of benchmarking by school systems and schools. These examples are later used to develop questionnaires for survey with school systems and schools (Chapter 4).

This chapter is divided into seven main sections: Section 2.2 describes benchmarking, its types and classifications, the significance of a benchmarking process, and presents the benefits and challenges associated with using benchmarking; Section 2.3 reviews benchmarking in the context of the education sector; Section 2.4 presents literature to investigate the use of benchmarking by school systems and schools; Section 2.5 delineates the knowledge gaps based on the reviewed literature and presents the emerging research questions, describes themes contributing to effective benchmarking,

and translates those themes into a conceptual model; Section 2.6 presents examples from the literature to determine the use of benchmarking by school systems and schools, and Section 2.7 shares the emergent findings; finally, the chapter summary is presented in Section 2.8.

2.2 Introduction to Benchmarking

Benchmarking is a methodology that enables organisations to improve performance by comparing performance and practices with those of other organisations. Benchmarking was developed at the Xerox Corporation in 1979 in its drive to combat competition due to a rapidly declining market (Camp, 1989; Yasin, 2002). Dr Robert Camp, who was the benchmarking manager at Xerox, introduced this philosophy to the wider world by writing the first book on benchmarking. Camp, who is acknowledged as the guru of benchmarking (e.g. Nelson, 2008), defined benchmarking as follows:

“Benchmarking is the search for industry best practices that lead to superior performance” (Camp, 1989, p. 12)

This definition presents the essence of benchmarking, which is, “learning from others” (Andersen, Fagerhaug, Randmael, Schuldmaier & Prenninger, 1999, p. 379). In the above mentioned definition, *best practices* refer to “the methods used in work processes whose outputs best meet customer requirements” (Camp, 1989, p. 252); these best practices serve as benchmarks or standards of excellence against which to measure and compare performance (Levy & Ronco, 2012). Learning from others is a board representation of benchmarking; it inspires change by comparing performance and learning from the practices of other organisations and adapting and implementing the change (Mann, 2015).

The APQC (1997) recognised benchmarking as a philosophy that focuses on improving performance by continuously identifying, understanding, and adapting outstanding practices and processes found inside and outside an organisation and implementing the results. In order to maximise the benefits of benchmarking, it is important to look for exceptional practices both inside and outside the organisation for adaption and implementation (Bhutta & Huq, 1999). In particular, benchmarking cannot take place in isolation and should be aligned with the overall business objectives of the organisation for obtaining improved results (Bhutta & Huq, 1999).

Benchmarking helps an organisation to improve performance by identifying, understanding and adapting superior practices from other organisations (Kumar, Antony & Dhakar, 2006). It is important to understand that a best practice cannot be copied (Elmuti & Kathawala, 1997); rather, it has to be adapted to the organisation's style (Davies & Kochhar, 1999; Elmuti & Kathawala, 1997). This idea rejects the assumption that all best practices work for all organisations (Boxwell, 1994, as cited in Bhutta & Huq, 1999). The main purpose of benchmarking is to adapt the processes and practices from other organisations to one's own organisation (Elmuti & Kathawala, 1997; Davies & Kochhar, 1999; Bhutta & Huq, 1999; Anand & Kodali, 2008). For successful benchmarking, it is critical that the organisation looks at the way things are done in the organisation from which it is learning, its prevailing culture and its workforce (Bhutta & Huq, 1999). More importantly, benchmarking is not a process of competitive analysis, copying or spying (Davies & Kochhar, 1999); it is an opportunity to learn from others through a collaborative effort.

Elmuti and Kathawala (1997) advocated that benchmarking enables organisations to improve performance by assisting in setting achievable goals that have already been proved successful. The success of these goals greatly depends upon the structure of benchmarking approach used, the degree of involvement at all levels and areas within an organisation, implementation of learned best practices and linkage of benchmarking to performance measurement and improvement plans (Davies & Kochhar, 1999). The established literature abounds with examples of the successful implementation of benchmarking in a wide variety of operational and organisational contexts (Yasin, 2002), which can be used as a guide while planning benchmarking.

2.2.1 Types and Classifications of Benchmarking

The benchmarking literature describes several types of benchmarking categorised in a variety of ways. The types vary on the basis of: what is being benchmarked (functional, performance, generic, process and strategic) (Behara & Lemmink, 1997); who is being benchmarked (internal, competitive, non-competitive, industry, generic and global) (Behara & Lemmink, 1997; Fong *et al.*, 1998); the context of benchmarking (process, functional, performance and strategic) and the relationship with the benchmarking partner (competitive or collaborative) (Fong *et al.*, 1998). Drew (1997) categorised benchmarking into three types on the basis of the nature of the object being benchmarked and the benchmarking partner, whereas Elmuti and Kathawala (1997)

classified benchmarking into four types based on the benchmarking focus. Bhutta and Huq (1999) described seven types of benchmarking that can be used to yield better results, while Bogan and English (1994) categorised benchmarking into three types.

A review of the benchmarking literature reveals several types of benchmarking classified in a variety of ways. Some of the most eminent benchmarking classifications have been contributed by McGaughey (2002), Le Vie (1998), Behara and Lemmink (1997), Spendolini (1992), Fong *et al.* (1998), and Codling (1992). Fong *et al.* (1998) categorised benchmarking into eleven types and Codling (1992) classified benchmarking into three types. Spendolini (1992) suggested three types of benchmarking, whereas Le Vie (1998) classified benchmarking into five types. It is important to note that all these classifications include different types of benchmarking. Several definitions exist for each type of benchmarking and an inconsistency is seen in the explanation of each classification due to overlap between the types (Anand & Kodali, 2008). Although benchmarking is regarded as a useful learning technique, a consensus has not been reached about its classification (Fong *et al.*, 1998; Anand & Kodali, 2008). Table 2.1 presents common types of benchmarking and their classifications over the years.

Table 2.1 Classification Scheme and Types of Benchmarking (Anand & Kodali, 2008, p. 262-265)

Author(s)	No. of classifications	Name of each classification and types	Remarks
Spendolini (1992)	3	Internal benchmarking Competitive benchmarking Functional benchmarking	More concerned about the products, services and processes and do not consider other benchmarking subjects like strategies, performance, practices, etc.
Codling (1992)	3	Internal benchmarking External benchmarking Best practice benchmarking	Best practice benchmarking is same as that of functional benchmarking defined by Spendolini The definition of external benchmarking seems to be interrelated with internal benchmarking as evident from the following part of the definition: "comparison with partners from differing business units of the same organization"
Partovi (1994)	2 + 4	Two types Product benchmarking Process benchmarking Four ways based on benchmarking partners Benchmarking internal operations Benchmarking your competitor Benchmarking against best-in-class Strategic benchmarking	Strategic benchmarking integrates strategic competitive analysis with best-in-class benchmarking
Malec (1994)	3	Strategic benchmarking Business benchmarking Product benchmarking	This scheme seems to be different. For example, strategic benchmarking seems to be similar to competitive benchmarking, while business benchmarking relates to functional benchmarking. Again this classification falls short with respect to application of benchmarking for process, performance, internal benchmarking, etc.
<i>(continued)</i>			
Author(s)	No. of classifications	Name of each classification and types	Remarks
Lema and Price (1995) and Jackson <i>et al</i> (1994)	4	Internal benchmarking Functional benchmarking Competitive benchmarking Generic benchmarking	According to them, number of authors seem to agree on four types of benchmarking, but on comparing the definition for each benchmarking classification they found that there is no consensus among the authors on the meaning of each type
Karlof and Ostblom (1993)	3	Internal benchmarking Functional benchmarking External benchmarking	Opposes a separate classification called competitive benchmarking Definition for functional benchmarking combines the functional and generic benchmarking concepts External benchmarking overlaps with the definitions of competitive and functional benchmarking and contradicts with the definition of codling
Shetty (1993)	3	Strategic benchmarking Operational benchmarking Business-management benchmarking	
Singh and Evans (1993)	5	Internal benchmarking Functional benchmarking Competitive benchmarking Generic benchmarking Consultant study benchmarking	Consultant study benchmarking is not inline with the common classification scheme, but can be considered as one method of doing benchmarking
Lema and Price (1995)	2 + 4	Internal benchmarking External benchmarking Reverse engineering Competitive benchmarking Functional benchmarking Generic benchmarking	This sub-classification under external benchmarking seems to be redundant as one of the steps in benchmarking process is - "identifying the benchmarking partner". In this case, the organization can choose an internal plant or a competitor or a best-in-class company, which may not be a direct competitor
<i>(continued)</i>			

Author(s)	No. of classifications	Name of each classification and types	Remarks
Le Vie (1998)	6	Internal benchmarking External competitive benchmarking External industry (compatible) benchmarking External internal (cross-industry) benchmarking Combined internal and external benchmarking	He has proposed these types based on the following factors – cooperation, relevance of information and degree of breakthrough. In this case, the names of the classification seem to be different, but the core definitions are not altered
Nandi (1996)	2 + 5 + 5	Based on the organization chosen for benchmarking Internal benchmarking Competitive benchmarking Industry benchmarking Best-in-class benchmarking Relationship benchmarking Based on the goals of the benchmarking Performance/result benchmarking Product/customer satisfaction benchmarking Strategic benchmarking Process benchmarking diagnostic benchmarking	In this scheme, the definitions of internal and competitive benchmarking are similar to the definitions given by other authors. Similarly, industry benchmarking is similar to functional benchmarking and the best-in-class benchmarking resembles the generic benchmarking. But the relationship benchmarking has not been addressed by any other authors This scheme can be considered as sub-classification for the above-mentioned types. Data for each type listed here can be obtained from internal plants or competitor or best-in-class industries or from joint-venture partners. The definitions of product benchmarking, process benchmarking and strategic benchmarking are similar to the definitions given by other authors. Similarly some unique classifications have been proposed – performance benchmarking and diagnostic benchmarking which were not addressed by any other authors <i>(continued)</i>
Author(s)	No. of classifications	Name of each classification and types	Remarks
Fong <i>et al.</i> (1998)	11	Refer Table I	They have classified benchmarking based on the nature of the referent other, the content of what was to be benchmarked and the purpose of the formation of the inter-organizational relationships associated with benchmarking Their classification scheme revealed two unique benchmarking types – “global benchmarking” and “collaborative benchmarking”, but they have missed a basic benchmarking type – namely the product benchmarking/reverse engineering Hooded benchmarking is defined as the benchmarking process in which a Clearing house takes care of sensible data and releases them anonymously, which helps in limiting the anxiousness of copying and misuse of data An open benchmarking is defined as the benchmarking process in which all partners agree in the benchmarking code of conduct, by which the handling of data and information is determined
Maas and Flake (2001)	2	Hooded benchmarking Open benchmarking	

In addition to the classifications presented in Table 2.1, Mann (2008, 2009) introduced a classification that proposed that benchmarking could be carried out both formally and informally. The classification put forth by Mann harmonises with the benchmarking classification recognised by the APQC in their 2009 report and is promoted by the Global Benchmarking Network (GBN). The GBN has been helping countries around the world to learn about and use benchmarking methods since 1994 and its survey publication showed that informal benchmarking was the most popular type of benchmarking (Mann *et al.*, 2010). The GBN advocates that informal approaches to benchmarking should also be taken into account while explaining benchmarking (Searles *et al.*, 2013). The GBN’s honorary life-time President is Dr Robert Camp, who is the acclaimed benchmarking expert. The GBN recommends that benchmarking can be divided into two basic types, formal and informal (Searles *et al.*, 2013), to indicate

the presence and absence of a benchmarking process. A classification of benchmarking endorsed by the GBN is presented in Table 2.2 and all these types can be applied both formally and informally (Figure 2.1). The GBN has been endorsing the following definitions of formal and informal benchmarking (Searles *et al.*, 2013) which were developed by Mann (2008, 2009).

Formal Benchmarking

According to Mann, formal benchmarking is a conscious and structured approach to learning, and is subdivided into *performance* and *best-practice* benchmarking, which are described below:

Performance Benchmarking

In performance benchmarking, an organisation compares the performance level of a specific process against another organisation to identify opportunities for improvement, such as financial performance and safety performance. The aim of performance benchmarking is to set performance targets and find performance gaps by comparing performance with another organisation. Performance benchmarking involves data collection but does not follow on with learning why another organisation has achieved higher levels of performance.

Best-practice Benchmarking

Through best-practice benchmarking an organisation searches for the best way or solution by studying the practices of other organisations that are high performers in particular areas of interest. The gained knowledge is analysed and if the practice is appropriate it is adapted to suit the specific needs. Best-practice benchmarking identifies performance gaps and then tries to close those gaps. The aim of best-practice benchmarking is to learn from organisations that are better performers in a particular area(s) of interest.

Informal Benchmarking

Informal benchmarking is an unstructured approach to learning from the experience of other organisations; therefore not following a defined process. This type of benchmarking is arguably used by everyone, whether one realises it or not. Examples of informal benchmarking approaches include:

- Informal discussions with colleagues and learning from their experience.

- Asking experts about how they perform a particular activity and then comparing it with one's own approach.
- Networking with people outside the organisation through seminars and conferences.
- Websites, online databases, books and journals that share benchmarking information also provide benchmarks for informal benchmarking.

The use of formal and informal benchmarking has also been acknowledged by the APQC (2009), Samuel (2017), Mann *et al.* (2010), Adebajo *et al.* (2010) and Andersen and Camp (1995). Both formal and informal benchmarking can be used internally (for learning within the organisation), externally (to learn from other organisations) or competitively (to learn from competitors) (Adebajo *et al.*, 2010). Mann (2015) clarified that both formal and informal benchmarking are complementary and supportive of each other. He further explained that organisations having systems in place to encourage informal benchmarking are more likely to be successful with formal benchmarking as their people will be more willing to accept change.

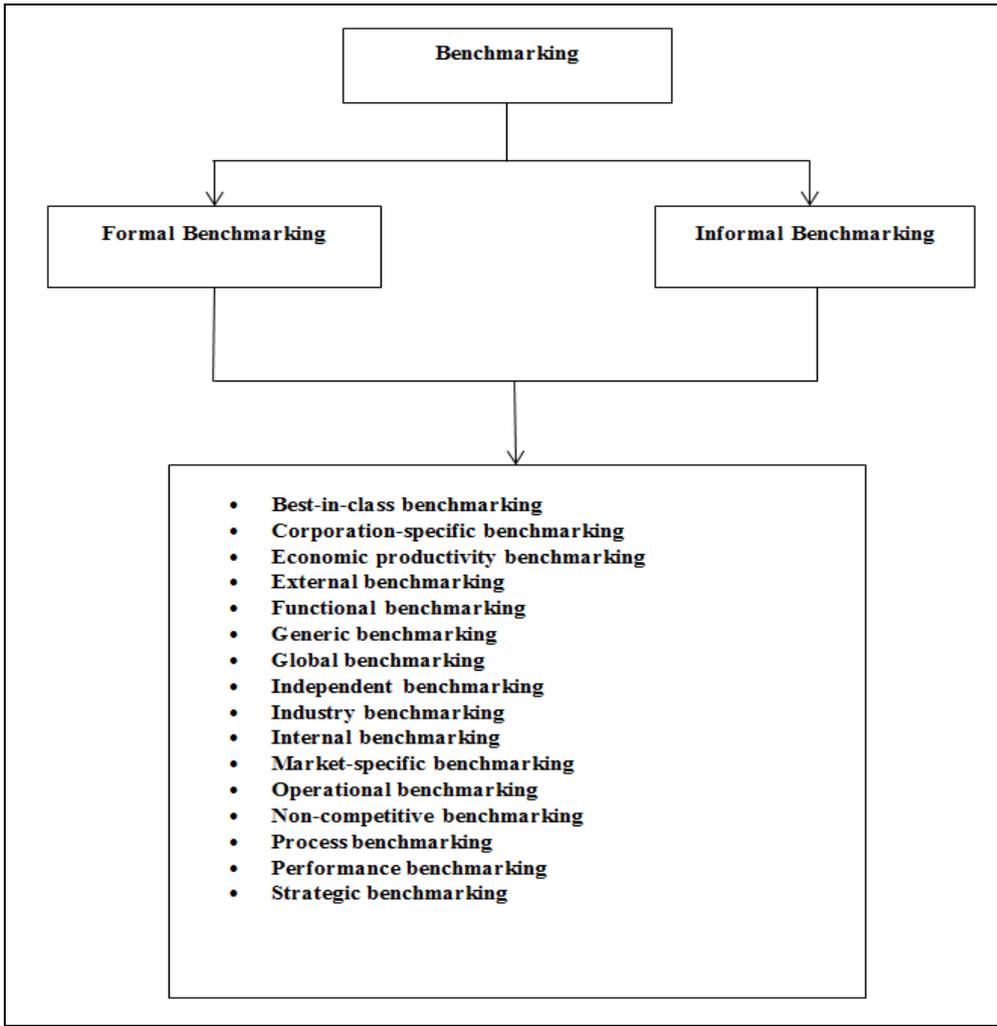


Figure 2.1 Structure of Benchmarking Promoted by the Global Benchmarking Network

Table 2.2 Classification of Benchmarking Presented by the Global Benchmarking Network (Searles *et al.*, 2013)

Types of Benchmarking	Definition
Best-in-class benchmarking	Identifying the best processes regardless of the industry. For example, a hotel’s accounting department looking at that of a manufacturing business may identify it as having the fastest accounts receivable turnover.
Corporation-specific benchmarking	This method is used when comparing several plants or parts of a company within a corporation. It can prove as an objective and sound preparation of external benchmarking.
Economic productivity benchmarking	It provides enterprises with a systematic method to compile economic productivity indicators. This method is instrumental for enterprises to develop an economic productivity dashboard and thus identify activities and processes that are not adding to value but to cost.

External benchmarking	Benchmarking is a method to look to the outside. Here, the practices of the own company are compared with the practices of external companies. Comparison implies that there must be basic similarities that must be identified before benchmarking.
Functional benchmarking	Identifying competitors or industry leaders not only in the same but also in different industries.
Generic benchmarking	Process benchmarking that compares a particular business function or process at two or more companies independent of their industries.
Global benchmarking	The extension of strategic benchmarking to a global scale.
Independent benchmarking	Independent benchmarking is compellingly benchmarking of business processes. A clear definition of the process that should be compared is a mandatory prerequisite. During the definition stage, the project team is often able to identify incipient weak points and develop appropriate measures.
Industry benchmarking	Conducting research only in a whole industry to obtain baseline information, e.g. hotel industry.
Internal benchmarking	Process benchmarking that is performed within an organisation by comparing similar business units or business processes.
Market-specific benchmarking	With market-specific benchmarking companies can learn from their competitors; they can introduce improvements and keep an eye on the market objectively.
Operational benchmarking	Attempting to exceed the best practice organisations at a specific activity, function or operation.
Non-competitive benchmarking	Involves comparison of a related process in a non-competitive organisation, a related process in a different industry and an unrelated process in a different industry.
Process benchmarking	The measurement of discrete process performance and functionality against organisation that is excellent in those processes.
Performance benchmarking	An activity of comparing one's performance level against other businesses on the basis of ranking, e.g. the speed of computer processing, reliability, and so on.
Strategic benchmarking	A systematic business process for evaluating alternatives, implementing strategies, and improving performance by understanding and adapting successful strategies from external partners who participate in an ongoing strategic alliance.

2.2.2 Challenges Likely to Impact Benchmarking Outcomes

Although benchmarking is usually regarded as a well-established learning approach that is beneficial for organisations, a number of studies have questioned its various aspects, such as using benchmarking as a way of spying on competitors (Boxwell, 1994 as cited in Anand & Kodali, 2008; Davies & Kochhar, 1999), lack of consensus about its classifications (Fong *et al.*, 1998; Anand & Kodali, 2008); lack of involvement of senior management (DeToro, 1995); lack of involvement of different levels of an organisation in the benchmarking process (Davies & Kochhar, 1999); resistance on the part of some employees (Elmuti & Kathawala, 1997); focus on data (Elmuti & Kathawala, 1997; Bhutta & Huq, 1999) and metrics (DeToro, 1995) and not the process used to make data (Maiga & Jacobs, 2004); and doing benchmarking for financial reasons (Maiga & Jacobs, 2004). Another dimension of benchmarking that has aroused considerable academic debate is the level of benefits derived from benchmarking (Adebanjo *et al.*, 2010; Davies & Kochhar, 1999; Le Vie, 1998). Despite all these challenges, benchmarking encourages out-of-the-box thinking and is valuable for developing networks for future collaboration (Epper, 1999).

Benchmarking is expected to be successful when consideration is given to: methodical use of benchmarking (Pryor & Katz, 1993); undertaking benchmarking for continuous improvement (Vaziri, 1993); selecting benchmarking as a strategic focus (Andersen & Camp, 1995; Elmuti & Kathawala, 1997); openness to change and willingness to collaborate and share information (Elmuti & Kathawala, 1997); leadership support (Elmuti & Kathawala, 1997; Pryor & Katz, 1993); and planned improvement targets and carefully detailed action plans (Pryor & Katz, 1993).

2.2.3 Potential Benefits of Benchmarking

The importance of benchmarking can be understood from the fact that business improvement tools, such as quality management and business excellence models i.e. EFQM⁵ excellence model (Searles *et al.*, 2013) and quality programs i.e. Six Sigma (Kwak & Anbari, 2006) promote benchmarking. The Malcolm Baldrige National Quality Award (MBNQA), a business excellence model that recognises and awards organisations in the USA that best demonstrate management techniques leading to

⁵The EFQM model is a non-prescriptive business excellence framework for organisational management, promoted by the European Foundation for Quality Management (EFQM) and designed to help organisations become more competitive.

notable quality improvements, promotes benchmarking as a significant part of its award criteria (Farquhar, 1998).

Most academic research has the general consensus that benchmarking can lead to significant benefits for the organisations that adopt it (Adebanjo *et al.*, 2010). These benefits are observed when benchmarking findings (or improvement actions) are adapted and implemented (Bhutta & Huq, 1999). In keeping with the benchmarking benefits explained by Elmuti and Kathawala (1997), benchmarking can be used to increase productivity; enhance the learning of employees; search for potential areas of growth by practicing benchmarking as a strategic tool, performance assessment tool and a tool for continuous improvement. According to Searles *et al.* (2013), the prime benefit of benchmarking compared to other improvement tools is its focus on how to improve by learning from others.

Voss *et al.* (1997) and Fong *et al.* (1998) suggested that benchmarking helps organisations identify best practices and understand their strengths and weaknesses relative to their competitors; they further predicted a strong direct link between benchmarking and improved performance. Ulusoy and Ikiz (2001) supported the proposition made by Voss *et al.* and Fong *et al.* by anticipating a relationship between benchmarking and improved performance, and claimed that organisations implementing best practices are usually better performers.

It is important to note that a 2008 survey by the GBN of 450 organisations on improvement tools found that the majority of survey respondents that had not derived any substantial benefits from benchmarking were not undertaking benchmarking systematically (Searles *et al.*, 2013). Furthermore, Andersen and Camp's (1995) survey with 59 organisations active in benchmarking informed that a (formal) benchmarking process is essential for the learning and adaption of best practices. Hence, it can be concluded that the use of a benchmarking process enables organisations to reap optimal benefits from benchmarking.

2.2.4 The Significance of a Benchmarking Process

In addition to deciding on the type of benchmarking, the choice of an appropriate benchmarking process⁶ is equally important. A benchmarking process (or benchmarking methodology) gives structure to benchmarking and describes the steps that should be carried out while learning from another organisation. It is established from the literature that a benchmarking process can be carried out in a range of steps. According to Bhutta and Huq (1999), the steps of the benchmarking processes typically range between four and 33. Partovi (1994) asserts that most of the authors have tailored their benchmarking process based on their own experience and practices. Some of the famous benchmarking processes have been proposed by Xerox (Camp, 1989), IBM (Eyrich, 1991), Filer *et al.* (1988), Spendolini (1992), and Alcoa and AT&T (Bemowski, 1991). The Xerox pioneered with a ten-step benchmarking process; IBM presented a five phase/14-step process; Filer *et al.* proposed a seven-step process; Spendolini presented a five-step process; Alcoa came up with a six-step process and AT&T presented a 12-step benchmarking process.

Arguably, the use of a benchmarking process ensures that a structured and systematic approach is adopted for the identification of performance gaps and for the learning and implementation of best practices. A benchmarking process is recommended as it provides a basic framework to follow, with the flexibility to meet specific needs (Elmuti & Kathawala, 1997). The use of a benchmarking process increases the likelihood that the gained knowledge would be used to make lasting changes (Pryor & Katz, 1993). The discipline of following a process is important for becoming successful at formal benchmarking. It is important that a consistent benchmarking process is used otherwise each benchmarking project will follow a different approach with varying levels of success.

A review of the benchmarking processes revealed that they are highly dissimilar in terms of the number of steps, phases and application (Anand & Kodali, 2008); however, they provide a basic framework for action, with flexibility for modification to meet individual needs. Spendolini (1992) reviewed twenty-four benchmarking processes and developed a generic five stage benchmarking process founded on the lessons learned from the leading benchmarking companies. Bhutta and Huq (1999) promoted a

⁶ A benchmarking process is synonymous to a benchmarking methodology.

benchmarking wheel illustrating that there are five major components of a benchmarking process. In addition, Drew (1997) and Mann (2013) also presented five step benchmarking processes. It is observed that despite differences in steps and phases, all benchmarking processes have a similar core; they undertake planning, execution and evaluation. A review of the aforementioned benchmarking processes has enabled the researcher to propose a benchmarking process which comprises these core steps to ensure successful benchmarking (Figure 2.2).

Anand and Kodali (2008) made a significant contribution to the benchmarking literature by presenting best practices for implementing a benchmarking process. They chose Xerox’s benchmarking process as a benchmark against existing benchmarking processes to delineate those best practices. Some of the salient best practices for implementing a benchmarking process are: determine the purpose and scope of benchmarking; identify gaps and their potential causes; project future performance, identify preconditions, use a well-developed criteria for the selection of benchmarking partner; draft a proposal for benchmarking with a clear explanation of benefits, costs and resources required and submit to management for obtaining their commitment; establish a benchmarking report describing the implementation of best practices. Note that the omission of any of these steps may serve as a barrier to successful benchmarking.

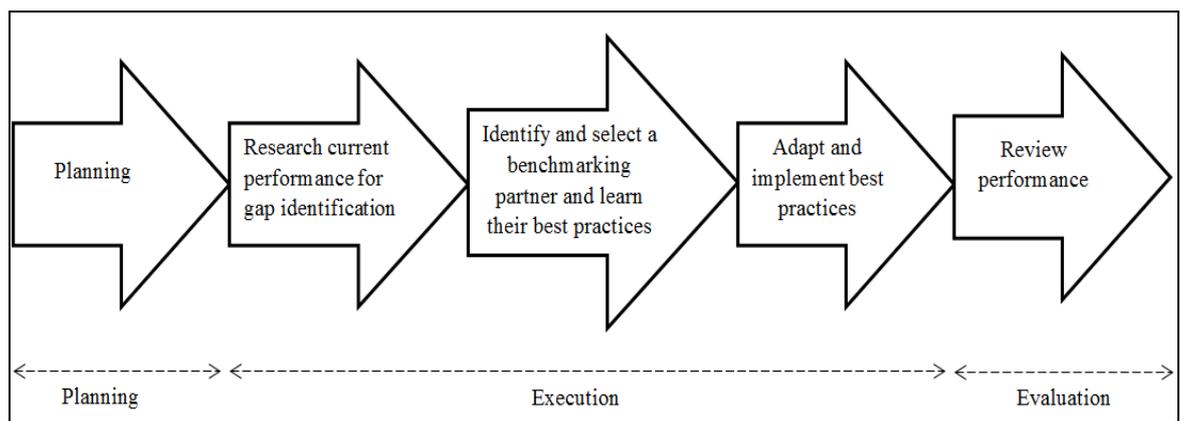


Figure 2.2 Core Steps of a Benchmarking Process [Adapted from the Benchmarking Processes Presented by Spendolini (1992), Bhutta and Huq (1999), Drew (1997) and Mann (2013)]

Ideally, a benchmarking process should be guided by a benchmarking framework. A benchmarking framework is intended to support planning for the implementation of benchmarking in a systematic, comprehensive, controlled and timely manner (Deros,

Yusof & Salleh, 2006). The researcher discerns that there is no accepted benchmarking framework in the literature. However, in the literature (Spendolini, 1992; Anand & Kodali, 2008; Deros *et al.*, 2006; Dorsch & Yasin, 1998; Davies & Kochhar, 2000; Cuttance, 1996; Mathaisel, Cathcart & Comm, 2004) a benchmarking process has usually been referred to as benchmarking framework.

2.3 Application of Benchmarking in the Education Sector

Since its inception in the early 1980s, benchmarking has gained increasing recognition and has been applied in a large number of organisations. Benchmarking was one of the most popular and widely adopted management approaches from the 1980s to the 1990s (Adebanjo *et al.*, 2010). Bain & Company identified benchmarking as the top management tool for 2010 and 2011 (Searles *et al.*, 2013), and the second most popular tool globally in 2015 (Rigby & Bilodeau, 2015). During this period benchmarking gained tremendous credit for helping organisations to improve their competitive advantage. Besides being heavily used by business and industry, benchmarking has also proved its credibility for the education sector. However, the purpose of benchmarking has always been the same: to identify the processes behind the benchmarks that can lead to improved performance and transfer those processes (or best practices) in a cycle of continuous improvement (Ronco, 2012).

In relation to the education sector, benchmarking is described as a systematic way of self-evaluating, learning from others and improving what you do (Epper, 1999). One of the primitive examples of benchmarking is the adaptation of Proto-Canaanite script for the development of the Phoenician writing system in the 11th century BC. In the 17th century, Japan and Korea have been reported to begin learning the Civil Examination system of China (OECD, 2011a). In 1801, the Netherlands created a school inspection system for self-evaluation, and the British government established a school inspection system in 1839 to examine schools as a precondition of receiving funds from the government (NCEE, 2018). An earliest example of benchmarking belonging to Singapore dates back to 1986, in which twelve school principals were invited by the Education Minister to study 25 successful schools in the UK and the USA (Tan & Gopinathan, 2000). The Education Review Office (ERO), an agency of the Ministry of Education, reviews and reports on the performance of schools in New Zealand

(Education Review Office, 2016a). Likewise, the education ministries of South Korea and Taiwan also inspect the performance of their schools (NCEE, 2018).

According to a review of benchmarking studies by Dattakumar and Jagadeesh (2003), benchmarking in education predominantly dealt with the benchmarking of management education, engineering education, schools and student relations. Due to its demonstrated benefits, benchmarking was enthusiastically introduced to the higher education in the early to mid-1990s (Epper, 1999) as an endeavour to help overcome resistance to change, provide a structure for external evaluation, and to create networks of communication between institutions (Gunasekaran, 2002; Goldberger, Keough & Almeida, 2000). Since then, many countries have begun adopting benchmarking to improve the quality of their country's higher education. The motivation for the application of benchmarking in higher education emerged from the competition between colleges and universities, which if taken seriously "can help colleges and universities position themselves for the new competitive environment" (Epper, 1999, p. 27). The performance ranking of higher education institutes (STolz, Hendel & Horn, 2010) can be categorised as benchmarking according to the definition of *performance benchmarking* presented by Mann (2008, 2009).

To promote the application of benchmarking in higher education institutions, the APQC, from 1996 began facilitating benchmarking studies in higher education in cooperation with the State Higher Education Executive Officers (SHEEO) and other organisations supporting higher education (Levy & Ronco, 2012). An earliest example belongs to the USA, in which a knowledge base of education best practices and a facilitator network were developed to facilitate a benchmarking study between higher education institutes (Farquhar, 1998). Epper (1999) described another example in which a benchmarking approach called *consortium benchmarking methodology* was developed by the APQC for undertaking benchmarking in higher education. The consortium setup existed between higher education institutes and corporate participants based on shared interest and intended to identify pertinent best practices, and can be labelled as benchmarking according to the definition of *best-practice benchmarking* presented by Mann (2008, 2009).

In addition to the above, best-practice benchmarking is recognised to be applied through study tours, professional meetings, conferences, workshops conducted by experts, pre-

service and in-service training and through Professional Development (PD) programs (Weeks, 2000). A myriad of benchmarking initiatives have been promoted in the higher education sector of the USA and Canada (Farquhar, 1998; Jackson & Lund, 2000), Australia (Weeks, 2000; Massaro, 1998; Jackson & Lund, 2000), the UK (Lund & Schofield, 1998; Jackson & Lund, 2000), Germany and other European nations (Schreiterer, 1998; Jackson & Lund, 2000).

The above review shows that benchmarking is utilised by higher education institutions for performance comparison through self-assessment and performance ranking programs, and in the form of initiatives for the learning and implementation of best practices. Researches by Cuttance (1996); Moreland, Jawaid and Dhillon (2000); and Lewis *et al.* (2016) indicate towards the use of benchmarking by school systems and schools; nevertheless, its application therein requires to be explored and validated.

2.4 An Investigation of the Application of Benchmarking by School

Systems and Schools

Considering the findings of the previous section, this section presents a review of performance assessment programs for school systems and schools (Section 2.4.1); this is followed by a review of research studies on well performing school systems and schools in national and international assessments (Section 2.4.2) and exploration of cultural characteristics of school systems and schools that are likely to impact their benchmarking outcomes (Section 2.4.3). This section investigates the use of benchmarking by school systems and schools and subsequently leads to the identification of knowledge gaps.

2.4.1 Performance Assessment Programs for School Systems and Schools

In 1996, benchmarking was reported as being used by school systems and schools for performance assessment (Cuttance, 1996). Every school system and school has an assessment system which reflects their specific needs and strategic focus. In addition, there exist international assessment programs for measuring the performance of school systems and schools globally. These assessment programs have established a standard assessment approach applicable across all participating school systems and schools and are used to guide policy makers make evidence-based decisions for improving performance (OECD, 2016b; IEA, 2014).

The Organisation for Economic Cooperation and Development (OECD) and the International Association for the Evaluation of Educational Achievement (IEA) introduced international assessment programs for measuring the performance of students (primary and secondary level) across school systems and schools. These programs have existed since 1995 and include the Program for International Student Assessment (PISA), the Progress in International Reading Literacy Study (PIRLS), and the Trends in International Mathematics and Science Study (TIMSS). A brief description of each of these programs is now presented.

The Program for International Student Assessment (PISA) is a triennial international assessment program instituted to evaluate school systems globally by assessing the ability of 15-year-old students to use their academic knowledge in real life situations (OECD, 2016b). The PISA for school systems originated in 2000 and has emerged as a prominent international large-scale assessment program for the comparison of school systems' performance. Subsequently, in 2013, the OECD launched PISA-based test for schools called *PISA for Schools* (Lewis *et al.*, 2016). In contrast to the main PISA, which analyses school systems (nations and/or states); *PISA for Schools* assesses the performance of an individual school against subnational and national school systems that participate in the main PISA, as well as other PISA participating schools (Lewis *et al.*, 2016).

The Progress in International Reading Literacy Study (PIRLS) was initiated in 2001 to internationally compare data on how well children read by assessing students' reading achievement (IEA, 2017b). Conducted every five years, the PIRLS determines the reading comprehension of students in their fourth year (8-9-year-olds) of schooling around the world (IEA, 2017d). The PIRLS meets two purposes, reading for literacy experience and reading to acquire and use information (IEA, 2017d).

Instituted in 1995, the Trends in International Mathematics and Science Study (TIMSS) is a curriculum-based assessment program envisioned to measure internationally the mathematics and science that should be learned in school (IEA, 2017d). The TIMSS determines the mathematics and science performance at the fourth (8-9-year-old) and eighth (12-13-year-old) grades every four years (IEA, 2017d). Assessing fourth-grade students can serve as an early warning for necessary reforms, and the effectiveness of these reforms can later be monitored at the eighth grade (IEA, 2017a).

The above discussed performance assessment programs act as a yardstick for assessing students’ performance internationally. These programs provide performance comparison opportunities to school systems and schools. Table 2.3 provides a summary of these performance assessment programs. The significance of these programs is evident from the number of participating school systems and schools.

Table 2.3 Summary of International Performance Assessment Programs for School Systems and Schools

	PISA	PIRLS	TIMSS
Sponsor	Organisation for Economic Cooperation and Development	International Association for the Evaluation of Educational Achievement	International Association for the Evaluation of Educational Achievement
Year of Introduction	2000 (PISA for school systems) 2013 (PISA for schools)	2001	1995
Grades or Ages Tested	10 th graders (15-year-old)	4 th graders (8 to 9-year-old)	4 th graders (8 to 9-year-old) and 8 th graders (12 to 13-year-old)
Benchmarking Partners	School systems and schools	School systems	School systems
Subjects Assessed	Mathematics, science and reading	Reading	Mathematics and science
Purpose	Assess the ability to apply math, science and reading knowledge to solve real life problems	Assess reading comprehension skills	Assess the attainment of knowledge and skills in math and science curriculum
Testing Cycle	Every 3 years	Every 5 years	Every 4 years
Participants in the Latest Assessments	72 school systems participated in 2015 PISA (OECD, 2016a) Currently Spain, United Kingdom and United States participate in ‘PISA for Schools’ (OECD, 2017c)	57 school systems participated in 2011 (NCES, 2012)	56 school systems and 7 benchmarking systems (regions within a school system) participated in the fourth grade assessment, the eighth grade assessment, or both in 2015 (IEA, 2015)

2.4.2 An Examination of Research Studies on School Systems and Schools Participating in National and International Assessments

This section reviews research studies on well performing school systems and schools in national and international assessments. The purpose of this section is to assimilate whether school systems and schools are involved in benchmarking. A review of the examined research studies is now presented.

A research study was carried out on school systems ranked among the top 10 in the PISA assessments to investigate the strategies used by world's best education systems that make them outperform in comparison to others (Tucker, 2016). It was expected that the strategies assimilated from this research could guide American policy makers to improve the performance of their school systems. Clearly, the performance comparison between school systems, in the form of PISA assessments, enabled the identification of the top 10 systems for learning their successful strategies; this research approach indicates the use of benchmarking. Tucker identified that class observations, demonstration lessons and grade and subject based meetings are integral constituents of the Professional Development (PD) plans of these school systems.

Based on the premise that teachers' professional learning drives school improvement, Killion (2016) examined teacher professional learning practices in four high-performing school systems - Singapore, Hong Kong, Shanghai and British Columbia - to identify common practices used across these systems. These four systems were chosen as they had retained their position at or near the top of international student assessment programs, and were systems in which policymakers and educators leverage teachers' professional learning as a driver in student success. Evidently, the performance ranking of school systems guided their selection for the learning of teacher professional learning practices.

The research team from Battelle for Kids⁷ worked with some of the 'high-performing districts and schools'⁸ across Ohio to help educators learn promising practices used across high-growth schools to accelerate student learning (2015). The identification of high-performers for learning their promising practices is suggestive of benchmarking.

⁷Battelle for Kids is an Ohio-based national, not-for-profit organisation dedicated to moving education forward for students by supporting the educators who work with them every day.

⁸School districts and schools ranked among the top in national assessments.

Another study was carried out by Battelle for Kids in 2012 on five⁹ of the 12 school systems that were ranked as sustained improvers and continuously achieved the highest performance for their students in the last five¹⁰ international assessments (2012). The purpose of this research was to visit those systems and actually see how teaching and learning takes place therein.

The OECD (2011a) presented the history and development of high-performing¹¹ school systems in the PISA assessments to describe how these school systems have achieved and sustained high performance and to present some of the policy lesson that can be drawn. A review of the history and development of those school systems demonstrates that they employed benchmarking in the past and use it even today.

In 2010, a significant report was presented by McKinsey & Company that analysed the experience of 20 systems from all parts of the world at various stages on their improvement journey having made significant, sustained and widespread gains in national and international assessments (Mourshed *et al.*, 2010). The report categorised school systems into four broad groups based on their performance in international assessments and found that each performance groups utilises specific interventions. On close observation, the researcher recognised benchmarking to be a part of those interventions. This report describes that both successful and unsuccessful systems may carry out the same interventions but vary in their implementation. Moreover, unsuccessful systems were found to be inconsistent in carrying out the interventions and also lacked rigour in their implementation.

The study by Jerald (2008) compared the performance of the USA with other systems participating in international assessments and gave recommendations against five domains for making education systems within the USA globally competitive. This study primarily found that governments around the world are eagerly comparing their

⁹Finland; Hong Kong; Long Beach, California; Ontario, Canada; and Singapore

¹⁰ Criteria for the five sustained improvers are that they participated in national and international assessments (e.g., Trends in International Mathematics and Science Study (TIMSS), Program for International Student Assessment (PISA), National Assessment of Educational Progress (NAEP), and Progress in International Reading Literacy Study (PIRLS)) with sustained gains of five years or more of improvement with at least three data sets in an upward trend across multiple subjects and/or assessments and with significant gains.

¹¹ Shanghai; Hong Kong; Finland; Singapore; Ontario, Canada; Japan; Brazil; Germany; England; and Poland

education outcomes with the best systems in the world; the purpose of these comparisons is not just to see how they are ranked, but rather to identify and learn best practices from top-performers, so that they could be adapted for improvement. These findings demonstrate the use of benchmarking by governments all over the world.

Achieve, Inc., a US based non-profit education organisation, in collaboration with McKinsey & Company undertook a research on the characteristics of high-performing school systems in international assessments and conducted a comprehensive review of Ohio's education system against the best practices of those high-performers (Achieve, 2007). To this end, comparisons were made to improve assessments; empower principals to function as instructional leaders; align clear expectations for teachers with evaluation, Professional Development (PD) and their results. The comparison of Ohio's education system against high-performing systems to identify opportunities for improvement indicates the use of benchmarking.

Furthermore, Barber and Mourshed (2007) from McKinsey & Company studied twenty-five of the world's school systems, including ten of the top-performers in international assessments to find out why some school systems succeed while others do not. Barber and Mourshed found that top-performers have a well-devised method for teacher development. They provide practical classroom training as part of the degree program; provide expert teachers as coaches and mentors who observe teachers and provide one-on-one coaching in terms of feedback, model better instruction, and help teachers reflect upon their own practice; develop coaches from within the school system/school and enable teachers to learn from each other through a variety of methods. All the teacher development methods used by high-performers exemplify the use of benchmarking.

A review of more than 20 studies was carried out by Shannon and Bylsma (2007). This review focused on schools in which students were achieving at greater levels than would be predicted based on their demographic characteristics. This review embodies benchmarking as it compares the performance of schools and presents their common characteristics.

In 2006, Sahlberg examined reforms needed by schools to promote economic competitiveness and found that instead of competition between education systems, schools and students, what is needed is networking, deeper co-operation and open

sharing of ideas at all levels (2006) - that is, benchmarking. Sahlberg further stressed that due to the use of common indicators and international comparison of student achievement, such as the OECD's Program for International Student Assessment (PISA), the distinguishing features of school systems are becoming more evident, encouraging education experts to visit other education systems to learn how to redefine their own education policies. Sahlberg recognised the need for a study to examine the implementation of education reforms in different countries. All the findings presented by Sahlberg are indicative of utilisation of benchmarking.

McGee (2004) used a research framework to examine how low-performing schools in Illinois have continued to close the achievement gap and made policy recommendations for achieving sustained improvement in performance - which is suggestive of benchmarking. McGee recognised that schools striving for high performance have a strong emphasis on teachers' Professional Development (PD) through carefully designing PD practices, more opportunities for collaboration and peer coaching and mentoring.

In the above reviewed studies, Tucker (2016), Battelle for Kids (2012), OECD (2011a) and Barber and Mourshed (2007) identified high-performing and/or sustained improving school systems in international assessments and directed their studies towards learning best practices of those systems. On the other hand, Killion (2016) explored and shared the teacher professional learning practices used in four high-performing school systems in international assessments, and Mourshed *et al.* (2010) categorised school systems into groups based on their performance in international assessments for learning interventions used by each performance group. Additionally, Jerald (2008) compared the performance of the USA with school systems participating in international assessments and gave recommendations for improving education systems within the USA, and Achieve (2007) identified high-performing school systems in international assessments and reviewed Ohio's education system against the best practices of those systems.

With regard to schools, Battelle for Kids (2015) explained the best practices of high-growth schools, and McGee (2004) investigated endeavours that have helped low-performing schools achieve and sustain improved performance. Adding to this, a review of recent studies by Shannon and Bylsma (2007) delineated common characteristics of

high-performing schools, and Sahlberg (2006) examined reforms needed by school to compete globally.

Conclusively, the reviewed studies demonstrate that school systems and schools are involved in performance comparison through national and international assessments. Notably, all these studies have one thing in common - they identify high performers and/or sustained improvers (collectively called well performers) in these assessments for learning their best practices with the expectation to improve performance. The phenomenon of performance comparison and learning best practices of well performers indicates the use of benchmarking by school systems and schools.

2.4.3 Cultural Characteristics of School Systems and Schools Likely to Impact Adoption and Optimisation of Benchmarking

In the previous section, the researcher explored the use of benchmarking by school systems and schools. In this section, cultural characteristics of school systems and schools that may impact the implementation and optimisation of benchmarking are discussed to share the sector specific challenges.

In the school sector¹² literature, ‘collaboration’ and ‘partnership’ are extensively used to refer to alliance between school systems and schools and can thus be categorised as benchmarking. Research by Armstrong (2015) describes that school systems and schools are collaborating to work together, learn from and support one another to develop solutions to their shared challenges. The claim put forth by Armstrong acknowledges the use of benchmarking by the school sector.

A number of cultural characteristics are recognised to promote collaboration between school systems and schools. The most commonly cited characteristics include: trust and collaboration (Shannon & Bylsma, 2007; Hill, Dunford, Parish, Rea & Sandals, 2012; Armstrong, 2015); clear communication (Lindsay, Muijs, Harris, Chapman, Arweck and Goodall, 2007); willingness to change (Shannon & Bylsma, 2007) and sensitivity to context (Hutchings, Greenwood, Hollingworth, Mansaray, Rose & Glass, 2012).

The education landscape expects school systems and schools to compete in the ‘education market place’ and at the same time collaborate for the sharing of good

¹² School sector refers to school systems and schools, and is used interchangeably with school systems and schools.

practices (Connolly & James, 2006). Collaboration in the context of increased competition has gained attention by Wallace and Hall (1994), MacBeth, McCreath and Aitchison (1995), Bridges and Husbands (1996), Wallace (1998) and Sahlberg (2006). The researcher believes that collaboration encourages the school sector to exchange best practices with the idea of adapting those practices according to the culture, context and expectations.

The existence of a culture of sharing, collaboration and high expectations stimulates performance (Battelle for Kids, 2012). Collaboration can take place at two levels: school system and school (Connolly & James, 2006). A number of studies (Howland, 2014; Hill *et al.*, 2012; Lawrence, 2007; Lindsay *et al.*, 2007; Arnold, 2006) have found that schools having an existing culture of sharing and collaboration are more likely to build a positive relationship and level of trust with partner schools while participating in collaboration. Moreover, collaboration is seen to flourish when resources are provided, and stakeholders are actively collaborating and are sufficiently motivated to achieve the purpose of collaboration (Wohlstetter, Courtney, Chau & Polhemus, 2003). Barber and Mourshed (2007) found that the world's best school systems create a culture of collaboration to motivate teachers to continuously develop their teaching skills. Collaboration between teachers may take place in the form of mentoring and coaching and is vital for the effective sharing of teaching practices; such a collaboration is only possible in the presence of a strong culture of mentoring and coaching (Hargreaves, 2011; Barber & Mourshed, 2007).

In addition, collaboration is important for the achievement of shared interest. Haynes and Lynch (2013) interviewed 136 consortia leaders and revealed that consortia developed in response to local needs are more effective than those created on government directions. More importantly, collaborations developed with a shared sense of purpose are more likely to succeed than forced collaborations (Lindsay *et al.*, 2007; Barber & Mourshed, 2007). Educational improvement partnerships provide schools with support for various collaborative arrangements, which requires a measured and staged approach to collaboration to ensure success and long-lasting impact (Lindsay *et al.*, 2007).

Leaders have a significant impact on the outcomes of collaboration and include teachers in addition to heads of systems and schools. As leaders play an important role in

improving collaboration, they should be wisely selected (Barber & Mourshed, 2007). For greater impact and results, leadership should be distributed at the various levels of a school (Leithwood, Seashore, Anderson & Wahlstrom, 2004). Such a distribution of leadership and power among team members and collaboration among them is known to boost outcomes. Leithwood *et al.* (2004) establish that effective school leadership is critical for dealing with challenges and attaining school improvement - the greater the challenge the greater the impact of the leadership. In a collaborative setup, the collaborating leadership teams cooperatively review student data, make decisions and enact policies contributing to student growth (Battelle for kids, 2015). Among factors contributing towards a turnaround in performance, leadership is seen to play the role of a catalyst (Leithwood *et al.*, 2004). It is essential that the school leadership establishes a culture of high expectations through mission, communication and collaboration for greater impact and improvements (McGee, 2004).

A sense of trust among members of collaboration and clear and open communication are paramount to gain desired results (Sahlberg, 2006). Hutchings *et al.* (2012) reported that school communities and individuals thrive when they feel trusted, supported and encouraged. Mattessich and Monsey (1992) and Lindsay *et al.* (2007) determined that members of a collaborating group of schools should have mutual trust and respect. They should be clear about their roles while at the same time being flexible and adaptable (Tucker, 2016; Mattessich & Monsey, 1992). Hargreaves and Fink (2006) emphasised the significance of trust by asserting that “trust is an indispensable resource for improvement” (p. 212). While explaining the prerequisites for collaboration, Shannon and Bylsma (2007) asserted that trusting relationships are an essential resource for school improvement.

More importantly, collaboration does not take place in vacuum and the context of collaborating schools is critical to successful collaboration (Connolly & James, 2006; Mourshed *et al.*, 2010). The circumstances faced by a school or a group of schools may trigger a collaborative initiative. Schools learn best practices during collaboration and later adapt those best practices according to their context to meet their specific needs (Mourshed *et al.*, 2010). Research by Hutchings *et al.* (2012) highlighted how an educational program initiated between geographically proximal schools addressed their common issues and improved learning outcomes. In that program, all the interventions involved local solutions with key stakeholders and enabled school leaders and teachers

to share effective practices that proved successful. The practices were shared through conferences, collaboration between weak and strong school and mentoring of teachers by head-teachers from successful schools.

The benefits gained from a partnership can be sustained by maintaining links between participating school systems or schools and this is only possible in the presence of a strong and successful leadership (Hargreaves & Fink, 2006). Ainscow (2014), for example, described that in order to promote sustainability, a school improvement partnership board continued to coordinate inter-school collaboration even after the completion of the initiative. Furthermore, a study by Chapman, Muijs, Sammons, Armstrong and Collins (2009) reported that school systems can nurture sustainability by providing more opportunities for continued Professional Development (PD) for teachers from across the school system. In addition, resources, both financial and human, including time are important for structured and sustained collaboration (Armstrong, 2015; McGee, 2004; Barber & Mourshed, 2007), and such a collaboration is strengthened by a clearly defined purpose (Killion, 2016; Barber & Mourshed, 2007) and a formal structure (Chapman *et al.*, 2009).

It is learned from the preceding explanation that collaboration and partnership (previously recognised as benchmarking) can be successful:

1. When benchmarking is initiated with the support of leadership.
2. When school systems and schools collaborate for the achievement of shared interest.
3. When school systems and schools adapt best practices according to the culture, context and need.
4. When resources are provided for undertaking benchmarking.

In addition, the aforementioned explanation has also highlighted cultural characteristics of the school sector likely to impact adoption and optimisation of benchmarking. It is found that benchmarking flourishes:

1. When school systems and schools have a culture of sharing and collaboration.
2. When school systems and schools have a culture of trust and communication.
3. When school systems and schools nurture change and continuous improvement.

School systems and schools are recommended to promote the above discussed cultural characteristics in order to achieve improved outcomes from benchmarking.

2.5 Gaps in Knowledge and Research Questions

In Section 2.4.1, the researcher demonstrated that school systems and schools participate in international assessment programs that are designed to measure performance. Furthermore, the studies reviewed in Section 2.4.2 clearly show that school systems and schools are involved in performance comparison by means of national and international assessments and consequently learn best practices from well performers in those assessments. This phenomenon harmonises with the definitions of *performance benchmarking* and *best-practice benchmarking* presented by Mann (2008, 2009). In addition, in Section 2.4.3 the researcher highlighted the cultural characteristics of school sector that are likely to impact the adoption and optimisation of benchmarking.

The above narrative shows that school systems and schools are involved in benchmarking; however, they often do not recognise benchmarking by its name. Due to the unfamiliarity of the school sector with benchmarking, the researcher had to refer to the definitions of benchmarking presented by Mann (2008, 2009) to identify approaches with the characteristics of benchmarking. It is comprehended from the studies reviewed in Section 2.4.2 that school systems and schools use informal benchmarking for performance comparison and to learn best practices from well performing school systems and schools, with the idea of improving performance; however, the association between benchmarking and performance improvement requires validation. At the practical level, it is observed that school systems and schools are using benchmarking informally without being aware of its use, and should therefore be introduced to benchmarking and its systematic application for obtaining optimal improvements.

Thus, knowledge gaps are identified pertaining to the recognition of use of benchmarking by school systems and schools, association between benchmarking and performance improvement, and guidance required by school systems and schools in the systematic planning and implementation of benchmarking. The researcher found that, to date, there has been no research conducted to guide school systems and schools in the planning and implementation of benchmarking. Whilst there are accepted approaches on how to implement benchmarking such as best-practice benchmarking utilising a benchmarking methodology, such as Xerox (Camp, 1989), there are no research-based overarching and proven frameworks that describe how to integrate and sustain the various types of benchmarking into an organisation's or industry's culture.

With these knowledge gaps in the background, the researcher proposed research questions that need to be answered in order to achieve the aim and objectives of the research. The development of the research questions enabled to fulfil the first purpose of this chapter (refer to Section 2.1). The research questions originated through a general background research on benchmarking, by talking to educational and benchmarking experts and through a preliminary exploration of the use of benchmarking by school systems and schools. The first two research questions (RQ¹³ 1 and RQ 2) have already been answered in Sections 2.2 and 2.4, respectively.

RQ 1: What is benchmarking?

RQ 2: Do school systems and schools practice benchmarking?

The first research question relates to creating an understanding of benchmarking as it is the research topic. The second research question is related to the investigation of use of benchmarking by school systems and schools. From an initial exploration of the research topic, it was recognised that school systems and schools use informal benchmarking for performance comparison and best practice learning (refer to Section 2.4).

Due to the informal use of benchmarking by the school sector, the researcher developed the following working definition of benchmarking to recognise its use by school systems and schools. For the remainder of the thesis, this definition will be referred to in order to recognise the use of benchmarking by school systems and schools.

A Working Definition of Benchmarking

A way of measuring and/or comparing performance with a better performer(s) to identify opportunities for improvement; followed by identification and learning of best practices, to gain improvements in performance by adapting the learned practices

In this working definition, *best practices* refer to those practices that result in the achievement of improved performance; the measurement and/or comparison of performance for the identification of improvement areas refers to *performance*

¹³ Research Question

benchmarking, and the identification and learning of best practices for adaption and implementation refers to *best-practice benchmarking*.

The exploration of use of benchmarking by the school sector (Section 2.4) led to the identification of knowledge gaps and the development of research questions. To demonstrate the application of benchmarking by the school sector, some of the examples of use of benchmarking by school systems and schools are extracted from the literature and described in Section 2.6.

The remaining research questions are answered in subsequent chapters (Chapters 4, 5 and 6). Refer to Table 3.1 (Chapter 3) for an elaboration of research questions and how they are answered.

RQ 3: To what extent is benchmarking used by school systems and schools and how effective is it reported to be?

RQ 4: Which benchmarking techniques are used by school systems and schools?

RQ 5: Which benchmarking techniques are considered to be effective for school systems and schools?

RQ 6: How have these benchmarking techniques been implemented?

RQ 7: What are the success factors for using benchmarking effectively?

RQ 8: What is an effective way to implement each benchmarking technique?

RQ 9: Can a Benchmarking Framework be developed to help school systems and schools implement benchmarking effectively?

By answering these research questions, the researcher aims to develop a Benchmarking Framework to assist school systems and schools in the planning and application of benchmarking and guide them in the identification and implementation of best practices.

The literature reviewed in Sections 2.2 and 2.4 recommended preconditions for successful benchmarking and guided the researcher to develop a preliminary conceptual model of effective benchmarking. Several literature sources (Voss *et al.*, 1997; Fong *et al.*, 1998; Ulusoy & Ikiz, 2001; Searles *et al.*, 2013) have predicted an association between benchmarking and performance improvement; a similar trend emerged through the studies reviewed in Section 2.4.2. It is comprehended that for sustained improvement, benchmarking should be linked to the strategy and/or improvement plans (Bhutta & Huq, 1999; Davies & Kochhar, 1999; Elmuti & Kathawala, 1997; Killion,

2016) and should follow an implementation approach (Davies & Kochhar, 1999; Searles *et al.*, 2013; Mourshed *et al.*, 2010). Elmuti and Kathawala (1997) have attributed the success of benchmarking to the structure of benchmarking process. In particular, Mourshed *et al.* (2010) recommended that a suitable benchmarking process produces improved results when it is implemented consistently and in a rigorous manner. More importantly, a number of reference sources (Barber & Mourshed, 2007; McGee, 2004; Tucker, 2016; Sahlberg, 2006; Achieve, 2007; Shannon & Bylsma, 2007; Mourshed *et al.*, 2010; Hill *et al.*, 2012; Armstrong, 2015; Lindsay *et al.*, 2007) have described that benchmarking flourishes in a culture of trust, commitment and collaboration.

The previously discussed propositions led to the identification of themes leading to the development of the preliminary conceptual model, and enabled the researcher to achieve the second purpose of this chapter (refer to Section 2.1). The preliminary conceptual model is presented in Figure 2.3. The primary theoretical underpinnings of the conceptual model are derived from the recommendations for successful benchmarking discussed above. The overlapping circles in Figure 2.3 represent the components that are integral for the systematic implementation of benchmarking. Further, benchmarking implementation is suggested to be aligned with the strategic focus and improvement plans of a school system or school. Such an implementation is expected to produce improved performance in the presence of a culture of trust, commitment and collaboration. The conceptual model was revised over the course of the research. The refined conceptual model is presented in Chapter 6.

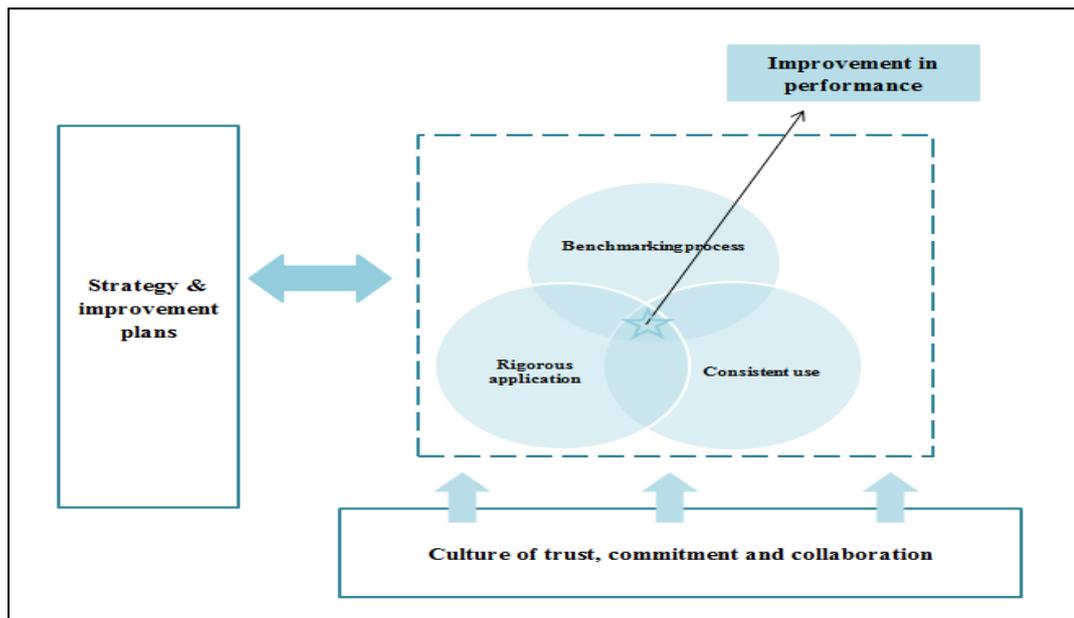


Figure 2.3 Preliminary Conceptual Model of Effective Benchmarking [Adapted from Punch (2015)]

2.6 Justification of the Use of Benchmarking by School Systems and Schools through Case Studies from the Literature

This section justifies the use of benchmarking by school systems and schools through literature-based case studies. This section presents the first phase of the multiphase mixed methods research design depicted in Figure 3.1 (Chapter 3) and aims to fulfil the first research objective and answer the second research question (refer to Table 3.1, Chapter 3). While the literature on benchmarking and the use of benchmarking by school systems and schools has already been discussed in Sections 2.2 and 2.4, respectively, this section validates the application of benchmarking by school systems and schools through appropriate examples from the literature. As the literature review presented in Section 2.4.2 shows that best practices are learned from well performers, a summary of five well performing school systems and two schools is provided to demonstrate the use of benchmarking therein.

2.6.1 Case Studies of School Systems

Singapore

Singapore has been a top-performing school system in international assessments, such as the PISA. Singapore was the top-performing school system in the latest PISA assessment administered in 2015 (OECD, 2016a). Besides being actively involved in performance benchmarking, Singapore is relentlessly immersed in best-practice

benchmarking for sustained educational integrity. The upcoming description shows how and when benchmarking has been used in the school system.

The school system developed a new educational vision ‘Thinking Schools, Learning Nations’ (TSLN) by learning and adapting best practices from inside and outside the school system (OECD, 2011a). The Ministry representatives, the National Institute of Education, and the schools all visit other school systems to explore international best practices (OECD, 2011a). The school system designed and developed its mathematics curriculum after reviewing research and practices from around the world (OECD, 2011a). In particular, to improve the teaching of languages to non-native speakers, the Singapore’s Ministry representatives visited the United States and other countries to examine relevant strategies. Likewise, the assessment methods were developed through the learnings gained by visiting Hong Kong, Australia, Scotland and Sweden (OECD, 2011a). According to Gopinathan and Goh (2006), much of Singapore’s educational success came to it through the learnings acquired from the USA, Britain, and Japan.

The school system supports the learning of schools by organising them in geographical clusters administered by cluster superintendents, who are successful former principals appointed to mentor other principals and to promote innovation (OECD, 2011a; Poon, Lam, Chan, Chng, Kwek & Tan, 2017; Asia Society, 2017c). The school system strongly encourages principals and teachers to examine the innovations of other countries and to explore ways of adapting them (OECD, 2011a).

To help prepare students for the future, the Singapore’s Ministry of Education developed the Framework for 21st Century Competencies and Student Outcomes (referred to as “21CC framework”) (Poon *et al.*, 2017; Ministry of Education, 2017a). This framework includes *communication and collaboration between schools* as a significant underpinning for developing the envisioned education system (Poon *et al.*, 2017), which is in-line with the informal definition of benchmarking - learning from others (Andersen *et al.*, 1999).

Today, schools share best practices through multiple platforms that enable educators and school staff to come together to learn about good initiatives and innovations practiced across the schools, and to collaborate to develop programs to support learning of students (Ministry of Education, 2017c). The Ministry of Education partners with research institutes at national level, such as Agency for Science, Technology and

Research (A*STAR); industry; institutes for higher education; and the Singapore Science Centre in order to design programs for students at all levels (Poon *et al.*, 2017).

The Ministry of Education took several substantial steps to promote learning among teachers. The Teachers' Network was developed in 1998 to support the Professional Development (PD) of teachers (Teo, 1998 as cited in Poon *et al.*, 2017); and in 2009, the Ministry of Education introduced the concept of *Professional Learning Communities (PLC)* to help teachers, principals and administrative staff members collaborate with one another in reviewing and improving performance (OECD, 2011d). Subsequently, in September 2010, the *Academy of Singapore Teachers* was created to facilitate towards a culture of teacher-led professional excellence by encouraging teachers to continuously share best practices (OECD, 2011a; Low, 2012; Ng, 2010 as cited in Poon *et al.*, 2017). Singapore's education system enables peer-to-peer learning among teachers through Teachers' Network and PLC (Low, 2012).

The Ministry of Education has improved and increased the range of opportunities for teachers' PD by setting up the *Centre of Excellence for Professional Development* to help teachers share their expertise effectively (Ministry of Education, 2017b). More work attached opportunities are created for teachers, both locally and internationally, with and within schools, as well as with business and community agencies (Ministry of Education, 2017b). *CRADLΣ*, an example of such programs, is a network of scientists and educators that apart from holding workshops for students also organises PD workshops for teachers (Poon *et al.*, 2017). Since the establishment of Academy of Singapore Teachers in September 2010, almost 300 PLC have been established to enable teachers to learn from each other within and across schools (Ministry of Education, 2017c).

Singapore is consistently involved in benchmarking to transcend its competitors. The use of benchmarking ranges from the identification of improvement areas through participation in performance assessment programs to the learning and sharing of best practice at national and international levels. The school system adopts benchmarking for the sharing of best practices between schools and teachers, and also for learning best practices from other school systems and organisations.

Hong Kong

Hong Kong has been among the top-performing school systems in international assessments, such as the PISA. Hong Kong's school system was among the top-performing school systems in the 2015 PISA assessments (OECD, 2016a; Asia Society, 2017a). The school system actively engages in benchmarking for sustaining its position in the international educational ranking. The following description presents how the school system uses benchmarking.

Hong Kong school system follows the British model of schools due to long association with and being part of the UK until its handover to China in 1997 (OECD, 2011a). Reforms in Hong Kong are led by the Education Commission, the overseeing advisory body in education policies. The Education Commission launched comprehensive educational reforms in 1999 by studying the education reforms of other school systems, as well as lessons learned from OECD countries (OECD, 2011a). In 2005, the Education Commission and the Curriculum Development Institute planned curriculum development reforms by studying education reform in other school systems, as well as patterns of lifelong learning in OECD countries (OECD, 2011a). These reforms were introduced through a unique process by holding meetings with schools for an entire day called a *retreat*.

The school system realises the importance of teachers for educational integrity and in 2003 introduced reforms to promote the Professional Development (PD) of teachers (Cheong Cheng, 2009). These reforms enabled teachers to have their PD plans tailored according to the strategic focus of their school (Cheong Cheng, 2009). The Education Bureau promotes the PD of teachers and principals (Education Bureau, 2013b) and expects teachers to engage in PD activities for 50 hours each year (NCEE, 2017b). For the development of principals, the government has set up committees to establish a framework expecting aspiring principals, newly appointed principals and serving principals to pursue continuing PD and enhance leadership competence (Cheong Cheng, 2009).

A dominant feature of educational reforms focuses on the continuous lifelong PD of teachers and principals (Education Bureau, 2013a). The reforms include building up a learning community within and among schools, such as *Learning Circles* and *Learning Communities* (Education Bureau, 2013c). *Learning Circles* is a powerful reform that

ensures cooperative learning among teachers and is formed through workshops, small group studies and observations of other teachers' lessons (Education Bureau, 2013c). Similarly, Learning Circles are also formed among school heads and middle management. The *Learning Communities* help teachers plan, reflect and evaluate their classroom practices in cooperation with their colleagues (Education Bureau, 2013c). Regional networks of schools are also established as a distinctive means of learning between schools and teachers (Education Bureau, 2013c).

The school system understands the significance of benchmarking and thus promotes endeavours for the learning of best practices from other school systems and for the learning and sharing of best practices between schools and teachers.

Shanghai, China

Shanghai outperformed all school systems in the 2009 and 2012 PISA assessments. For the 2015 assessments, Beijing, Shanghai, Jiangsu and Guangdong participated as one entity 'B-S-J-G-China' (OECD, 2016a). Shanghai and the Chinese education system at large have undergone multiple stages of development during which they were strongly influenced by the West from 1843 to 1949 (Xu, 2012). Today, Shanghai follows a rigorous framework and system for learning among schools and teachers; this framework enables them to work together to learn best practices from each other.

The school system employs a number of reforms to improve the performance of its schools and teachers, and the school system in general. Schools are paired-up to extend learning options between schools and teachers. A technique called *pair off* is employed to pair-up urban and rural districts (OECD, 2011a). In 2005, an agreement was signed between the educational authorities of nine urban and nine rural districts to exchange and discuss educational development plans and to collaborate to deal with problems, such as teachers' capacity building (OECD, 2011a). This agreement enabled Teachers' Professional Development Institutes affiliated to partner authorities to share curricula, teaching materials, and good practices. Through this technique, 91 schools paired up as sister schools, and a considerable number of teachers undertook exchange programs at sister schools (OECD, 2011a).

Another significant technique called *commissioned administration* is adopted to improve weak schools (OECD, 2011a; Asia Society, 2017a). It is a kind of school supervision program in which the government commissions good public schools to take

over the administration of weak schools. Under this program, the good school appoints its experienced leader (such as the deputy principal) to be the principal of the weak school and sends a team of experienced teachers to lead the teaching in the weak school. In 2007, the Shanghai municipal government asked 10 good schools in the downtown area and other educational intermediary agencies to take charge of 20 schools providing compulsory education in rural areas (OECD, 2011a).

One more technique named the *consortium* of schools organises schools in such a way that strong and weak schools, old and new schools, and public and private schools are grouped into a cluster, with one strong school at the core. In addition, the consortium setup rotates teachers between urban and rural schools to ensure that teachers learn and exchange good practices and thus have similar teaching standard. As the rural schools usually faced difficulty in recruiting teachers and also suffered from a high teacher turnover, the consortium setup helped overcome this difficulty by transferring a considerable number of teachers from urban public schools to rural schools, along with some exceptional urban principals (OECD, 2011a). In the meantime, principals and teachers from rural schools were transferred to urban schools to enrich them with the urban experiences.

Generally, teachers in Shanghai and China have a strong system of support and collaboration (OECD, 2011a). Teachers share their teaching methodologies in a number of ways: they may observe or be observed by peers (to clarify a teaching topic), by new teachers (to learn from more experienced teachers), by senior teachers (for mentoring), or by the school principal (for monitoring and/or for performance appraisal) (NCEE, 2017c; OECD, 2011a). Sometimes teachers demonstrate lessons, called *public lessons*, for a large number of other teachers to observe and comment on (OECD, 2011a). All the methods mentioned are intended for the learning and/or sharing of best practices between teachers.

In order to facilitate the sharing of best practices of curriculum design, development and implementation among teachers, a web-based platform was developed and put in place in 2008 (OECD, 2011a). This website has resources for curriculum development and learning, success stories of curriculum implementation, and research papers on teaching and learning (OECD, 2011a; NCEE, 2017c).

Shanghai has a growing education system in which teachers learn best practices from other teachers to improve their teaching practices; schools compare themselves with other schools and most importantly, the system as a whole is eager to learn. The school system plans and implements benchmarking for the sharing of best practices between schools and teachers.

Japan

Japan, yet another top-performing school system in international assessment programs is positioned second in the 2015 PISA assessments. The school system has a history of learning from other school systems and promoting learning and sharing among its schools. The Japanese education system was built mainly through the learnings from the USA, British, French and German education systems (JICA, 2004a).

In the early years of the Meiji era, the government employed many foreign consultants and professors as course instructors (Saito, 2009). The year 1872 marked the arrival of Professor Marion Scott from the USA as a specialist in teacher education and a pre-service training institute was established under his supervision (JICA, 2004b). The teaching methods in Japan were taken from public schools in the United States (JICA, 2004a). The school system followed the American model of education at that time, which consisted of three levels of schooling - elementary school, middle school and university (Saito, 2009). The content of elementary school teaching was modelled on that of the United States schools and the textbooks were either translations or copies of Western textbooks (JICA, 2004a). Japan adopted the administrative system from France, with strong central control by the Ministry of Education and the system of school districts (Saito, 2009).

Japan has a history of supporting the learning of its schools and teachers and took a number of steps in this regard. Several reforms were introduced by the Ministry of Education in the 1980s. *Beginning teacher internship* (Shimahara, 2005), also called the *induction program* (OECD, 2011a) was the most coveted program among the introduced reforms. It is a one-year program designed for beginning elementary and secondary school teachers to improve the quality of their teaching by broadening their teaching perspective under the supervision of mentors. The induction period lasts a full year, and the mentor teachers are given the year off from their teaching jobs to supervise their apprentices (OECD, 2011a). The novice teachers are expected to work closely with

the mentor to improve a broad range of competencies, including teaching, classroom management, and student guidance. They are also required to participate in workshops, lectures, and observations (30 times a year). In addition, a retreat of five days is organised to provide intensive in-service education (Ministry of Education, 1994; Shimahara & Sakai, 1992).

Japanese teachers are expected to continuously improve their teaching practices by collaborating with teachers from inside and outside their school (OECD, 2011a). Collaboration is embedded in the Japanese education system and all staff members meet together briefly every day (Lewis & Tsuchida, 1997). The teachers jointly plan and carry out a host of school-based activities e.g. festivals and sports events. Experienced teachers are responsible for guiding their young colleagues. At the national level, the school system holds workshops for head teachers and administrators (NCEE, 2017a). The head teachers or principals organise meetings with teachers to discuss teaching techniques (NCEE, 2017a).

The in-school meetings are supplemented by district-wide *study groups* in which teachers from several schools work together to develop lesson plans (NCEE, 2017a, OECD, 2011a). After they finish a plan, one teacher from the group teaches the lesson to her students while the other teachers observe. After the lesson, the group joins together to evaluate the lesson and makes suggestions for improvement. Another strategy to improve teaching practices is to invite teachers from other schools to visit the school and observe the lessons being taught (OECD, 2011a). The visiting teachers rate the lessons, and the teacher with the best lesson receives an award.

A ubiquitous feature of the Japanese education system is *research lessons*, which link teachers to school plans, and school plans to national policy (Lewis & Tsuchida, 1997). The research lessons are meant for Professional Development (PD) of teachers and take place in the form of public lessons and in-school research lessons. Research lessons intended for PD enable teachers to share practice-based inquiry for a particular teaching goal. During these lessons, one teacher undertakes the teaching and the rest observe and record. Several times a year, schools organise public lessons (Lewis & Tsuchida, 1997). The public lessons are conducted throughout the school system and are attended by teachers, researchers and policy makers from across the system. The in-school public lessons are intended to assess the feasibility of a theme chosen for the year and are an

important feature of the education system; their frequency ranges from several times per year to several times per month.

The school system understands the significance of benchmarking and promotes endeavours for learning best practices from other school systems and for the sharing of best practices between schools and teachers.

Montgomery County Public Schools, USA

The Montgomery County Public Schools (MCPS) is the 16th largest school district in the USA, and the largest in Maryland (MCPS, 2010). MCPS is considered to be a well performing school system as it was the recipient of 2010 Malcolm Baldrige National Quality Award (MBNQA), which is conferred to organisations that demonstrate management techniques leading to performance excellence. The district has 202 schools that offer education for elementary, middle and high school students (MCPS, 2010). The following description shows how and when benchmarking is used by the school system.

The school district supports the learning and improvement of its schools by grouping them into *clusters* on the basis of their geographical location. Therefore, there are 19 clusters encompassing the 202 schools that collaborate on an ongoing basis (MCPS, 2016). This collaboration has led to the development of three Professional Growth Systems (PGS) for teachers, administrators, and support staff (MCPS, 2010; U.S. Department of Education, 2011b). A distinctive feature of these PGS is a Professional Development (PD) plan that encourages conversations between employees and their supervisors regarding possibilities for career advancement. A survey-based system is devised to ask employees about their PD needs on a continual basis and serves as a powerful tool for the development of PD plans and consequently, for the school improvement plan.

The school district has a well-defined system for the Professional Development (PD) of their staff. The PD sessions have a structured approach and each school has a staff development teacher who plans and conducts PD to equip staff to meet school and district goals (MCPS, 2010). Each PD activity starts with a clear articulation of outcomes from the session and ends with gathering feedback from participants. The feedback assesses the accomplishment of outcomes and identifies opportunities for improvement. In particular, the conclusion of larger PD events has a more

comprehensive approach in which representatives of several teams convene to conduct a thorough debriefing that identifies improvement areas for the next year. The available PD options include: peer reflective conversations, workshops/courses, development of instructional material, study groups, action research, networking groups, participation in teacher exchange programs, team teaching, team planning, audio/video tape analysis, professional visits, peer visits, with reflection or improvements observed twice a year by a peer on request (MCPS, 2010). All of these PD options indicate the use of benchmarking.

The school district has developed distinct processes for the identification and learning of best practices of other school districts, among schools and teachers and from other higher education institutes (MCPS, 2010). The school district constantly analyses the performances of other school districts to search for best practices (MCPS, 2010). Meetings are held at various levels of the school district for sharing best practices. The MCPS recognises employees contributing to the overall success of the school district by identifying and sharing their best practices.

Notably, the school district has developed *partnerships* with area colleges and universities (MCPS, 2010). Since 2003, representatives of MCPS have attended the Public Education Leadership Program (PELP) at Harvard University (MCPS, 2010). The PELP assists large urban school districts in achieving sustained higher performance levels. The PELP platform provides an opportunity for MCPS leaders to collaborate and communicate with leaders from other school districts. This experience has led to the introduction of such initiatives as Professional Learning Communities Institute (PLCI) middle school reform.

In addition, the district's executive staff members have established *partnership* with Montgomery County Business Roundtable for Education (MCBRE) (MCPS, 2010). This is a business-public education partnership that promotes cross-sector knowledge sharing and academic excellence. Through this partnership, the MCPS staff members meet with these business leaders three times a year to study issues related to organisational performance. This two-way communication enables the business community to develop a greater understanding of the successes and challenges of the school district and the school district benefits from business perspectives on people management, employee feedback, and recruitment of talent.

The MCPS has acquired membership of the American Productivity and Quality Centre (APQC) that provides access to best practices and benchmarking data (MCPS, 2010). In 2007, APQC identified MCPS as a best practice partner in the area of Professional Development (PD) (MCPS, 2010). Subsequently, in 2008, the MCPS was recognised as a best practice partner in the area of supporting Professional Learning Communities (PLC), a key component of PD at the MCPS.

The MCPS provides a platform for the online sharing of best practices among schools and staff. The *myMCPS* portal is a web-based application that simplifies access to student achievement data and provides a structure for digital and multimedia instructional resources to support staff collaboration and the sharing of best practices. The school district adopts benchmarking for the learning and sharing of best practices between schools and teachers, and also for the learning of best practices from other school systems, sectors and organisations.

2.6.2 Case Studies of Schools

The case studies of school systems discussed in Section 2.6.1 show that schools also use benchmarking. Although there would be countless schools involved in benchmarking, only two case study schools are discussed to show how benchmarking is applied within schools.

The Charter School of San Diego, USA

The Charter School of San Diego (CSSD) is a grade 7-12 school from the USA. The CSSD is selected as a well performing school as it was the recipient of 2015 Malcolm Baldrige National Quality Award (MBNQA) (NIST, 2018). The school has in place a system of open communication and knowledge sharing among all staff members. The CSSD promotes a culture of effective communication by empowering staff members with opportunities for sharing knowledge and best practices, providing PD and promoting collegiality (NIST, 2018). For example, in the fall of 2014, CSSD's School Coordinator in collaboration with the Learning Leads (mentors) identified training deficiencies for teachers and provided them with the required training.

College Street Normal School, New Zealand

College Street Normal School (CSNS) is a primary school (year 0 to 6) in New Zealand. The researcher has selected CSNS as a well performing school because the Education

Review Office (ERO) report (Education Review Office, 2016b) shows that the school displays a high level of academic performance.

The school realises the significance of benchmarking and has included options for benchmarking in its strategic focus (CSNS, 2017). The school supports Professional Development (PD) of teachers through consultants. These consultants are subject specialists that work alongside teachers and introduce them to new strategies related to literacy and numeracy (CSNS, 2016a). The role of a consultant is to observe and critique teachers and provide feedback and constructive suggestions on how to support learning of subjects by making them easy and enjoyable for students (CSNS, 2016a).

The Professional Development (PD) opportunities are available in a variety of ways. An example of PD opportunities is *Teacher Only Days*. The agenda for *Teacher Only Days* is aligned with the strategic focus of the school. These are the days on which students do not come to school and the whole day is dedicated to PD activities. A recent *Teacher Only Day* was held on 10th October 2016 (CSNS, 2016b; CSNS, 2016c). Throughout the day, teachers visited each other's classrooms where the classroom teacher(s) explained their strategies for lesson planning and teaching mathematics (CSNS, 2016c). The school has adopted benchmarking to support the learning and the development of teachers.

2.7 Findings on the Use of Benchmarking by School Systems and Schools

This section presents findings from the case studies of school systems and schools presented in Section 2.6. As mentioned earlier, these case studies represent the first phase of the research, and aim to achieve the first research objective (refer to Figure 1.2, Chapter 1) and answer the second research question (refer to Table 3.1, Chapter 3).

2.7.1 Findings from the Cases Studies of School Systems and Schools

The following conclusions are drawn from the case studies of well performing school systems and schools.

Referring to the working definition of benchmarking presented in Section 2.5, it is identified that school systems use benchmarking for performance comparison to identify opportunities for improvement and both school systems and schools use benchmarking for the learning and implementation of best practices. All case study

school systems participate in performance comparison through international assessments, which act as a source of performance benchmarking. The school systems analyse the performance of their counterparts to identify well performers in potential areas for improvement for learning their best practices; this phenomenon describes the use of best-practice benchmarking. The school systems use best-practice benchmarking to learn best practices from other school systems, for example, the Singapore school system developed its assessment methods by learning best practices from Hong Kong, Australia, Scotland and Sweden (OECD, 2011a), and the Japanese education system was built through learnings acquired from the USA, British, French and German education systems (JICA, 2004a). In addition, the school systems also support the best practice learning of their schools. For example, a technique named *commissioned administration* is used in Shanghai to improve weak schools by commissioning good public schools to take over the administration of weak schools (OECD, 2011a; Asia Society, 2017a). In this technique, principal and teachers from a good school are sent to support the teaching in a weak school.

In addition to learning from other school systems, the school systems also learn from other sectors¹⁴ and organisations¹⁵. An example of learning from organisations belonging to Singapore explains the creation of a network between scientists and educators to organise Professional Development (PD) workshops for teachers (Poon *et al.*, 2017), and an example of learning from other sectors from the MCPS explains how the school district collaborates with proximal colleges and universities (MCPS, 2010).

The school systems and schools also use benchmarking to support the learning and development of teachers. Some of the examples supporting this idea are now described. The Singapore Ministry of Education introduced a number of initiatives to promote peer-to-peer learning, such as Teacher' Network (Teo, 1998 as cited in Poon *et al.*, 2017), Professional Learning Communities (PLC) (OECD, 2011d) and Academy of Singapore Teachers (OECD, 2011a; Low, 2012; Ng, 2010 as cited in Poon *et al.*, 2017). In addition, Hong Kong education system enables teachers and principals to have tailored PD by building up learning communities within and among schools (Education Bureau, 2013c). To support the learning and development of teachers, the CSNS appoints consultants related to the areas of teaching and learning (CSNS, 2016a) and the

¹⁴ Sector refers to institutes providing a different level of education i.e. tertiary institutes.

¹⁵ Organisations are companies not involved in teaching and learning, and also include industry.

CSSD overcomes teaching deficiencies by providing teachers with the required PD (NIST, 2018).

It is recognised from the case studies that the Ministry of Education or School Board¹⁶ introduces a benchmarking initiative for a school system and/or schools within the school system; moreover, a benchmarking initiative for a school may also be introduced by the school management, and their implementation may be guided by relevant personnel. An example is the Thinking Schools, Learning Nations (TSLN) vision introduced by the Singapore's Ministry of Education to promote initiatives related to policy, culture, curriculum, thinking and communication, collaboration and information skills (Poon *et al.*, 2017) by learning best practices from inside and outside the school system (OECD, 2011a). The Singapore's school system promotes collaboration between schools by organising them in clusters which are administered by cluster superintendents (OECD, 2011a; Poon *et al.*, 2017; Asia Society, 2017c). In another example, the Shanghai municipal government commissioned good public schools to take over the administration of weak schools by sending over a team of experienced principals and teachers to lead the teaching in weak schools (OECD, 2011a; Asia Society, 2017a). Furthermore, the management of CSNS organises Teacher Only Days to promote sharing and collaboration between teachers (CSNS, 2016c); and the Coordinator of the Charter School of San Diego (CSSD) identified teachers' learning deficiencies and provided them with the required training (NIST, 2018).

It is evident that benchmarking is implemented informally as none of the school systems or schools is seen to follow a benchmarking process (refer to Sections 2.2.1 and 2.2.4). An example of informal benchmarking from MCPS is related to the Professional Development (PD) of teachers. These PD options are primarily meant for sharing of best practices through team teaching and teacher exchange programs. Each PD project is carried out under the supervision of a staff development teacher; it begins with a description of expected outcomes and ends with a debrief (MCPS, 2010). In another example, the structure of Teacher Only Days at CSNS is quite flexible and the whole day is dedicated to sharing of teaching and lesson planning techniques (CSNS, 2016c).

¹⁶ Ministry of Education or School Board is the body governing an autonomous education system.

Next, the case studies exemplify that benchmarking promotes a culture of trust, commitment and collaboration between schools and teachers. For example, collaboration is well-established in the Japanese schools as teachers plan collaboratively and conduct a host of school-wide activities (Lewis & Tsuchida, 1997). In addition, communication and collaboration between schools is an underpinning of the Framework for 21st Century Competencies developed by the Singapore school system (Poon *et al.*, 2017), and the CSSD promotes a system of open communication and sharing among staff members (NIST, 2018).

Lastly, the benchmarking options may be linked to the strategic goals of a school system or school, which may then be linked to the national education policy. For example, the Hong Kong school system promotes teachers' Professional Development (PD) by aligning PD plans to the strategic focus of schools (Cheong Cheng, 2009), while PD plans at MCPS are linked to school and district goals (MCPS, 2010). Research lessons in Japan link teachers' PD to school plans, and school plans to national education policy (Lewis & Tsuchida, 1997).

The above presented findings demonstrate that school systems and schools use informal benchmarking for performance comparison (performance benchmarking) and for the learning and implementation of best practices (best-practice benchmarking), and therefore answer the second research question and fulfil the first research objective (refer to Table 3.1, Chapter 3). The school systems and schools are seen to use benchmarking to learn best practices from other school systems and schools, and to support learning of best practices among teachers. In addition, school systems are also found to learn best practices from other sectors and organisations. The findings also highlight the structural components of benchmarking implementation followed by well performing school systems and schools.

Several examples describing the use of benchmarking by case study school systems and schools are recognised. Interestingly, all the examples identified through these case studies are used for the comparison and improvement of academic performance. Some of these examples are workshops, training, collaboration between teachers for Professional Development (PD), observations, mentoring, demonstration lessons and meetings, exchange programs, clusters and visits.

2.7.2 Findings Related to Organisations Promoting Benchmarking within School Systems and Schools

The findings presented in Section 2.7.1 clearly portray the significance of benchmarking and its widespread use by school systems and schools, and inspire the researcher to go one step further to explore organisations supporting school systems and schools in their benchmarking journey. To this end, this section presents examples of organisations promoting benchmarking within school systems and schools.

As a first step, the perseverance for benchmarking can be well understood by running a web search for conferences and seminars held by school associations and Professional Development (PD) organisations. In addition, educational research organisations are also known to arrange conferences that are largely attended by educational researchers, educationists and experts in the field of education.

To leverage the benchmarking journey of school systems and schools, some distinguished organisations provide expertise in benchmarking and best practice sharing. One such program called the Center on International Education Benchmarking (CIEB) has been initiated by the National Center on Education and the Economy (NCEE). The CIEB has been involved in researching top performing education systems for more than 20 years to unfold the secrets of their success (NCEE, 2017d). The CIEB offers access to information, analysis and opinion on top performing school systems through a web portal, and issues a monthly newsletter for sharing the strategies used by top performing school systems (NCEE, 2017d).

The Asia Society is another educational organisation dedicated to promoting and strengthening partnership among the people, leaders and institutes of Asia and the United States in a global context across a range of fields including education (Asia Society, 2017b). Another organisation, the International Association for the Evaluation of Educational Achievement (IEA) is an international cooperative of national research institutions, government research agencies, scholars and analysts, working to evaluate, understand and improve education worldwide (IEA, 2017c). The IEA is an association that helps its member school systems understand best practices and develop evidence-based policies to improve education.

Yet another organisation, the Organisation for Economic Cooperation and Development (OECD) provides a platform through which governments work together to share experience and seek solutions to their common problems, to identify good practices and coordinate domestic and international policies (OECD, 2017a). Note that the PISA is an OECD promoted assessment program that aims to evaluate school systems and schools worldwide by testing the knowledge and skills of 15-year-old students (OECD, 2016b). School systems and schools interested in benchmarking can begin their benchmarking journey by connecting with these organisations.

2.7.3 Consolidated Findings Regarding the Use of Benchmarking by School Systems and Schools

For supporting objective 1 and for answering research question 1 (refer to Table 3.1, Chapter 3), a literature review was conducted to introduce benchmarking, its different types and classifications along with the significance of a benchmarking process (refer to Section 2.2).

For supporting objective 1 and for answering research question 2 (refer to Table 3.1, Chapter 3), the literature review demonstrated that school systems and schools are involved in the informal use of benchmarking; however, they do not necessarily recognise it as *benchmarking*. It is established from Sections 2.4 and 2.6 that school systems and schools use benchmarking for performance comparison to identify areas needing improvement and for learning best practices from well performers. Section 2.6 further revealed that in addition to learning best practices from other school systems and schools, best practices are also learned from other sectors and organisations, and benchmarking is also used to promote best practice learning between teachers.

Benchmarking is recognised as being important for school systems and schools. The importance of benchmarking can be determined by the number of school systems and schools participating in benchmarking programs (refer to Table 2.3), and through the frequency of relevant publications (refer to Table 2.4). In addition, the existence of international benchmarking consultancies and their association with school systems and schools illustrates the significance and popularity of benchmarking (refer to Section 2.7.2).

Section 2.7.1 demonstrated that well performing school systems and schools are likely to implement benchmarking logically. Such an implementation may be promoted and

controlled by the Ministry of Education/School Board for a school system and/or school and the school management of a school. It is further observed that well performing school systems and schools may link their benchmarking agenda to the strategic goals. Arguably, such a logical use of informal benchmarking is responsible for the good performance of case study school systems and schools.

A number of examples describing the use of benchmarking identified from the literature review are presented in the form of a grid in Appendix 2. The grid is a synthesis of the literature and assisted the researcher in the development of questionnaires for the survey conducted with school systems and schools (refer to Section 3.4.2, Chapter 3).

2.8 Chapter Summary

Based on the literature review, the knowledge gaps relating to the use of benchmarking in school systems and schools were identified. School systems and schools are found to engage in informal benchmarking; however, there is lack of recognition of the use of benchmarking. Therefore, this study attempts to introduce school systems and schools to benchmarking and its systematic planning and application by developing a Benchmarking Framework.

The literature review fulfilled the first research objective and answered the first and second research questions (the accomplishment of the third and final purpose of this chapter). The literature review demonstrated that benchmarking is used by school systems and schools. All three purposes of this chapter were achieved. An explanation of the research design and data collection methods adopted for the research can be found in the following chapter (Chapter 3).

CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction to the Chapter

This chapter describes the research design and methodology adopted by the researcher to achieve the aim and objectives of the research. This chapter begins with the justification of the researcher's paradigm and selection of research design, which are presented in Section 3.2. This is followed by a description of the research procedure in Section 3.3 and a brief introduction to the data collection methods is outlined in Section 3.4. Then, the chapter justifies the quality of the research using the quality criteria recommended for mixed methods research and this is presented in Section 3.5. The ethical considerations are addressed in Section 3.6, and finally the chapter ends with a summary of the methodology adopted to answer the research questions in Section 3.7.

3.2 The Selection of Research Design

For the selection of an appropriate research design, it is paramount to understand the characteristics of the research. As mentioned in Chapter 1, this research aims to explore the use of benchmarking in school systems and schools to develop a Benchmarking Framework to assist school systems and schools in the application of benchmarking approaches and to guide them in the identification and implementation of best practices. Referring to this research aim, the research is exploratory in nature and is mainly about the development of theory and framework. The research is exploratory, as it is intended to ask questions to gain insights about the topic of interest (Saunders, Lewis & Thornhill, 2012), which is, the use of benchmarking in school systems and schools. According to Kumar (2010, p.385), an exploratory research is a study “undertaken with the objective either to explore an area where little is known or to investigate the possibilities of undertaking a particular research study”.

3.2.1 Justification of the Researcher's Paradigm

In order to achieve the aim and objectives of the study, it is important to decide upon the researcher's philosophical worldview assumptions or the way of looking at the world (Punch, 2014), called a paradigm. Bryman and Bell (2015, p. 24) describe a paradigm as “a cluster of beliefs and dictates which for scientists in a particular discipline influence what should be studied, how research should be done, (and) how

results should be interpreted.” In simpler terms, a paradigm is “a basic set of beliefs that guide actions” (Guba, 1990, p. 17). The examples of the main research paradigms adopted in social sciences research include positivism, interpretivism and pragmatism.

According to Guba (1990, p.22), positivist ontology holds that “there is reality out there to be studied, captured and understood”. The positive ontology believes that the world is external (Carson, Gilmore, Perry & Gronhaug, 2001) and there is a single objective reality to the research phenomenon or situation regardless of the researcher’s perspective or belief (Hudson & Ozanne, 1988). Thus the positivist ontology holds that the researcher and the research phenomenon exist independently. The positivist epistemology advocates the application of methods of natural sciences to the study of reality and beyond (Bryman & Bell, 2015). The positivist epistemology believes that the role of the researcher is to observe the reality existing out there that is independent of the observer, by following a structured methodology for making precise measurements related to the phenomenon under investigation (Denzin & Lincoln, 2011; Creswell, 2014b; Saunders *et al.*, 2012).

Interpretivism is an epistemological position that advocates the necessity to understand differences between humans and their role as social actors (Saunders *et al.*, 2012). Interpretivism is based on the assumption that subject meanings are developed by the researcher based on the knowledge gained from experience; in other words, interpretivism advocates that knowledge is socially constructed (Creswell, 2014b). The position of interpretivism in relation to ontology and epistemology is that the interpretivists believe the reality to be multiple and relative (Hudson & Ozanne, 1988).

Pragmatism is understood as a set of philosophical tools that can be used to address problems (Teddlie & Tashakkori, 2010). It can be explained as an approach that begins with research questions needing answers, and then choosing methods for answering them (Punch, 2014). Saunders *et al.* (2012, p. 678) explained pragmatism as: “a position that argues that the most important determinant of the research philosophy adopted is the research question, arguing that it is possible to work within both positivist and interpretivist positions. It applies a practical approach, integrating different perspectives to help collect and interpret data.”

As the research is exploratory in nature, pragmatism appears to be the most appropriate paradigm to be adopted. Pragmatism enables the researcher to emphasise the research problem and use all the approaches available to understand the problem (Rossman & Wilson, 1985; Tashakkori & Teddlie, 1998) for appropriately answering the research questions. Some of the prominent advocates of pragmatism are Charles Sanders Pierce, William James, Mead and John Dewey, and Cherryholmes (Creswell & Clark, 2011). The following reasons enabled the selection of a pragmatic paradigm:

Pragmatism is practical and is not committed to any one system of philosophy and reality; rather it applies to mixed methods (both quantitative and qualitative) (Creswell, 2003). Conversely, positivism mainly adopts a quantitative approach (Guba & Lincoln, 1994) and interpretivism adopts a qualitative approach (Altheide & Johnson, 1994; Secker, Wimbush, Watson & Milburn, 1995).

A pragmatist supports both inductive and deductive approaches (Tashakkori & Teddlie, 1998), which is consistent with the purpose of this study, which is primarily theory and framework development. A positivist normally employs a deductive approach to the relationship between theory and research, in which accent is placed on testing the theory (Bryman & Bell, 2015), while an interpretivist adopts an inductive view to the relationship between theory and research, whereby theory is generated through research (Bryman & Bell, 2015). A pragmatist recognises that there are different ways of interpreting the world and undertaking research, and that no single point of view can ever give the entire picture and that there may be multiple realities (Saunders *et al.*, 2012).

Pragmatism is suitable for this study as it emphasises the importance of answering the research questions and achieving the desired outcomes without being restricted to a particular research method and paradigm (Tashakkori & Teddlie, 1998); rather, it chooses a combination or mixture of methods and procedures that works best for answering the research questions (Johnson & Onwuegbuzie, 2004). Because of this epistemological and methodological flexibility, pragmatism becomes a suitable paradigm choice for mixed methods research (Greene, 2008).

3.2.2 Mixed Methods Research Design

Mixing quantitative and qualitative research methods in a single study is called mixed methods research (Johnson & Onwuegbuzie, 2004), as it helps bridge the schism between quantitative and qualitative research methods (Onwuegbuzie & Leech, 2005). The research utilises both quantitative and qualitative research approaches, which are explained by Saunders *et al.* (2012) as: quantitative research is often used as a synonym for any data collection technique (such as a questionnaire) or data analysis procedure (such as graphs or statistics) that generates or uses numerical data; qualitative research, on the other hand, is predominantly associated with any data collection technique (such as an interview) or data analysis procedure (such as categorising data) that generates or uses non-numerical data. Although mixed methods research is generally associated with pragmatic paradigm (Creswell, 2013; Teddlie & Tashakkori, 2009), it is the most appropriate design to answer the research questions in order to achieve the aim and objectives of the research. The following features enabled the researcher to employ a mixed methods research design:

Mixed methods research is appropriate as it has the ability to employ “both quantitative and qualitative data collection techniques and analysis procedures either at the same time (concurrent) or one after the other (sequential)” Saunders *et al.* (2012, p. 674).

The mixed methods approach enables the researcher to answer research questions by utilising the most appropriate methods for each research question (Teddlie & Tashakkori, 2003; Newman, Ridenour, Newman & DeMarco-Jr, 2003). It involves the use of both quantitative and qualitative approaches in tandem so that the overall strength of the study is greater than either quantitative or qualitative research (Creswell & Clark, 2007); thus increasing research validity through the triangulation of research data (Newman *et al.*, 2003). Table 3.1 presents the linkages between the research objectives, research questions and data collection methods.

Mixed methods provide flexibility to the researcher to use various data collection methods in a single study (Creswell & Clark, 2011). In relation to this, Creswell (2014a, 2014b) highlighted that mixed methods give flexibility to the researcher to gather both quantitative (closed-ended) and qualitative (open-ended) data, integrate the two, and then draw interpretations based on the combined strengths of both sets of data to understand the research problem.

Mixed methods research is appropriate as it capitalises on the best of both methods (qualitative and quantitative) and overcomes many shortcomings of the inherent methods when handled properly (O’Leary, 2013).

It combines elements of quantitative and qualitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis and inference techniques) for the broad purposes of breadth and depth of understanding and corroboration (Johnson, Onwuegbuzie & Turner, 2007). More importantly, it is essential to use mixed methods when neither of the methods when used alone is sufficient to address the research questions (Edmonds & Kennedy, 2012).

Tashakkori and Teddlie (2010) describe the availability of various design options for conducting a mixed methods research. The research design is adapted from the multiphase research design presented by Creswell and Clark (2011). This research design combines research methods (quantitative and qualitative) both sequentially and concurrently over a period of time that the researcher implements within a program in order to address the overall research aim (Creswell & Clark, 2011). The adapted multiphase research design has four phases and is depicted in Figure 3.1.

Table 3.1 Linkage between the Research Objectives, Research Questions and Data Collection Methods

Research Objectives	Research Questions	Elaboration of How the Research Questions are Answered	Data Collection Methods Used for Each Research Question	Relevant Chapters
Objective 1: To understand benchmarking and determine if it is used by school systems and schools	RQ1: What is benchmarking?	A review of literature is undertaken to describe benchmarking, its different types, classifications and processes, along with its benefits and challenges.	Literature review	Chapter 2
	RQ2: Do school systems and schools practice benchmarking?	A literature review is undertaken to explore the use of benchmarking within school systems and schools. This review is primarily based on case studies of school systems and schools and assists in determining whether benchmarking is used by school systems and schools. The literature review leads to the identification of examples describing the use of benchmarking by school systems and schools. These examples help to design a survey for school systems and schools.	Literature review	Chapter 2
Objective 2: Investigate the extent to	RQ3: To what extent is benchmarking	The literature review informs the design of questionnaires for survey with school systems and schools.	Literature review Survey	Chapter 4

<p>which benchmarking is used by school systems and schools and its contribution to their performance. Also identify the benchmarking techniques used therein.</p>	<p>used by school systems and schools and how effective is it reported to be?</p>	<p>The examples of use of benchmarking assimilated through the literature review serve as a foundation for the development of questionnaires. The survey investigates this question and the following question (RQ 3 and 4).</p> <p>The analysis of survey responses assists to determine the extent (frequency) to which benchmarking is used by school systems and schools, and also its effectiveness for performance improvement.</p>		
	<p>RQ4: Which benchmarking techniques are used by school systems and schools?</p>	<p>The examples provided by the survey respondents as to how benchmarking is used assist in the identification of benchmarking techniques used within school systems and schools.</p>	Survey	
<p>Objective 3: Determine those benchmarking techniques that have been effective contributors to the performance of school systems and schools and explore their implementation detail and reasons for effectiveness</p>	<p>RQ5: Which benchmarking techniques are considered to be effective for school systems and schools?</p>	<p>The literature review informs the design of structured interviews which investigate this question and the following two questions (RQ 5 to 7).</p> <p>The survey findings inform the selection of school systems and schools obtaining effective performance from benchmarking. The structured interviews lead to the identification of benchmarking techniques producing effective performance for these school systems and schools.</p>	<p>Literature review Survey Structured interviews</p>	Chapter 5
	<p>RQ6: How have these benchmarking techniques been implemented?</p>	<p>The structured interviews investigate how the various benchmarking techniques have been implemented by school systems and schools. Therefore, they also investigate areas such as the resources and training required, and the steps undertaken.</p>	Structured interviews	
	<p>RQ7: What are the success factors for using benchmarking effectively?</p>	<p>The interviews investigate factors that may impact the success of using benchmarking techniques effectively, such as resources, training, project sponsorship, the formality of the benchmarking approach, and time constraints. Some of these factors are contributed by the literature and validated by the literature and survey findings.</p>	<p>Literature review Survey Structured interviews</p>	
<p>Objective 4: Develop a benchmarking framework for school systems and</p>	<p>RQ8: What is an effective way to implement each benchmarking technique?</p>	<p>This research question is answered by developing the Benchmarking Guidelines based on the learnings acquired from the literature review, survey and structured interviews. The Benchmarking Guidelines include the Benchmarking</p>	<p>Literature review Survey Structured interview</p>	Chapter 6

schools with guidelines for its implementation		<p>Implementation Approach, Portfolio of Benchmarking Techniques and Factors Leading to Effective Benchmarking.</p> <p>The Benchmarking Implementation Approach is the recommended benchmarking process for undertaking benchmarking. This is a systematic benchmarking process and is strongly facilitated by the Portfolio of Benchmarking Techniques that describes how benchmarking techniques can be implemented effectively. The Benchmarking Implementation Approach is overarched by the Factors Leading to Effective Benchmarking.</p>		
	<p>RQ 9: Can a benchmarking framework be developed to help school systems and schools implement benchmarking effectively?</p>	<p>This research question is answered by developing the Benchmarking Framework. The Benchmarking Framework describes how school systems and schools can plan and implement benchmarking. The Benchmarking Framework is supported by Benchmarking Guidelines for the implementation of benchmarking to ensure achievement of improved performance.</p>	<p>Literature review Survey Structured interview</p>	

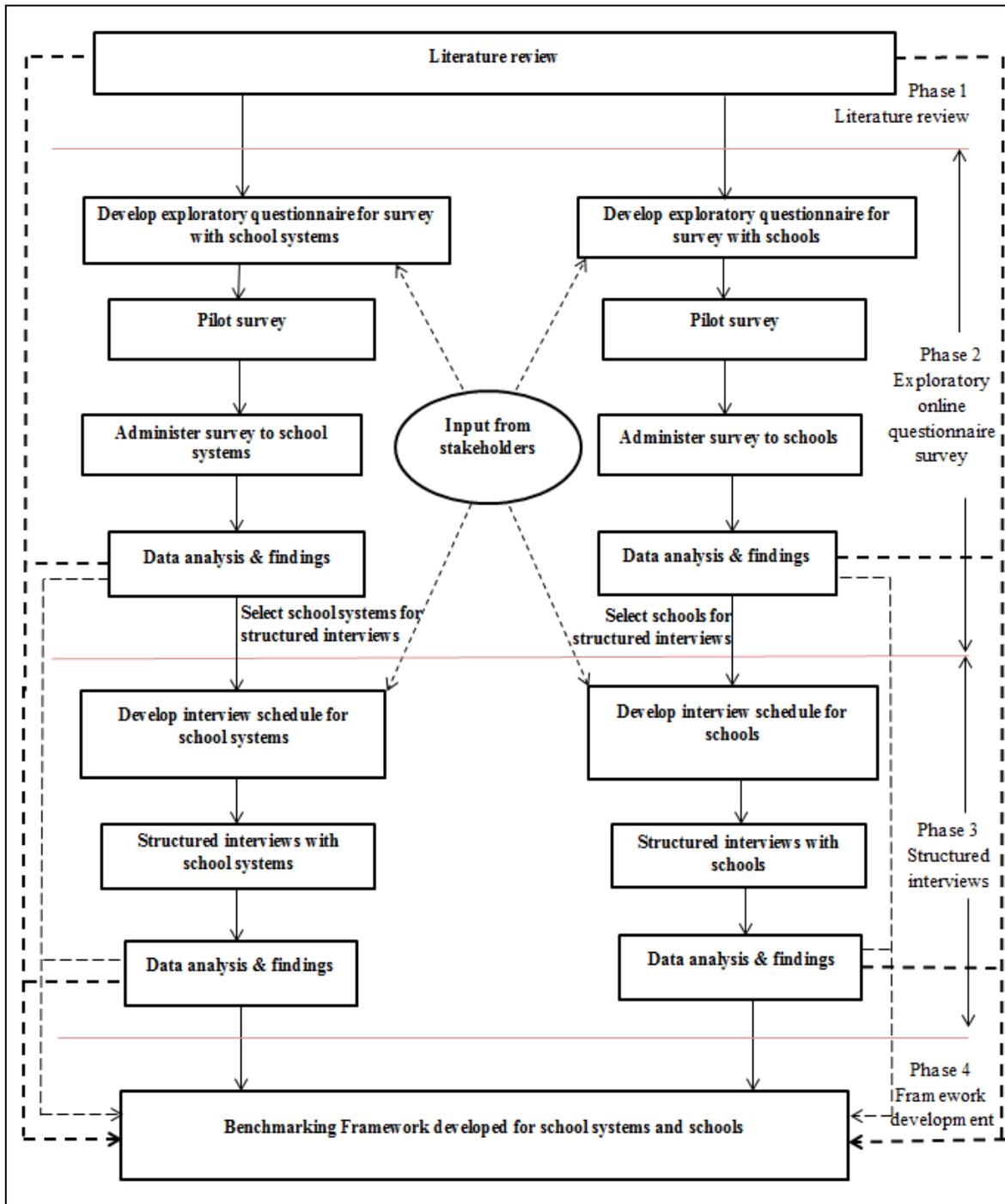


Figure 3.1 Multiphase Mixed Methods Research Design for the Development of Benchmarking Framework [Adapted from Creswell and Clark (2011)]

3.3 Research Procedure

The overall research procedure is shown in Figure 3.1 and involves four main phases. The research is developmental in nature as the findings of one phase inform the next phase.

The first phase of the research (the literature review) involves conducting an extensive literature review for the identification of knowledge gaps and the development of a preliminary conceptual model. It further includes case studies of five school systems and two schools to demonstrate the use of benchmarking by school systems and schools. Consequently, the literature review recognises examples describing the use of benchmarking by school systems and schools; the identified examples are presented in Appendix 2. Figure 3.1 shows that the literature review is an essential component of this research and is carried out in all phases. Further details on activities carried out in Phase 1 are described in Chapter 2.

The second phase of the research (the exploratory online questionnaire survey) includes the following activities: development of questionnaires for survey with school systems and schools based on examples presented in Appendix 2; selection of sampling strategy, research introduction and contact development with school systems and schools; piloting of questionnaires; administration of questionnaire-based survey, its analysis and findings. Further details on activities carried out in Phase 2 are explained in Chapter 4.

The third phase of the research (the structured interviews) involves the following activities: selection of school systems and schools for structured interviews from the survey respondents; identification of themes for the development of the interview schedule; development of the interview schedule for the structured interviews and the conducting of structured interviews with school systems and schools; the analysis of interview responses and findings. A detailed explanation of Phase 3 can be found in Chapter 5.

The Benchmarking Framework (the fourth and final phase of the research) is developed by consolidating findings of the earlier three phases; it involves the following activities: the summary of findings from Chapters 2, 4 and 5, and the inferences made; the development of a refined conceptual model; explanation of the development of the Benchmarking Framework and guidelines for its use, and a description of Benchmarking Framework and Benchmarking Guidelines. Details concerning this phase can be found in Chapter 6.

3.4 Data Collection Methods

This section briefly explains the three data collection methods used to achieve the aim and objectives of the research. The data collection methods include: the literature review, exploratory online questionnaire survey and structured interviews. Figure 3.2 presents the linkages between research design, research aim, objectives and data collection methods.

3.4.1 Literature Review

The literature review represents the first phase of the research. It is crucial for the research and continues from the beginning of the research through to the end (refer to Figure 3.1). The literature review fulfilled the following objective:

- To understand benchmarking and determine if it is used by school systems and schools

At the start of the research process, the literature review proved to be essential for understanding the research area, identifying the research problem and knowledge gaps, understanding the previous related researches for determining the research direction, understanding the underlying theory as well as identifying a suitable research design and methodology.

In order to determine the application of benchmarking by school systems and schools, the existing relevant research and research on case study school systems and schools was studied through journals, articles, online sources and other published material. During the research process, there is always an opportunity to find more literature related to the research problem after reading a plethora of new literature that has been published along with the findings from recent studies. Therefore, it is important to continuously review further literature so that the research has updated literature on the research area. A detailed literature review is presented in Chapter 2.

3.4.2 Exploratory Online Questionnaire Survey

The exploratory online questionnaire survey represents the second phase of the research (refer to Figure 3.1). The researcher developed two questionnaires, one for school systems and the other for schools. The questionnaires were developed from the examples describing the use of benchmarking (acquired from the literature review and presented in Appendix 2), and fulfilled the following research objective:

- Investigate the extent to which benchmarking is used by school systems and schools and its contribution to their performance. Also identify the benchmarking techniques used therein

A survey based on quantitative-qualitative questionnaires was sent to purposively selected school systems and schools and was chosen as a data collection method as it is easy to implement and allows wider coverage in an economical way (Saunders *et al.*, 2012; Walliman, 2016). A survey is easy to implement (Walliman, 2016), offers easy comparisons between variables (Saunders *et al.*, 2012) and enables the respondents to respond at their convenience (Walliman, 2016). The analysis of quantitative responses was performed through SPSS and SurveyMonkey¹⁷; whereas, the qualitative responses were analysed with the help of Nvivo. As the survey was developed and administered through SurveyMonkey, the preliminary quantitative analysis was performed using the SurveyMonkey software.

Details on planning, development and administration of questionnaires for the survey, and analysis and findings of the survey are explained in Chapter 4.

3.4.3 Structured Interviews

Structured interviews represent the third phase of the research (refer to Figure 3.1) and were conducted with school systems and schools achieving effective performance from the use of benchmarking. These school systems and schools were purposively selected from the survey respondents.

The structured interviews addressed the following research objective:

- Determine those benchmarking techniques that have been effective contributors to the performance of school systems and schools and explore their implementation detail and reasons for effectiveness

The interviews were based on an interview schedule (Walliman, 2016) that comprised predetermined questions for collecting data (Saunders *et al.*, 2012). The questions were theme-based and demonstrated best practice for implementing a benchmarking process presented in Section 2.2.4 (Chapter 2). The analysis of structured interviews was

¹⁷ SurveyMonkey is online survey development cloud-based software.

conducted through content analysis by categorising information into fixed categories called themes (Kvale, 2007).

Detailed information on planning and administration of structured interviews, and analysis and findings of the interviews can be found in Chapter 5.

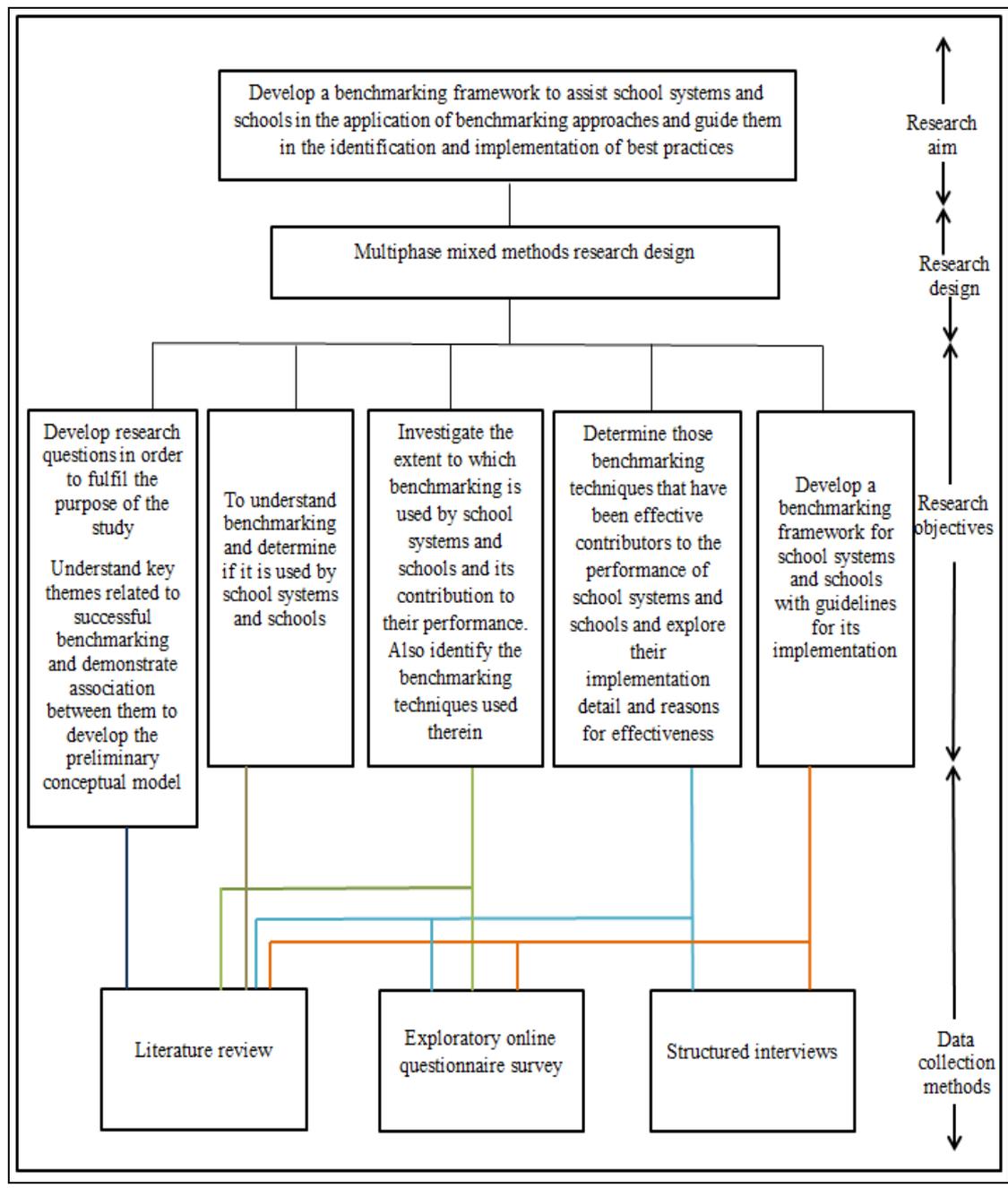


Figure 3.2 Linkages between the Research Aim, Research Design, Research Objectives and Data Collection Methods

3.5 Justifying the Quality of the Research

The purpose of this section is to describe specific actions taken by the researcher to ensure that the research is produced through a rigorous process. The researcher customised the quality criteria recommended by O’Cathain (2010) to assess the quality of the mixed methods research (Figure 3.3). O’Cathain prescribed eight quality domains applicable to mixed methods research. The researcher found that five of the criteria are applicable to the research including: planning quality, design quality, data quality, interpretive rigour and inference transferability. Each of these criteria is now explained.

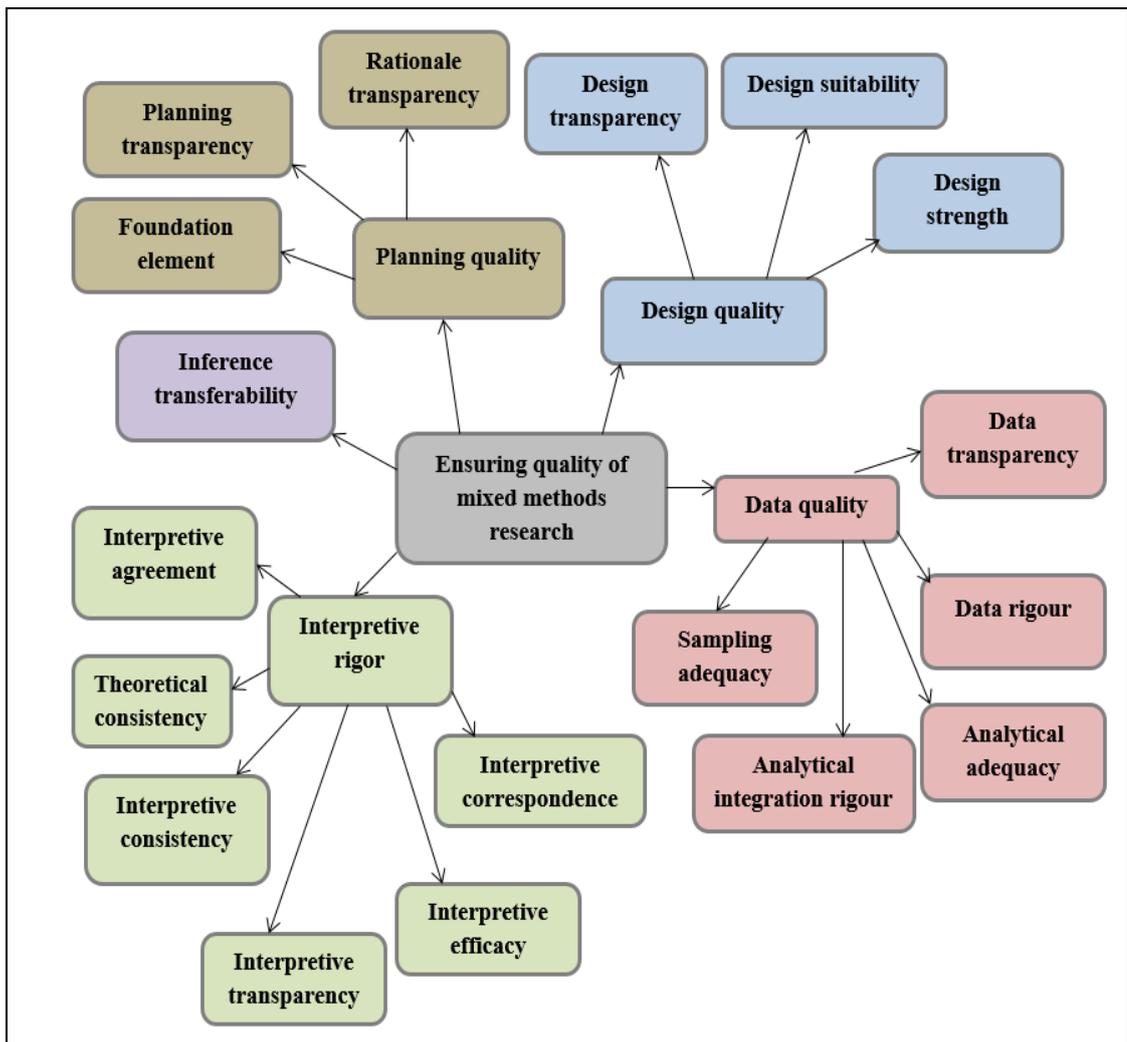


Figure 3.3 Customised Quality Framework Based on Quality Domains Proposed by O’Cathain (2010)

3.5.1 Planning Quality

Planning Quality deals with how well a mixed methods research is planned (O’Cathain, 2010). According to O’Cathain, three features have to be considered to develop a quality mixed methods research plan, namely foundation element, planning transparency and rationale transparency.

The *foundation element* is introduced as a quality criterion by Dellinger and Leech (2007). This criterion focuses on conducting a critical and comprehensive literature review covering theoretical and empirical aspects of the research topic to develop research questions and research design. In addition, a conceptual model should be developed to guide the research design (Caracelli & Riggin, 1994). The researcher followed all the above guidelines while conducting the mixed methods research.

Rationale transparency refers to providing justification for using mixed methods research (Caracelli & Riggin, 1994; Creswell, 2003); the justification for using mixed methods research is described in Section 3.2.2.

Planning transparency refers to describing key aspects of the research plan including paradigm, research design, data collection, analysis and reporting in the research plan (O’Cathain, 2010). The researcher explains the selection of paradigm and research design in Section 3.2. The data collection, analysis and reporting methods are briefly explained in Section 3.4. The detail of these methods can be found in Chapters 2, 4 and 5.

3.5.2 Design Quality

Design Quality is important for assuring the quality of a mixed methods research (Creswell & Clark, 2007; Teddlie & Tashakkori, 2009). Three features are important for assuring Design Quality in mixed methods research, namely design transparency, design suitability and design strength.

Design transparency is a significant element of design quality in mixed methods research (Creswell & Clark, 2007; O’Cathain, 2010), and is addressed by providing an illustration of the multiphase research design in Figure 3.1 and a description of the research procedure in Section 3.3.

Design suitability refers to the appropriateness of the research design to answer the research questions and provides evidence to fit the adopted paradigm (O’Cathain, 2010). The researcher adapted the multiphase mixed methods research design presented by Creswell and Clark (2011) as it seemed the most suitable mixed methods research design for achieving the aim and objectives of the research. Refer to Section 3.2 for more detail on the selection of multiphase mixed methods research design and pragmatic paradigm.

Design strength is another key aspect of design quality in mixed methods research and refers to designing a research to optimise breadth (in quantitative research) and depth (in qualitative research) to compensate for the weakness of one method by the strengths of the other (Caracelli & Riggin, 1994; Onwuegbuzie & Johnson, 2006). The researcher used multiphase research design for concurrent and sequential use of quantitative and qualitative data collection methods. The use of quantitative and qualitative methods gave breadth and depth to the study (Johnson *et al.*, 2007). The results of the qualitative phase (literature review) of the study were used to develop the quantitative-qualitative questionnaires for survey with school systems and schools (refer to Figure 3.1); school systems and schools selected through the survey were invited for structured interview for a qualitative investigation of benchmarking techniques producing effective performance. The multiphase research design presented in Figure 3.1 shows that the inferences made at each phase of the research were integrated in the last phase for the development of the Benchmarking Framework. Thus, the researcher declares that the research has a high degree of design strength.

3.5.3 Data Quality

There are five factors that have to be addressed to determine Data Quality including data transparency, data rigour, sampling adequacy, analytical adequacy and analytical integration rigour (O’Cathain, 2010).

Data transparency refers to describing all data collection methods, sampling strategy, sample size and analysis methods (Creswell & Clark, 2007). All data collection and analysis methods are briefly described in Section 3.4. A detailed description of data collection methods, sampling strategy, sample size and analysis methods can be found in Chapters 4 and 5.

Data rigour deals with the degree to which methods are implemented with rigour (Teddlie & Tashakkori, 2009). Data rigour was addressed by using rigorous procedures for developing instruments for data collection (Creswell & Clark, 2011), and are explained in Chapters 4 and 5. All data collection instruments were sent to the supervisors, potential respondents and content experts for evaluation prior to data collection (refer to Section 4.2.1, Chapter 4 and Section 5.2.2, Chapter 5). As Saunders *et al.* (2012) suggest, an interview schedule was developed to ascertain consistency of structured interviews and all interviews were conducted solely by the researcher. The

interviews were transcribed by the researcher and sent to the interviewees for review and for any possible modification. The research records and reports were maintained electronically through Survey Monkey, SPSS, Nvivo, Microsoft Word, Microsoft Excel, Adobe Acrobat and Endnote software. In addition, audio files of interviews were maintained electronically. Examples of research records include research data, research instruments, communication with respondents, feedback from respondents, reminder emails, sharing of survey reports and customised interview plans.

Sampling adequacy refers to the adequacy of sampling technique and sample size for each method in the context of research design (Creswell & Clark, 2007). Onwuegbuzie and Johnson (2006) stressed the importance of selecting the right participants in a study and making inferences by combining findings from quantitative and qualitative components of the study. The research sample was purposively selected and included school systems and schools using benchmarking. A subset of the sample included in the survey (quantitative-qualitative data collection) was involved in the structured interviews (for additional qualitative exploration) and inferences were made by combining the literature findings with the findings from both the samples in an optimal way. This issue is appropriately explained in Chapters 4 and 5.

Analytical adequacy emphasises that the data analysis techniques are appropriate for the research questions and are undertaken properly (Teddlie & Tashakkori, 2009). The data analysis techniques and a justification of their selection are described in Section 4.4 for the quantitative-qualitative survey data and Section 5.3.2 for the qualitative responses of structured interviews.

The final criteria *analytic integration rigour* is the quality of any integration taking place at the analysis stage of the study (O’Cathain, 2010).

The following actions were taken to ensure analytic integration rigour:

- School systems and schools using benchmarking were invited to participate in the research. The representatives of school systems and schools included knowledgeable persons who were actively engaged in the planning and implementation of benchmarking. In this way, it was ensured that the information obtained was *legitimate*; legitimation refers to validity in mixed methods research and can be used by both quantitative and qualitative researchers (Onwuegbuzie & Johnson, 2006)

- Both quantitative and qualitative data were collected from the same population and were used to address the same objectives where necessary (Creswell & Clark, 2011). Table 3.1 shows that both types of data were used to address the second, third and fourth objective.
- A quantitative-qualitative survey was administered to all potential respondents in the second phase of the research and all respondents were asked the same questions. An interview schedule was followed for structured interviews in the third phase of the research and was meant to obtain qualitative responses. These steps enhanced the reliability and validity of the obtained data (Creswell & Clark, 2011)
- The examples of use of benchmarking recognised from the first phase (the literature review) were used to develop questionnaires (quantitative-qualitative) as survey instrument for the second phase, and the survey responses enabled the selection of the sample for structured interviews in the third phase; this means integration of data analytic procedures (Creswell & Clark, 2011).

3.5.4 Interpretive Rigour

Interpretive Rigour considers whether conclusions are based on the findings of the study (O’Cathain, 2010). Six elements are used to justify Interpretive Rigour including interpretive transparency, interpretive consistency, theoretical consistency, interpretive agreement, interpretive efficacy and interpretive correspondence.

The first criteria, *interpretive transparency* refers to how the findings and inferences emerge from the data collection methods. The researcher has clearly explained how this requirement is met in Sections 4.4 and 4.5 (quantitative-qualitative survey), and Sections 5.4 and 5.5 (structured interviews).

The second criteria, *interpretive consistency*, presented by Teddlie and Tashakkori (2009) describes that the inferences made in the study were consistent with the findings on which they are based. The researcher has clearly explained how this requirement is met in Sections 4.5 (quantitative-qualitative survey) and 5.5 (structured interviews).

Theoretical consistency denotes that the inferences made in this study are consistent with current knowledge or theory (Teddlie & Tashakkori, 2009). To achieve this objective, the researcher ensured that the findings were discussed in the light of the

literature to demonstrate how findings contribute to the existing body of knowledge on benchmarking.

Interpretive agreement refers to the consistency of findings (Teddlie & Tashakkori, 2009). This may be attained by inside-outside legitimation proposed by Onwuegbuzie & Johnson (2006). This means that the findings are reviewed by an outside party and the research participants to eliminate researcher's bias. To achieve this objective, the researcher ensured that key findings of the study have been reviewed (for an outside view) through publications; for an inside view, the researcher presented the respondents with the findings of the survey (second phase) and transcriptions of their structured interviews (third phase) for review to avoid researcher's bias.

Interpretive efficacy suggests that meta-inferences from the whole study adequately incorporated inferences from the quantitative and qualitative findings and inferences (Teddlie & Tashakkori, 2009). To address this objective, the following actions were taken:

- The preliminary conceptual model was developed from the existing literature on benchmarking and its use by school systems and schools. The theoretical basis of the preliminary conceptual model is stated in Section 2.5 and the model is presented in Figure 2.3. The theoretical basis of the refined conceptual model is the preliminary conceptual model and the conclusions drawn from the findings from the literature, survey and structured interviews (refer to Section 6.2.5, Chapter 6).
- The results from the first phase of the research were supported by the subsequent phases. The findings from the literature review (qualitative phase) were supported by the survey (quantitative-qualitative phase) and the structured interviews (qualitative phase).
- Feedback from potential research participants, educational and benchmarking experts, and supervisors, and piloting were used to refine the questionnaires.
- Inferences were made at the end of each phase of the research and meta-inferences were made in the final phase (Chapter 6), and all these results were presented to the research participants for an inside view, as proposed by (Creswell & Clark, 2011). All inferences and meta-inferences were made on the basis of the research questions and the aim and objectives of the research.

Interpretive correspondence means that inferences correspond to the purpose of the study, and the research questions (Teddlie & Tashakkori, 2009). The correspondence between the research objectives, research questions, inference and meta-inferences is clearly explained by the researcher in Chapter 6. In addition, the relationship between the research aim, research objectives and research questions is demonstrated in Chapter 7.

3.5.5 Inference Transferability

Inference transferability is defined as the degree to which conclusions could be applied to other studies or situations (O’Cathain, 2010). The concept of inference transferability for mixed methods research was highlighted by O’Cathain (2010) and Teddlie and Tashakkori (2003). Inference transferability is equivalent to *external validity* for quantitative research and *transferability* for qualitative research (Teddlie & Tashakkori, 2009; O’Cathain, 2010).

Inference transferability was ensured by presenting the Benchmarking Framework to the research participants for evaluation (refer to Section 6.5, Chapter 6). The proposed Benchmarking Framework provides practical assistance to school systems and schools planning or involved in the implementation of benchmarking, and could be adapted by school systems and schools according to their context.

3.6 Ethical Considerations

Research ethics were important to this study as it involved participation of individuals. An application for Low Risk Notification was sent to the Massey University Human Ethics Committee and approval was gained for conducting the research. Approval was also gained for conducting survey and structured interviews.

For the survey, potential respondents were identified and provided with information about the research and were invited to participate. The participants had the right to decline to participate or to withdraw at any time. Participation was voluntary and responses were collected and managed securely through www.surveymonkey.com. A covering letter was added to the survey that assured the confidentiality of responses and taking the survey was considered as consent for participation. A survey summary report was promised in the covering letter and was shared with all of the survey respondents in

a timely manner. Anonymity was ensured until respondents explicitly agreed to be identified.

For structured interviews, school systems and schools willing to participate were invited and had the right to decline to participate or to withdraw at any time. Participation was voluntary and interviews were conducted according to the participants' availability. Interview questions were sent in advance (Appendix 16) and interviews were recorded with participants' permission. Anonymity was ensured and an acknowledgement email was sent to the interview participants after the interview.

3.7 Chapter Summary

This chapter has explained the methodology adopted to answer the research questions, and thereby, achieve the aim and objectives of the research. The chapter began with the recognition of the exploratory research as a suitable research type for the development of a Benchmarking Framework for school systems and schools. Pragmatism was chosen as an appropriate research paradigm, which required a mixed methods research design. Following on, the research procedure for the adapted multiphase mixed methods research design was explained. Later, the data collection methods including the literature review, exploratory online questionnaire survey and structured interviews were briefly discussed. Finally, the strategies adopted by the researcher to safeguard the quality of the mixed methods research design were demonstrated, and actions taken to ensure adequacy of ethical considerations for the research were explained.

CHAPTER 4: AN INVESTIGATION OF THE FREQUENCY OF BENCHMARKING USED BY SCHOOL SYSTEMS AND SCHOOLS AND ITS CONTRIBUTION TO THEIR PERFORMANCE

4.1 Introduction to the Chapter

This chapter presents Phase 2 of the multiphase mixed methods research design (refer to Figure 3.1, Chapter 3). The purpose of this phase, as explained in Section 3.4.2 (Chapter 3), is to obtain rich quantitative-qualitative data to support the literature findings and to accomplish the second research objective (refer to Table 3.1, Chapter 3). This chapter describes the development of questionnaires and administration, analysis and findings from the questionnaire-based survey with school systems and schools and the emerging inferences.

There are four main sections of this chapter. Section 4.2 presents the development of questionnaires, selection of sampling strategy and sample, and piloting of questionnaires. Section 4.3 explains the structure of questionnaires and administration of the survey. Section 4.4 describes methods and techniques adopted to analyse the survey data, presents the analysis of survey responses, and findings from the survey; and Section 4.5 describes inferences made from the survey findings. The chapter's conclusion is presented in Section 4.6.

4.2 Development of Questionnaires

This section describes the development of exploratory online questionnaires for survey with school systems and schools, the adopted sampling strategy and the research sample.

The survey was intended to fulfil the following objective:

- Investigate the extent¹⁸ to which benchmarking is used by school systems and schools and its contribution to their performance. Also identify the benchmarking techniques used therein.

This objective is important to examine the relationship between benchmarking and performance improvement and to identify school systems and schools obtaining

¹⁸ The extent of use of benchmarking means the frequency of use of benchmarking.

effective performance from the use of benchmarking. Later, these school systems and schools will be spoken to in structured interviews.

4.2.1 Development and Validation of Questionnaires

The examples of use of benchmarking recognised and collected by the researcher in the first phase of the research (refer to Appendix 2) served as the foundation for the development of quantitative-qualitative questionnaires. Initially, each example was written as a clear, understandable and distinct question. Then, two draft questionnaires were prepared in Microsoft Word: one for school systems and the other for schools. The questionnaire for school systems was intended to investigate how school systems learn from other school systems and how school systems support the learning in their schools. Similarly, the questionnaire for schools was focused on determining how schools learn from other schools and how schools support the learning of their teachers. Each questionnaire included closed-ended and open-ended questions for gathering quantitative and qualitative data for the fulfilment of the research objective by answering the research questions (Teddlie & Yu, 2007).

As a multiphase research design allows a concurrent collection of quantitative and qualitative data (Creswell & Clark, 2011), the use of closed-ended and open-ended questions enabled the researcher to “confirm, cross-validate, or corroborate findings within a single study” (Creswell, 2003, p. 229). An online questionnaire-based survey was used as it is a convenient and quickest way of collecting responses from a larger geographical area (Walliman, 2016). The quality of questionnaires was extremely important because the conclusions drawn depended on the information obtained through them (Fraenkel, Wallen & Hyun, 2009). Therefore, to assure the quality of questionnaires, they were subjected to several validity tests. Validity denotes the ability of a data collection instrument to measure what it is designed to measure and is judged by three components for a multiphase mixed methods research: face and content validity, predictive validity, and construct validity (Kumar, 2010).

Once the draft questionnaires were developed, face and content validity were conducted by involving content experts in their review (Zohrabi, 2013). Initially, the questionnaires were discussed with the chief supervisor and co-supervisor and were later sent to six reviewers including a quality practitioner, an educationist and two

faculty members from the Institute of Education at Massey University, New Zealand and two PhD candidates who had knowledge and expertise on the subject matter.

In addition, potential respondents¹⁹ also participated in content validation and included school systems and schools that were informed about the research during the research's introduction stage (described in Sections 4.2.2.2 and 4.2.2.3). The representatives of the following school systems participated in the content validation of both the questionnaires: Finland, Canada, Estonia, Portugal, Poland, New Zealand, Spain, Dubai, Czech Republic, Iceland, Italy, the Netherlands, Sri Lanka and Norway. In addition, certain school principals and teachers of the region also took part in content validation by giving insightful feedback on the structure and content of the questionnaire for schools. The participation of potential respondents ensured the relevance of questionnaires' content to school systems and schools and appropriateness of the language used (refer to Appendix 5).

The purpose of this review was to assess whether each question measures what it is supposed to measure (Bryman & Bell, 2015), and the degree to which the included questions fulfilled their intended purpose (Saunders *et al.* (2012); and was based on the linkage between the questions and purpose of questionnaires (Kumar 2010). Establishing this link ensured face validity and assessment of the importance and relevance of the questions accounted for content validity (Kumar 2010). In addition, the review assisted in rectifying any errors made during draft preparation (Litwin, 2003) and enabled the discarding of ineffective and non-functioning questions.

Predictive validity is judged by the degree to which an instrument can forecast an outcome (Kumar, 2010), therefore the applied statistical tests were guided by the variables included in the questionnaires and the relationship between them, and were expected to make accurate predictions (Saunders *et al.*, 2012). As construct validity focuses on how well a measure conforms to theoretical expectations (Punch, 2014), the variables were meant to validate the theoretical underpinnings of effective benchmarking presented in Figure 2.3 (Chapter 2).

¹⁹ A respondent is someone who participates in a quantitative study by responding to a quantitative research instrument, such as a questionnaire. Potential respondents include school systems and schools using benchmarking and interested in participating in the research.

4.2.2 Sampling Strategy and Selection of School Systems and Schools

This section describes the sampling strategy adopted for the selection of school systems and schools for participation in the survey, the introduction of the research to school systems and schools, and the emerging research sample.

4.2.2.1 Selection of Sampling Strategy

The selection of a group of elements from a larger population for a study is called a sample (Cooper & Schindler, 2014). The method used for selecting a group of individuals (sample) from a bigger group (population) who would be asked questions for estimating the prevalence of information of interest (Bryman & Bell, 2015; Kumar, 2010) is defined as sampling. A sampling frame is the complete list of all the elements included in a population from which the sample is drawn (Sanders *et al.*, 2012, Cooper & Schindler, 2014; Walliman, 2016).

The sampling strategy stemmed logically from the research questions and objectives of the research (Teddlie and Yu, 2007). As shown in Table 3.1 (Chapter 3), the prime objective of the survey is to investigate the extent to which benchmarking is used by school systems and schools and its contribution to their performance, along with the identification of used benchmarking techniques. Therefore, the sampling frame is the list of school systems and schools using benchmarking for performance comparison and best practice learning.

The sample was drawn from a population consisting of school systems and schools using benchmarking; therefore, purposive non-probability sampling was chosen as the sampling strategy to select the sample based on specialist selection criteria (Walliman, 2016). A purposive sampling strategy was adopted to enable the researcher to select a sample to answer research questions in an appropriate manner (Frazer & Lawley, 2001; Bryman & Bell, 2015; Walliman, 2016). The purposive selection of the research sample was done due to the qualities possessed (Tongco, 2007) by the selected school systems and schools to provide the required information (Kumar, 2010).

During the time the questionnaires were developed, the researcher introduced the research to school systems and schools and shared its significance and value for them (refer to Appendix 3). The introduction of the research to school systems and schools and the emerging research samples are now explained.

4.2.2.2 Research Introduction to School Systems and Sample of School Systems

School systems using benchmarking were invited to participate in the research by writing a blog on the Business Performance Improvement Resource website (www.BPIR.com), which is a resource for benchmarks, best practices and business excellence and has a number of member school systems and schools. In addition, emails were written to representatives of PISA participating school systems for the purpose of inviting them to participate in the research. The PISA participating school systems were selected: due to an expectation that they were more likely to be committed to using benchmarking as an improvement tool rather than school systems not participating in PISA assessments (refer to Section 2.4.2, Chapter 2), due to a greater number of school systems participating in these assessments compared to other assessments (refer to Table 2.3, Chapter 2), and for the convenience of obtaining their correspondence details (the correspondence details were obtained from OECD (2014)). The breakdown of sample that participated through both of these approaches is:

- 1 School systems participating after reading the blog = 2
- 2 School systems participating in PISA assessments = 18

This sampling approach increased the likelihood of obtaining participation of school systems involved in benchmarking. A non-probability purposive sampling strategy was appropriate for the selection of school systems for participation in the research as this selection was in-line with the research questions (Bryman & Bell, 2015).

4.2.2.3 Research Introduction to Schools and Sample of Schools

The selection of schools was based on the interest of schools in benchmarking and followed four paths. Firstly, principal and teacher associations existing both nationally and internationally and award winner schools were selected through a web search and were invited to participate. Next, as the researcher was based in New Zealand, a participation invitation was sent to the principals of schools in New Zealand by accessing their contact details through the website of the Ministry of Education (Education Counts (2015)). Thirdly, a blog was written and published on Business Performance Improvement Resource website (www.BPIR.com) as its members also included schools. Lastly, recognising the significance of the research, a number of school systems participating in the survey agreed to promote the school questionnaire to

schools within their school system (refer to questions 11 to 13 of the school system questionnaire in Appendix 4). The above described sampling strategy enabled the researcher to introduce the research to schools and encourage them to participate. The breakdown of the sample that participated through each of these approaches is as follows:

1. Schools belonging to principal and teacher associations and award winners = 30
2. Schools from across New Zealand = 83
3. Schools participating after reading the blog = 1
4. Schools from participating school systems = 69

This multifaceted sampling approach increased the likelihood of obtaining the participation of schools using benchmarking. A non-probability purposive sampling strategy enabled to sample participants in a strategic way, so that those sampled were relevant to the research questions (Bryman & Bell, 2015; Frazer & Lawley, 2001).

In the breakdown of the research sample presented, a very small representation of participants from the blog is observed. This is probably due to the lack of personalised communication with blog's readers. The representatives of school systems and schools were contacted without any prior reference and their agreement for participation was obtained through an ongoing communication (refer to Appendix 3). This contact development and research awareness process spanned 3 to 4 months; in the meantime, the questionnaires were developed, refined, drafted and validated. The questionnaires were later developed in web-based form through SurveyMonkey (software for development of online questionnaire and survey).

4.2.3 Piloting

Prior to the sending out of the questionnaires in the form of a survey, they were pilot tested. The pilot test was intended to refine the questionnaires so that the respondents would have no problems in answering the questions and no problems would be faced in recording the responses (Saunders *et al.*, 2012). The validation of online questionnaires was conducted by five reviewers including the supervisors; the Deputy Secretary, Student Achievement and Investing in Educational Success, the Ministry of Education, New Zealand; the Co-director of the Centre of Excellence for Research in Mathematics Education, the Institute of Education, Massey University; and the International and Special Program Coordinator at Massey University. Piloting enabled the identifying of

any areas in the questionnaires that required correction or improvement, as well as any possible problems that a respondent might encounter while using the questionnaire (Litwin, 2003).

4.3 Structure of Questionnaires and Administration of Survey

This section describes the structure of the questionnaires and explains the administration of online questionnaire-based survey to school systems and schools.

4.3.1 Structure of Questionnaires

Two questionnaires were developed, one for school systems and the other for schools. The questionnaire for school systems can be found in Appendix 4 and the questionnaire for schools in Appendix 7. Both the questionnaires consisted of an introductory page and two sections. The introductory pages of both the questionnaires introduced the researcher, described the purpose of the research, the potential respondents and the time expected to complete the questionnaire, the participation deadline and benefits of participation, voluntary consent and researcher's contact details. Furthermore, the introductory pages ensured the respondents about providing a summary report.

The questionnaires were divided into two sections on the basis of information sought.

- The first section of both the questionnaires intended to collect general information about the respondents and their school system or school. The purpose of this section was to give a holistic view to the questionnaire.
- The second section of both the questionnaires focused mainly on activities undertaken by a school system or school to learn from other school systems or schools and for supporting the learning of their schools or teachers respectively, and was divided into subsections.

There were 32 questions in the school system questionnaire, of which 22 questions were related to the use of benchmarking for academic, non-academic and holistic learning and the learning of policies and reforms. The other questions were added to learn about the participant and their school system and to obtain consent for further participation. Table 4.1 presents the breakdown of the school system questionnaire.

The school questionnaire had 42 questions in total, of which 28 questions were related to the use of benchmarking for academic, non-academic and holistic learning. The other

questions were added to enable the questionnaire to be comprehensive and to obtain respondents' agreement for further participation. Table 4.2 presents the breakdown of the school questionnaire.

The definitions of academic, non-academic and holistic learning were provided in the survey for respondents' convenience. The respondents were expected to answer questions relating to the areas of learning (i.e. academic, non-academic etc.) based on the use of benchmarking for enhancing learning in those areas, extent of use of benchmarking and effectiveness of benchmarking for performance improvement. These variables were derived from the theoretical underpinnings of the conceptual model of the research (refer to Figure 2.3, Chapter 2).

Table 4.1 Breakdown of the School System Questionnaire

Section of School System Questionnaire	Area of Inquiry	Question Number	Sub-questions
Section I	General information about the respondent and their school system	1-3	-
	Scope of answers	4	-
Section II	Performance measurement	5	Q5-1 to Q5-4
	Learning academic work practices (area of learning ²⁰)	6	Q6-1 to Q6-3
	Holistic learning (area of learning)	7	Q7-1 to Q7-4
	Learning non-academic work practices (area of learning)	8	Q8-1 to Q8-3
	Learning policies and reforms (area of learning)	9	Q9-1 to Q9-5
	Other learning mechanisms	10	Q10-1 to Q10-2
	Inquire about willingness to support questionnaire to schools within the school system	11 to 13	-
	Inquire about willingness to participate in structured interview and correspondence detail	14 and 15	-

Table 4.2 Breakdown of the School Questionnaire

Section of School Questionnaire	Area of Inquiry	Question Number	Sub-questions
Section I	General information about the respondent and their school	1-3	-
	Criteria adopted for performance measurement	4	-
	Rating performance trend over the last 5 years	5	-
	Level of satisfaction with the quality of education provided by the school	6	-

²⁰ Area of learning is an area in which best practices are required.

	Scope of answers	7	-
	Level of the school (i.e. primary, secondary etc.)	8	-
Section II	Performance measurement activities	9	Q9-1 to Q9-6
	Learning academic work practices through peers (area of learning)	10	Q10-1 to Q1-3
	Learning academic work practices through observations (area of learning)	10	Q10-4 to Q10-9
	Learning from other schools (area of learning)	10	Q10-10 to Q10-14
	Holistic learning (area of learning)	11	Q11-1 to Q11-5
	Learning non-academic work practices (area of learning)	12	Q12-1 to Q12-4
	Considerations while learning from other schools	12	Q12-5
	Obtain consent to add the name of school in the summary report	Follow-up	-
	Inquire about willingness to participate in structured interview and correspondence detail	Follow-up	-

The questionnaires were quantitative-qualitative in nature and the questions were of both closed-ended and open-ended type. Where closed-ended questions were more efficient because of their ease of analysis (Seliger & Shohamy, 1989), open-ended questions led to a greater level of discovery (Gillham, 2005). The closed-ended questions were intended to comprehend the use of benchmarking over the past 5 years, its extent of use and effectiveness. For each of these questions, the respondents were asked to select a suitable option from the drop-down menu. First, the respondents were prompted by ‘Involved in Past 5 years’, and the answer options included a ‘yes’ and a ‘no’.

The respondents were then asked about the extent (frequency) of their use of benchmarking and its effectiveness for performance improvement on a 5-point Likert scale. A Likert scale is a measurement scale of agreement, often on five points (Frazer & Lawley, 2001). The options for both these variables were Ordinal, and were intended to obtain each respondent’s perception relating to a series of items or questions (Harpe, 2015).

The Likert scale options for ‘Extent of Use of Technique’²¹ are as follows:

1. Once in 5 years
2. More than once in 5 years

²¹‘Extent of Use of Technique’ measures the degree to which benchmarking is used, and is reported on a 5-point Likert scale. For the remainder of the thesis and in Appendices 10, 11 and 14 it is referred to as *frequency*.

3. Once a year
4. More than once a year
5. Frequently

The Likert scale options for ‘Effectiveness of Technique for Performance Improvement’²² are as follows:

1. Ineffective
2. Not very effective
3. Moderately effective
4. Reasonably effective
5. Highly effective

The five Likert scale options provided respondents with a range of options to choose from and ensured that the data from the questionnaires produce useful information (Litwin, 2003). Moreover, each closed-ended question inquiring about the use of benchmarking was followed by an open-ended question to allow the respondents to expand on their closed-ended choices. The open-ended responses are important as they “more accurately reflect what the respondent wants to say” (Nunan, 1992) in relation to the benchmarking techniques used for each area of learning.

4.3.2 Administration of Survey to School Systems and Schools

An online questionnaire-based survey was sent via email to school systems on 22nd June 2015 and to schools on 7th September 2015.

School systems were informed about the availability of the survey by writing a participation invitation blog on the Business Performance Improvement Resource website (www.BPIR.com) and through direct emails to representatives of PISA participating school systems. A survey developed in SurveyMonkey was sent to the sampled school systems with the following link to the online questionnaire (refer to Appendix 6):

<https://www.surveymonkey.com/r/SchoolSystemQuestionnaire2015>.

²²‘Effectiveness of Technique for Performance Improvement’ measures the degree of effectiveness of benchmarking for performance improvement, and is reported on a 5-point Likert scale. For the remainder of the thesis it is referred to as *effectiveness*.

Schools were informed about the availability of the survey through direct emails to the heads of principal and teacher associations, principals of award winning schools, principals of schools in New Zealand and school systems participating in the survey (refer to Appendix 6). In addition, a participation invitation blog was published on the Business Performance Improvement Resource website (www.BPIR.com). A survey developed in SurveyMonkey was sent to the sampled schools with the following link to the online questionnaire:

<https://www.surveymonkey.com/r/SchoolQuestionnaire2015>.

The length of participation time was expected to be from 20 to 40 minutes depending on the extent of information shared through open-ended questions. The return of a completed questionnaire was considered as consent for participation. The sampling frame for the school system questionnaire included 65 school systems and the sample comprised 20 school systems, resulting in a response rate of 30.7%. The sampling frame for the school questionnaire comprised 943 national and international schools and the sample consisted of 183 schools, resulting in a response rate of 19.4%.

4.4 Analysis and Findings of the Survey

As the survey was quantitative-qualitative in nature, the analysis of closed-ended and open-ended responses was done separately. The analysis of closed-ended responses was performed through SurveyMonkey and SPSS (Statistical Package for the Social Science). The initial analysis was performed by SurveyMonkey in the form of bar charts to depict the use of benchmarking i.e. ‘Involved in Past 5 years’, its *frequency* and *effectiveness*. The statistical analysis, such as Cross-tabulation, correlation and scatterplots were performed through SPSS to examine the relationship between *frequency* of use of benchmarking and its *effectiveness* for performance improvement.

The open-ended questions prompted the respondents to provide examples of how they used benchmarking for learning best practices in the explored areas of learning (i.e. academic and non-academic), by responding to: ‘Kindly provide an example or examples of how you use this technique’. The open-ended data was administered, coded and analysed through QSR Nvivo Version 11. Nvivo is qualitative data analysis software that provides a set of tools to assist with the analysis of qualitative data (Bazeley & Jackson, 2013). The analysis included organising, exploring, coding, linking

and integrating data. The software provided ways of managing and visualising data. The researcher used Nvivo for the coding of qualitative data into themes and sub-themes in the form of ‘nodes’ (Miles, Huberman & Saldana, 2014). Figure 4.1 illustrates the categorisation of qualitative data into themes and sub-themes. The themes were developed deductively and represented questions related to the areas of learning, while the sub-themes were developed inductively as they categorised responses on the basis of commonalities (which were the benchmarking techniques used).

Nodes				
Name	Sources	References	Description	
Examples of learned Work Practices of Other School Sy		2	2	How has your school system learned work practices of other school systems through media, onlin
Sharing Strategies for Implementing Policies&Reforms		3	3	Has your school system encouraged schools within its school system to discuss and share strategi
Other effective means adopted to learn from other SS		3	3	
Examples of Holistic Performance Measurement of Stu		5	6	Has your school system measured the performance of its students holistically (i.e. on the whole in
Recommended Schools to share Holistic Learning		5	5	Has your school system recommended its schools to learn how to improve their holistic learning f
Examples of Non-academic Learnings from other Scho		6	6	Has your school system learnt non-academic work practices from other school systems? Question
Recommended Schools to share Non-academic Learnin		6	6	Has your school system encouraged its schools to share nonacademic work practices with each o
Sharing of Policies&Reforms among Schools		6	6	Has your school system encouraged schools within its school system to discuss and share new po
Encouraged low-performing schools to get assistance f		6	6	
Policy Learning from other School Systems-Areas of Le		7	7	Has your school system considered education policies of other school system(s) while revising an
Best practice sharing visits		1	1	
Best practice sharing document review		1	1	
Best practice sharing exchange programs		1	1	
Best practice sharing curriculum review		1	1	
Best practice sharing through review of strategic pl		1	1	
Professional Development plans including options f		2	2	
International policy review for sharign best practice		4	4	
Reform Learning from other School Systems-Areas of L		8	8	Has your school system considered education reforms of other school system(s) while revising an
Encouraged high-performing schools to assist low-perf		8	8	
Learning between Schools		9	11	Within your own school system, have you encouraged high-performing schools to assist low-perf
Examples of Academic Learnings from other School Sys		9	9	Has your school system learnt academic work practices from other school system(s)? Question: H
Learned Holistic Approaches		9	9	Which holistic approaches have you learned from other school systems?
Recommended Schools to share Academic Learnings		10	10	Has your school system recommended its schools to learn academic work practices from one ano
Learned Non-academic Work Practices		13	13	Which non-academic work practices have you learned from other school systems?
For Learning&Improvement-Learned WP of Other Scho		15	20	In order to promote learning and improvement, has your school system learned work practices of
Impact of International Assessments		15	17	Has the international assessment result impacded your school system's education policies, reforms
Learned Academic Work Practices		17	17	Which academic work practices have you learned from other school systems?
Respondent's Information		20	21	1. Which school system do you represent?
Scope of Answers		20	20	Are your answers based on the whole education system or some specific schools?

Figure 4.1 An Example of Development and Organisation of Nodes in Nvivo 11

4.4.1 Analysis of the Survey Responses from School Systems

The survey was administered to school systems from 22nd June 2015 to 31st July 2015. A total of 20 school systems participated in the survey. The summary report of the survey was shared with the respondents for interpretive agreement and can be found in Appendix 8. Note, in the analysis, the term ‘school systems’ refers to responding school systems. The survey responses are now described.

From questions 1 to 4, the closed-ended and open-ended responses were designed to obtain general information about the respondent and their school system (refer to Appendix 4), and are summarised as follows.

Questions 1-3: Profiles of Survey Respondents

The names of responding school systems and the designation and experience of the respondents are presented in Table 4.3. The respondents' consents for including the names of their school systems in the thesis and survey summary report were obtained via email. Note that 18 out of 20 school systems were participants in the PISA assessments (refer to Table 4.3).

Table 4.3 School Systems Participating in the Survey and Profiles of their Respondents

Serial Number	Name of School System	Respondent's Designation	Experience	Ranking of School System in PISA 2012 Assessments ²³
1	*	Director, Learning Assessment Programs	13 years	11
2	Poland	Counsellor to the Education Minister and Senior advisor	8 and 18 years respectively	12
3	Sri Lanka**	Director of Education	27 years	N/A
4	Norway	Head of Department, International affairs, Norwegian Directorate for Education and Training	20 years	26
5	Dubai (UAE) **	Head of Strategy and Excellence	7 years	N/A
6	*	University researcher	More than 20 years	3
7	Serbia	Associate Professor of Educational Psychology, Head of Institute of Psychology University of Belgrade	25 years	42
8	Estonia	Adviser	35 years	8
9	Vietnam	National Project Manager, Director of Vietnam PISA Office, Director of Centre for Education Quality Evaluation - Ministry of Education and Training	20 years	15
10	Iceland	Director General (Evaluation and Analysis)	30 years	33
11	Finland	External consultant	30 years	7
12	Chugach School District (Alaska)	Superintendent	20 years	28
13	Spain	Advisor in Education	30 years	30
14	Iredell-Statesville Schools (USA)	Deputy Superintendent of Curriculum and Instruction	24 years	28
15	Sweden	National program manager PISA 2015	20 years	36

²³ The rank of school systems is calculated on their aggregated result in English, mathematics and science.

16	*	Manager Research and Evaluation	25 years	19
17	Czech Republic	school inspector	27 years	22
18	Belgium – Flanders	Researcher	15 years	18
19	Portugal	President of Executive Board of Assessment Office	35 years	31
20	Indonesia	Director of Education Assessment	29 years	60

* These school systems preferred to stay anonymous.

** Sri Lanka and Dubai participated in the survey after reading the blog published on www.BPIR.com.

Question 4: Scope of Responses

The pie chart presented as follows shows that the majority of survey responses (80%) were related to the whole school system (including public, private and others), 15% were related to public schools and 5% were related to private schools; however, none of the responses were related to both public and private schools (Figure 4.2).

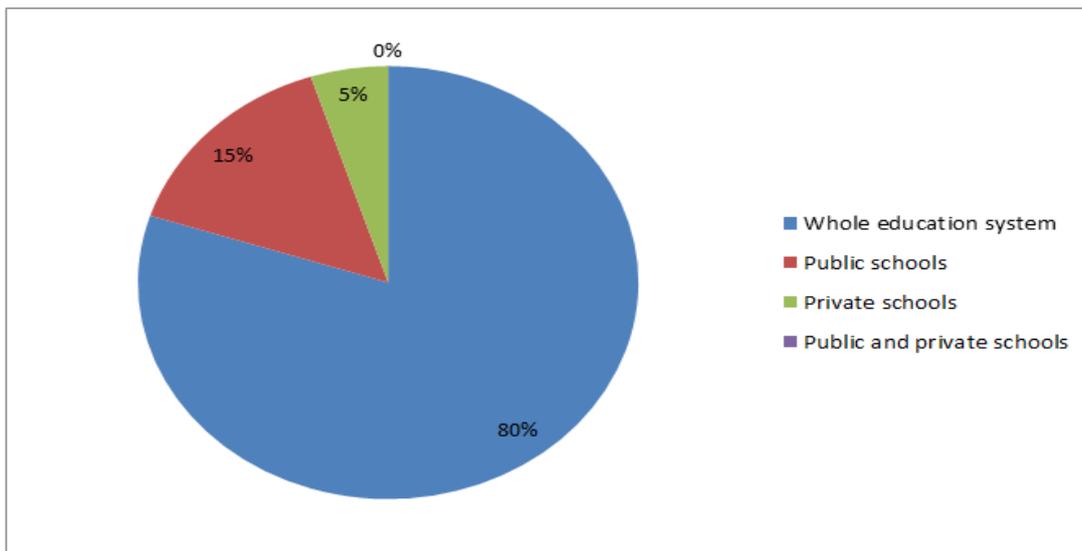


Figure 4.2 Scope of Survey Responses (n=20)

From questions 5 to 10, the closed-ended responses describe the use of benchmarking over the past 5 years (referred to as ‘Involved in Past 5 years’ in the survey presented in Appendix 4).

Question 5: Performance Measurement Activities

The majority of the school systems (from 18 to 20) answered Question 5, which concerned ‘Performance Measurement Activities’. This question has 4 sub-questions.

Considering the past 5 years, have you compared the performance (e.g. academic, administrative, all-round etc.) of your school system with other school system(s)? (Q5-1)

Considering the past 5 years, has the performance comparison with other school system(s) helped your school system learn from them and improve performance? (Q5-2)

The majority (95% or 19 out of 20) of the school systems compared their performance with other school systems and the majority (88.89% or 16 out of 18) of the school systems also benefited from this performance comparison (Figure 4.3).

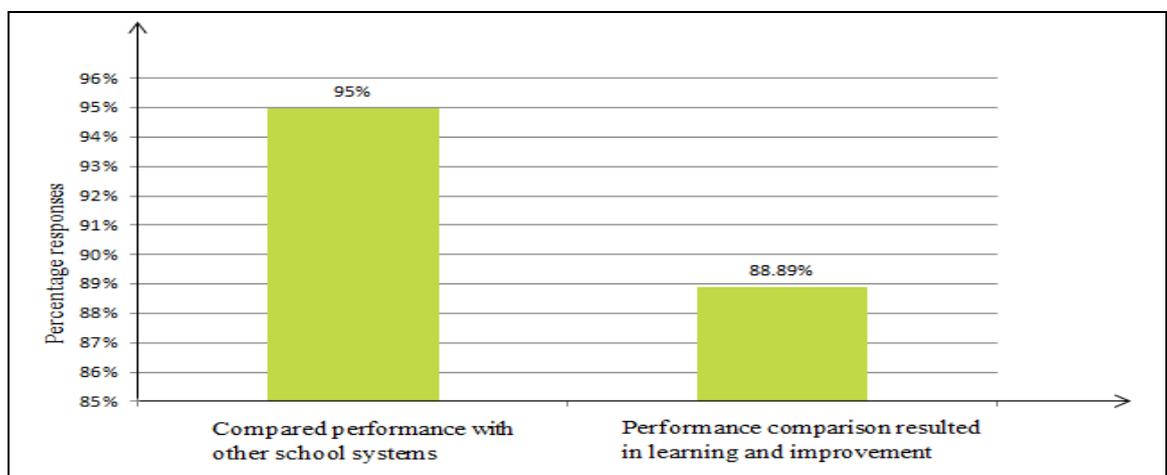


Figure 4.3 Performance Comparison between School Systems (n=20)

For the remaining two sub-questions of question 5 to question 10, the closed-ended responses also describe the *frequency* of the use of benchmarking and its *effectiveness* for academic, non-academic and holistic learning, and the learning of policies and reforms. The responses for *frequency* and *effectiveness* are described in Appendix 8 and their Cross-tabulation is presented in Appendix 10. Moreover, these responses are analysed and discussed in Section 4.4.2. The open-ended questions allowed the respondents to present examples for their closed-ended choices and enabled the researcher to recognise the underlying benchmarking techniques. In the following analysis, the responses for closed-ended (‘Involved in 5 years’) and open-ended (‘Kindly provide an example or examples of how you use this technique’) questions are presented together.

Considering the past 5 years, within your own school system, have you encouraged high-performing schools to assist low-performing schools to improve their performance?

Kindly provide an example or examples of how you use this technique.

(Q5-3)

Considering the past 5 years, within your own school system, have you encouraged low-performing schools to get assistance from high-performing schools to improve their performance?

Kindly provide an example or examples of how you use this technique.

(Q5-4)

Eighteen school systems responded to Q5-3 and Q5-4. Two-thirds (66.67% or 12 out of 18) of the school systems encouraged their high-performing schools to assist low-performing schools and 61.11% (or 11 out of 18) of the school systems encouraged their low-performing schools to get assistance from high-performing schools for performance improvement (Figure 4.4).

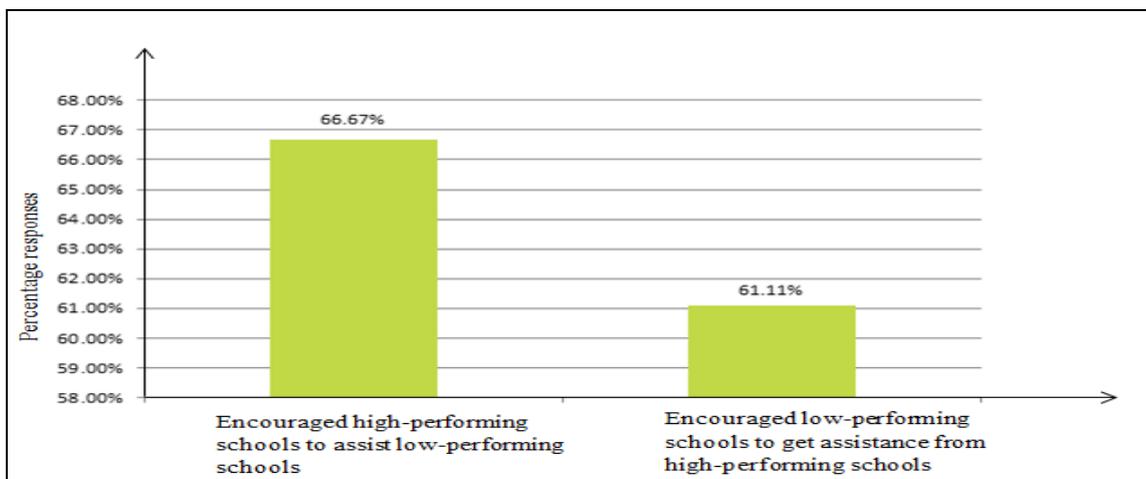


Figure 4.4 School Systems Encouraged Schools to Assist or Get Assistance from Each Other (n=20)

Of the responding school systems, eight school systems presented examples of benchmarking techniques used to encourage high-performing schools to assist low-performing schools for performance improvement. The names of the applied benchmarking techniques, the number of school systems describing their use when providing an example and a sample of the respondents' input are presented in Table 4.4.

Table 4.4 Examples of Benchmarking Techniques Used by School Systems to Encourage High-Performing Schools to Assist Low-Performing Schools to Improve Their Performance

Benchmarking Technique	The Number of School Systems that Described the Use of Benchmarking Technique When Providing an Example	Voice of the Respondent
Performance benchmarking	2	“School teams are collaboratively reviewing performance data, analyzing strengths and opportunities for improvement, which each school is sharing with all other schools in our district”
Best practice sharing conferences	1	“Schools cooperate in organizing conferences or seminars to share experiences in education management, teaching methods, testing and accreditation”
Best practice sharing exchange programs	1	“Small groups with key persons representing schools with support from experts will exchange updated teaching techniques and discuss about current problems.”
Best practice sharing meetings	2	“Sharing of strategies and best practices at district level and school level meetings”
Best practice sharing observations	1	“Models of good practice were identified based on class observations in high performing schools”
Best practice sharing seminars	1	“Schools cooperate in organizing conferences or seminars to share experiences in education management, teaching methods, testing and accreditation”
Best practice sharing presentations	1	“Teachers’ presentations at district Innovation Showcase”
Best practice sharing special programs	1	“Investing in Educational Success initiative - where all schools are being encouraged to form communities of schools with the express purpose of sharing expertise and supporting each other to improve student achievement”
Best practice sharing special projects	1	“This experiment was conducted in form of a (doctoral) research with a small number of participating schools. Schools were chosen based on the average performance of their students on PISA 2009 reading literacy.”

Of the responding school systems, six school systems described examples of benchmarking techniques used to encourage low-performing schools to get assistance from high-performing schools for performance improvement. The names of the adopted benchmarking techniques, the number of school systems describing their use when providing an example and a sample of the respondents’ input are presented in Table 4.5. A number of examples provided in Tables 4.4 and 4.5 are the same; the researcher

believes that this is because both the tables represent methods used for learning between teachers.

Table 4. 5 Examples of Benchmarking Techniques Used by School Systems to Encourage Low-Performing Schools to Get Assistance from High-Performing Schools for Performance Improvement

Benchmarking Technique	The Number of School Systems that Described the Use of Benchmarking Technique When Providing an Example	Voice of the Respondent
Performance benchmarking	1	“School teams are collaboratively reviewing performance data, analysing strengths and opportunities for improvement, and each school is sharing with all other schools in our district.”
Best practice sharing collaborative lesson planning	1	“In the Spring of each year, all schools again review data, student needs, interests, and community input to develop thematic lesson plans for the following school year. All schools share plans with other schools who borrow ideas and strategies from each other.”
Best practice sharing conferences	1	“Schools cooperate in organizing conferences or seminars to share experiences in education management, teaching methods, testing and accreditation”
Best practice sharing exchange programs	2	“Through exchange of teacher expertise, educational materials, test papers etc.”
Best practice sharing meetings	1	“All schools share plans with other schools who borrow ideas and strategies from each other”
Best practice sharing observations	1	“Support for visiting classrooms and conversations”
Best practice self-assessment	1	“Self-assessment”
Best practice sharing seminars	1	“Schools cooperate in organizing conferences or seminars to share experiences in education management, teaching methods, testing and accreditation”
Best practice sharing special programs	1	“Investing in Educational Success initiative - where all schools are being encouraged to form communities of schools with the express purpose of sharing expertise and supporting each other to improve student achievement”

Question 6: Learning Academic Work Practices²⁴

The majority (18) of the school systems answered Question 6 and its 3 sub-questions, which are related to the use of benchmarking for ‘Learning Academic Work Practices’.

²⁴ Refer to Appendix 1 for the definition of Academic Work Practices.

Considering the past 5 years, has your school system learnt academic work practices from other school system(s)?

Kindly provide an example or examples of how you use this technique.

(Q6-1)

Considering the past 5 years, has your school system recommended its schools to learn academic work practices from one another?

Kindly provide an example or examples of how you use this technique.

(Q6-2)

The majority (94.44% or 17 out of 18) of the school systems learned academic work practices from other school systems and a large number (83.33% or 15 out of 18) of the school systems encouraged their schools to learn academic work practices from each other (Figure 4.5).

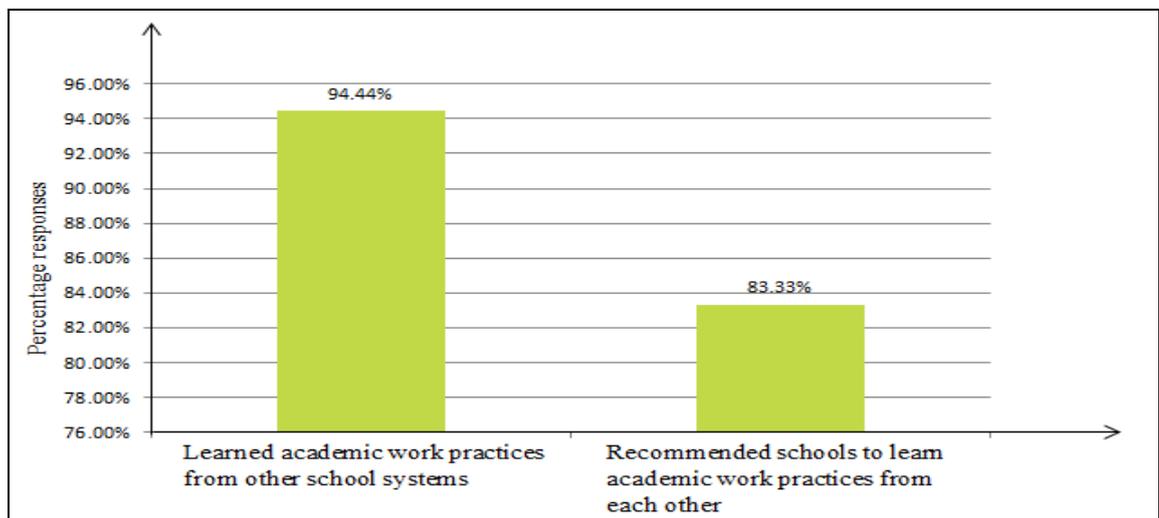


Figure 4.5 School Systems Learned Academic Work Practices and Encouraged Schools to Learn Academic Work Practices (n=20)

Of the responding school systems, nine school systems shared examples of benchmarking techniques used for learning academic work practices from other school systems. The names of the adopted benchmarking techniques, the number of school systems describing their use when providing an example and a sample of the respondents' input are presented in Table 4.6.

Table 4.6 Examples of Benchmarking Techniques Used by School Systems to Learn Academic Work Practices from Other School Systems

Benchmarking Technique	The Number of School Systems that Described the Use of Benchmarking Technique When Providing an Example	Voice of the Respondent
Best practice sharing conferences	2	“Sharing at conference”
Best practice sharing through data sharing	1	“Sharing of data”
Best practice sharing exchange programs	2	“Interchanges with other countries within the European Union, Canada and the USA”
Best practice sharing through participation in international studies	2	“Participation in large scale comparative studies”
Partnerships for learning and sharing best practices	1	“Partnering with a school district to provide the same opportunities they provide to their students for our students. Then providing Career and Technology learning opportunities for their students which we already provide for our students.”
Professional Development (PD) plans including options for best practice sharing	1	“Professional development”
Best practice sharing research projects	2	“Participation in international research projects”
Best practice sharing trainings	2	“Through sending teachers and principals for overseas training programs”
Best practice sharing visits	5	“Study visits to other countries”
Best practice sharing workshops	3	“Experts/Specialists from Ministry of Education and Training come to schools in workshop/conferences to train teachers/leaders from schools about teaching methods or teaching competencies.”

Ten school systems shared examples of benchmarking techniques adopted to recommend their schools to share academic work practices with each other. The names of the adopted benchmarking techniques, the number of school systems describing their use when providing an example and a sample of the respondents’ input are presented in Table 4.7.

Table 4.7 Examples of Benchmarking Techniques Used by School Systems to Recommend their Schools to Share Academic Work Practices with Each Other

Benchmarking Technique	The Number of School Systems that Described the Use of Benchmarking Technique When Providing an Example	Voice of the Respondent
Best practice sharing clusters	1	“Investing in Educational Success”
Best practice sharing conferences	2	“Sharing at conferences”
Best practice sharing exchange programs	2	“Participation in exchange programs”
Best practice sharing observations	1	“Through teachers’ observation of teaching at other schools”
Best practice sharing through shared Professional Development	2	“Through teacher quality circles which comprise of teachers of several neighbouring schools”
Best practice sharing special programs	1	“Sharing facilities such as ICT, science and technology and sports between schools”
Best practice sharing trainings	1	“District wide training events where outside expertise is augmented by time for each school to share how they have implemented best practices in the area of training. Providing school team reflection time in the training and then time for each school team to present what they’ve learned from each other”
Best practice sharing visits	1	“On-site visits”
Best practice sharing workshops	2	“Best practice workshops called <i>what works</i> ”

Considering the past 5 years, which academic work practices have you learnt from other school systems(s)?

(Q6-3)

The academic work practices learned from other school systems can be found in Appendix 8.

Question 7: Holistic Learning²⁵

From sixteen to seventeen school systems responded to Question 7 and its 4 sub-questions related to the use of benchmarking for ‘Holistic Learning’.

Considering the past 5 years, has your school system learnt how holistic learning is provided from other school system(s)?

(Q7-1)

Considering the past 5 years, has your school system recommended its schools to learn how to improve their holistic learning from one another?

Kindly provide an example or examples of how you use this technique.

(Q7-2)

Figure 4.6 shows that 47.06% (or 8 out of 17) of the school systems learned provision of holistic learning from other school systems and 56.25% (or 9 out of 16) of the school systems recommended their schools to learn how to improve their holistic learning from each other.

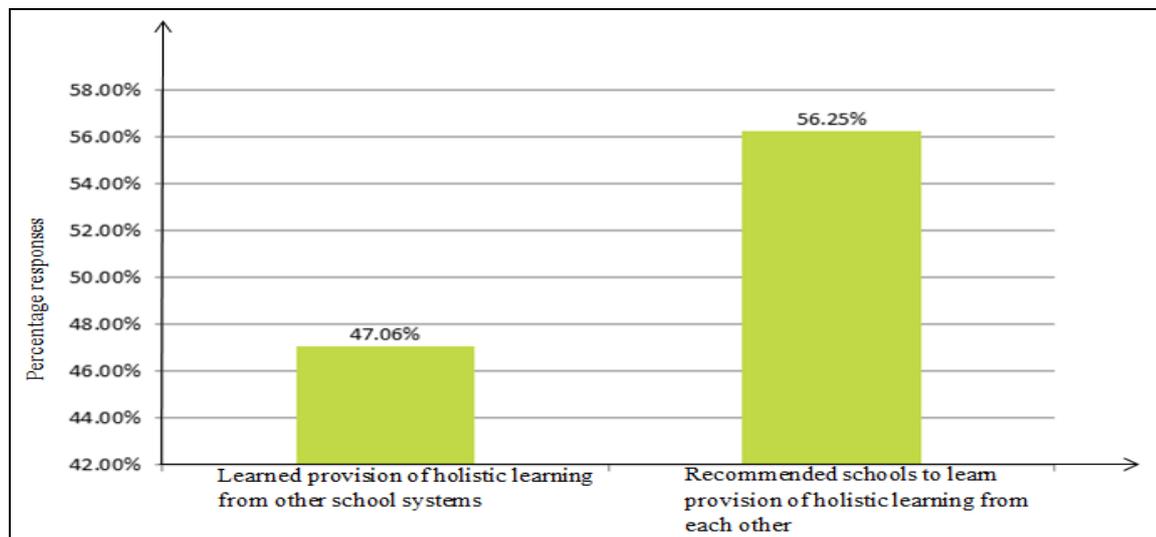


Figure 4.6 Systems Learned Provision of Holistic Learning and Encouraged Schools to Learn Provision of Holistic Learning (n=20)

Four school systems presented examples of benchmarking techniques adopted to recommend schools to learn ways to improve their holistic learning from each other. The names of the adopted benchmarking techniques, the number of school systems describing their use when providing an example and a sample of the respondents' input are presented in Table 4.8.

²⁵ Refer to Appendix 1 for the definition of Holistic Learning.

Table 4.8 Examples of Benchmarking Techniques Used by School Systems to Recommend Schools to Learn Ways to Improve their Holistic Learning from Each Other

Benchmarking Technique	The Number of School Systems that Described the Use of Benchmarking Technique When Providing an Example	Voice of the Respondent
Best practice sharing events and competitions	2	“Schools participate in sport competitions”
Best practice curriculum	2	“Curriculum and vision for young people to be confident, connected, actively involved lifelong learners”
Best practice sharing trainings	1	“Hold training within one school which facilitates training and modelling of strength areas”

Considering the past 5 years, has your school system measured the performance of its students holistically (i.e. on the whole including academic and holistic learning)?

Kindly provide an example or examples of how you use this technique.

(Q7-3)

The answer to this question is presented in Appendix 8.

Considering the past 5 years, which holistic approaches have you learnt from other school system(s)?

(Q7-4)

The holistic approaches learned from other school systems are presented in Appendix 8.

Question 8: Learning Non-Academic Work Practices²⁶

From sixteen to seventeen school systems responded to Question 8 and its 3 sub-questions, which explored the use of benchmarking for ‘Learning Non-academic Work Practices’.

Considering the past 5 years, has your school system learnt non-academic work practices from other school system(s)?

Kindly provide an example or examples of how you use this technique.

(Q8-1)

Considering the past 5 years, has your school system encouraged its schools to share non-academic work practices with each other?

Kindly provide an example or examples of how you use this technique.

(Q8-2)

²⁶ Refer to Appendix 1 for the definition of Non-academic Work Practices.

Figure 4.7 indicates that 70.59% (or 12 out of 17) of the school systems learned non-academic work practices from other school systems and 75% (or 12 out of 16) of the school systems recommended their schools to share non-academic work practices.

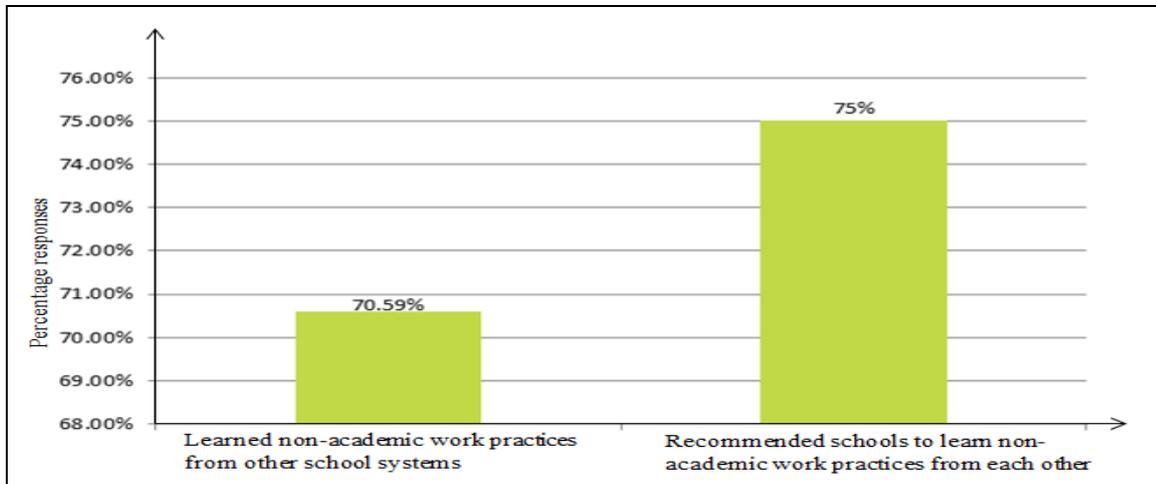


Figure 4.7 School Systems Learned Non-academic Work Practices and Recommended Schools to Learn Non-academic Work Practices (n=20)

Of the responding school systems, six school systems presented examples of benchmarking techniques used to learn non-academic work practices from other school systems. The names of the adopted benchmarking techniques, the number of school systems describing their use when providing an example and a sample of the respondents’ input are presented in Table 4.9.

Table 4.9 Examples of Benchmarking Techniques Used by School Systems to Learn Non-Academic Work Practices from Each Other

Benchmarking Technique	The Number of School Systems that Described the Use of Benchmarking Technique When Providing an Example	Voice of the Respondent
Best practice sharing conferences	2	“Connecting with other school systems at conferences”
Best practice sharing exchange programs	3	“Student and teacher exchange programs”
Best practice sharing visits	2	“Visiting other school systems”

Six school systems presented examples of benchmarking techniques used to recommend their schools to share non-academic work practices with each other. The names of the adopted benchmarking techniques, the number of school systems describing their use when providing an example and a sample of the respondents’ input are presented in Table 4.10.

Table 4.10 Examples of Benchmarking Techniques Used by School Systems to Recommend their Schools to Learn Non-Academic Work Practices from Each Other

Benchmarking Technique	The Number of School Systems that Described the Use of Benchmarking Technique When Providing an Example	Voice of the Respondent
Best practice sharing clusters	2	“Investing in Educational Success”
Best practice sharing conferences	2	“Thematic conferences of school principals”
Best practice sharing meetings	1	“Meetings”
Best practice sharing online learning and sharing platform	1	“Web-based sharing”
Best practice sharing through shared development plans	1	“Principals’ and teachers’ training on developing educational plans, school-based teacher development, school-based management, financial procedures, quality assurance standards, performance in national assessments and examinations, school health programs etc.”
Best practice sharing special programs	2	“Through special camps to promote social cohesion, peace and value education”

Considering the past 5 years, which non-academic work practices have you learnt from other school system(s)?

(Q8-3)

The non-academic work practices learned from other school systems can be found in Appendix 8.

Question 9: Learning Policies and Reforms²⁷

From sixteen to eighteen school systems responded to Question 9 and its 5 sub-questions related to the use of benchmarking for ‘Learning Policies and Reforms’.

Considering the past 5 years, has your school system considered education reforms of other school system(s) while revising and/or formulating its own reforms?

Kindly provide an example or examples of how you use this technique.

(Q9-1)

Considering the past 5 years, has your school system considered education policies of other school system(s) while revising and/or formulating its own policies?

²⁷ Refer to Appendix 1 for the definition of Policies and Reforms.

Kindly provide an example or examples of how you use this technique.

(Q9-2)

Figure 4.8 demonstrates that 82.35% (or 14 out of 17) of the school systems learned education reforms from other school systems while revising and/or formulating their own reforms, and 87.5% (or 14 out of 16) of the school systems considered education policies of other school systems while revising and/or formulating their own policies.

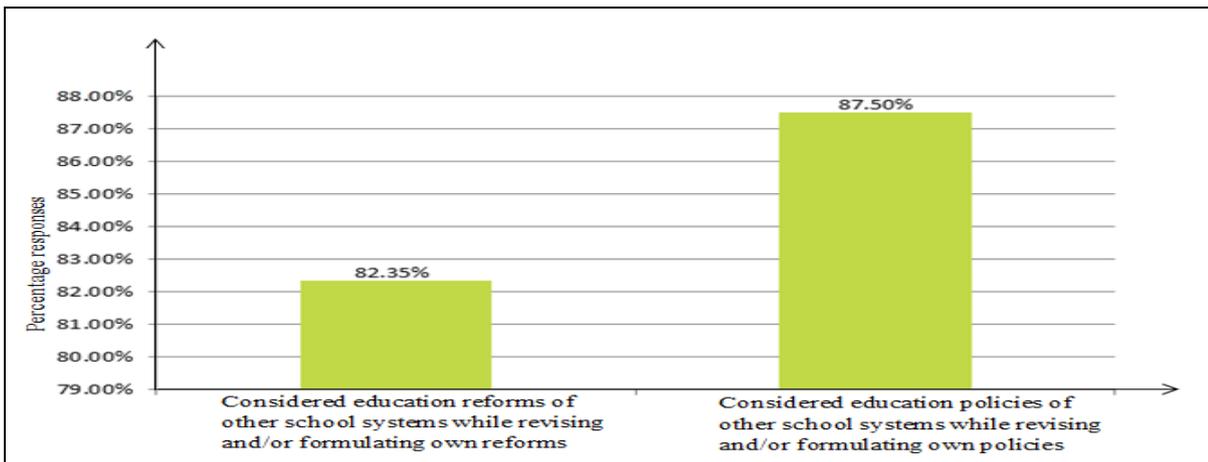


Figure 4.8 School Systems Considered Education Reforms and Policies of Other School Systems (n=20)

Of the responding school systems, eight school systems shared examples of benchmarking techniques used to learn education reforms of other school systems. The names of the implemented benchmarking techniques, the number of school systems describing their use when providing an example and a sample of the respondents' input are presented in Table 4.11.

Table 4.11 Examples of Benchmarking Techniques Used by School Systems to Learn Education Reforms of Other School Systems

Benchmarking Technique	The Number of School Systems that Described the Use of Benchmarking Technique When Providing an Example	Voice of the Respondent
Best practice sharing curriculum review	3	"Curriculum reform 1996 (ideas from Finland)"
Best practice sharing special projects	2	"We carry out such a technique within the scope of European cooperation in education and training (ET 2010, ET 2020)"
Best practice sharing through research-based reforms	1	"A lot of reforms have been implemented in Sweden but these reforms have not been inspired by other countries but by market research"
Best practice sharing	2	"Teacher education and management

through review of Professional Development plans		reforms in other countries with high performing education systems”
Best practice sharing through review of strategic plans	2	“Learn and consider about education goals in order to ensure the national education goals”
Best practice sharing visits	1	“Study visits to relevant countries”

Seven school systems presented examples of benchmarking techniques adopted to learn policies of other school systems. The names of the applied benchmarking techniques, the number of school systems describing their use when providing an example and a sample of the respondents’ input are presented in Table 4.12.

Table 4.12 Examples of Benchmarking Techniques Used by School Systems to Learn Education Policies of Other School Systems

Benchmarking Technique	The Number of School Systems that Described the Use of Benchmarking Technique When Providing an Example	Voice of the Respondent
Best practice sharing curriculum review	1	“Curriculum”
Best practice sharing document review	1	“Document studies”
Best practice sharing exchange programs	1	“We carry out such a technique within the scope of European cooperation in education and training (ET 2010, ET 2020)”
International policy review for sharing best practices	4	“Participate in OECD education policy reviews”
Professional Development (PD) plans including options for best practice sharing	2	“Teacher education policies in other countries with high performance”
Best practice sharing through review of strategic plans	1	“Schools learn and consider about education goals in order to ensure the national education goals”
Best practice sharing visits	1	“Study visits”

Considering the past 5 years, has your school system encouraged schools within its school system to discuss and share new policies and/or reforms?

Kindly provide an example or examples of how you use this technique.

(Q9-3)

Considering the past 5 years, has your school system encouraged schools within its school system to discuss and share strategies for implementing new policies and/or reforms?

Kindly provide an example or examples of how you use this technique.

(Q9-4)

It is observed that 77.78% (or 14 out of 18) of the school systems encouraged their schools to discuss and share new policies and reforms, and 88.24% (or 15 out of 17) of the school systems also encouraged their schools to discuss and share strategies for implementing new policies and reforms (Figure 4.9).

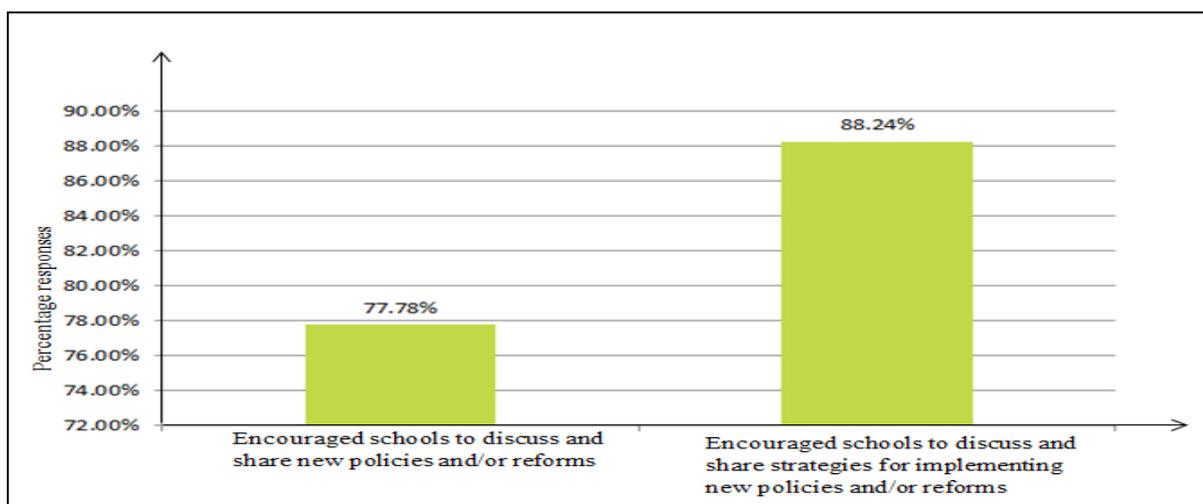


Figure 4.9 School Systems Encouraged Schools to Discuss and Share Policies and/or Reforms and Strategies for their Implementation (n=20)

Of the responding school systems, six school systems described examples of benchmarking techniques adopted to recommend schools to discuss and share new policies and/or reforms. The names of the adopted benchmarking techniques, the number of school systems describing their use when providing an example and a sample of the respondents' input are presented in Table 4.13.

Table 4.13 Examples of Benchmarking Techniques Used by School Systems to Recommend their Schools to Discuss and Share New Policies and/or Reforms

Benchmarking Technique	The Number of School Systems that Described the Use of Benchmarking Technique When Providing an Example	Voice of the Respondent
Best practice sharing conferences	1	"Meetings and conferences"
Best practice sharing exchange programs	1	"Supporting Comenius programs in EU"
Best practice sharing meetings	1	"Meetings and conferences"
Best practice sharing online learning and	2	"Web-based information sharing"

sharing platform		
Sharing of Strategic Plans	1	“Implementation of child-friendly teaching and learning strategies, school-based teacher development strategies, school-based management strategies”

Three responding school systems presented examples of benchmarking techniques employed to encourage schools to discuss and share strategies for implementing new policies and/or reforms. The names of the applied benchmarking techniques, the number of school systems describing their use when providing an example and a sample of the respondents’ input are presented in Table 4.14.

Table 4.14 Examples of Benchmarking Techniques Used by School Systems to Encourage Schools within to Discuss and Share Strategies for Implementing New Policies and/or Reforms

Benchmarking Technique	The Number of School Systems that Described the Use of Benchmarking Technique When Providing an Example	Voice of the Respondent
Dissemination of International Publications	1	“We regularly disseminate international publications dealing with various kinds of school reforms”
Best practice sharing seminars	1	“Schools organize seminars to share experiences with other schools”
Best practice curriculum	1	“New curriculum”

Considering the past 5 years, has the international assessment (e.g. PISA) result impacted your school system’s education policies, reforms, curriculum and teacher training programs? Kindly specify in case of other.

(Q9-5)

Fifteen school systems responded to Q 9-5. Figure 4.10 shows that the results of international assessments impacted the education policies, reforms and curriculum of the majority (80%) of the school systems, while they impacted the teacher training programs of only 53.33% of the school systems.

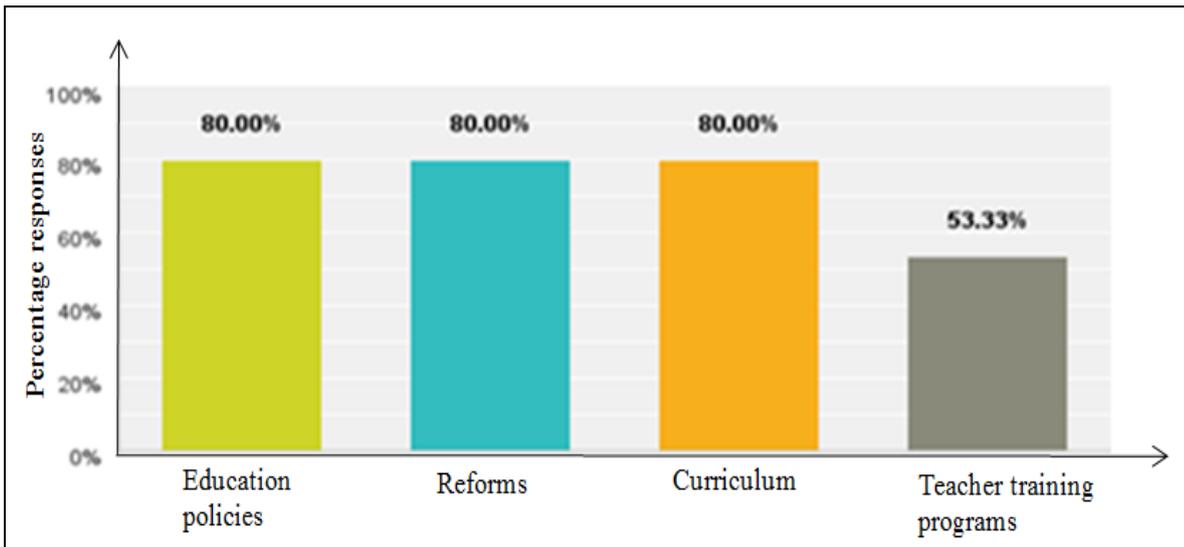


Figure 4.10 Impact of International Assessments on Various Aspects of School Systems (n=20)

Question 10: Other Learning Mechanisms

Considering the past 5 years, in order to promote learning and improvement, has your school system learnt work practices of other school systems through media, online sources, teacher exchange and/or visits? Kindly specify in case of other.

Kindly specify the Extent of Use²⁸ and Effectiveness of the above learning approaches.

Kindly provide an example or examples of how you use this technique.

(Q10-1)

Sixteen school systems responded to this question and signified that in order to promote learning and improvement within their school system, they learned work practices of other school systems through media, online sources and teacher exchange and/or visits (Figure 4.11). The *frequency* and *effectiveness* of these learning approaches is presented in Appendix 10. It is seen in Figure 4.11 that all school systems (100% or 16) responding to this question visited other school systems to learn their work practices whereas more than 81% (or 13 out of 16) of the school systems learned work practices of other school systems through online sources, 75% (or 12 out of 16) of the school systems learned work practices of other school systems through teacher exchange and 37.5% (or 6 out of 16) of the school systems learned work practices other school systems through media. Therefore, visits are found as being the most popular method for learning work practices from other school systems.

²⁸ Extent of Use = Frequency

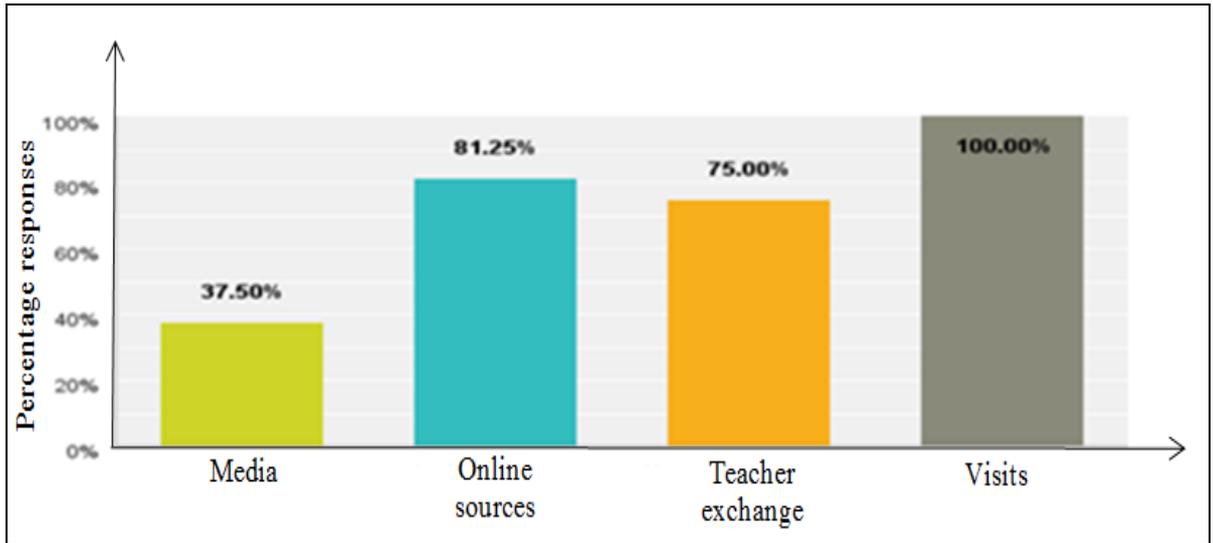


Figure 4.11 Methods Adopted by School Systems to Learn Work Practices of Other School Systems (n=20)

Two school systems presented ‘publications’ as another example of benchmarking techniques adopted to learn work practices of other school systems. The number of school systems describing publications as an example and a sample of the respondents’ input are presented in Table 4.15.

Table 4.15 Examples of Benchmarking Techniques other than from Media, Online Sources, Teacher Exchange and/or Visits Adopted by School Systems to Learn Work Practices of Other School Systems

Benchmarking Technique	The Number of School Systems that Described the Use of Benchmarking Technique When Providing an Example	Voice of the Respondent
Best practice sharing publication	2	“Publications of international agencies and aid agencies”

Kindly specify other effective means adopted by your school system to learn from other school systems.

(Q10-2)

Three out of 20 school systems shared examples of effective benchmarking techniques (besides the ones already explained) adopted to learn from other school systems. The names of the adopted benchmarking techniques, the number of school systems describing their use when providing an example and a sample of the respondents’ input are presented in Table 4.16.

Table 4.16 Examples of Effective Benchmarking Techniques Adopted by School Systems to Learn from Other School Systems

Benchmarking Technique	The Number of School Systems that Described the Use of Benchmarking Technique When Providing an Example	Voice of the Respondent
Best practice sharing assessments	1	“National assessments conducted in line of international assessments such as TIMSS”
Best practices sharing discussions	1	“Teachers use their updated skills/techniques/knowledge in daily teaching, in school management. Teachers discuss about positive and negatives effects of exchanged experiences”
Best practice sharing special projects	1	“More holistic quality school improvement project initiated by University and collaborated with school and business units are quite successful”

Since questions 11 to 15 were intended to obtain respondents’ consent for further participation and correspondence detail, their responses are not discussed in the analysis.

4.4.2 Findings of the Survey with School Systems

The survey with purposively selected school systems suggests that school systems use benchmarking for performance comparison and to learn best practices from other school systems and for supporting best practice learning of their schools. The majority of school systems have used benchmarking for performance comparison and reported that the performance comparison contributed towards learning and improvement (refer to Figure 4.3). It is found that school systems use benchmarking to learn best practices from other school systems related to academic and non-academic work practices, holistic learning and learning of policies and reforms (refer to Figures 4.5, 4.6, 4.7 and 4.8). Adding to this, school systems also use benchmarking to encourage schools to collaborate with each other (refer to Figure 4.4) for learning best practices for the improvement of academic and non-academic work practices and holistic learning, and also while implementing new policies and reforms (refer to Figures 4.5, 4.6, 4.7 and 4.9). More importantly, it is established that the majority of school systems use benchmarking to learn academic work practices of other school systems and for promoting academic learning among schools (refer to Figure 4.5).

4.4.2.1 Findings Related to the Frequency of Use of Benchmarking and its Contribution to Performance

In order to determine the frequency of benchmarking used by school systems, the researcher calculated a mean of responses for *frequency* for each survey question presented in Appendix 10 (Table 4.17). It is found that on a 5-point Likert scale the mean *frequency* ranges between 2.46 and 3.9 (rounded to 4), which means that the school systems use benchmarking from ‘more than once in 5 years’ and ‘once a year’ to ‘more than once a year’. The observation of means shows that the application of benchmarking for promoting academic learning of schools has the highest mean for *frequency*, whereas the application of benchmarking for learning education reforms of other school systems has the lowest mean (Table 4.17). This finding suggests that school systems have more focus on intra-system learning.

In addition to *frequency*, the researcher also calculated a mean of responses for *effectiveness* for each survey question presented in Appendix 10 (Table 4.17), and found that on a 5-point Likert scale the mean *effectiveness* ranges between 3 and 3.9 (rounded to 4). This means that benchmarking ranges from being ‘moderately effective’ to ‘reasonably effective’ in improving the performance of school systems. It is observed that the use of benchmarking for promoting academic learning of schools has the highest mean for *effectiveness*, whereas the use of benchmarking for learning education policies of other school systems has the lowest mean (Table 4.17). It is obvious from Table 4.17 that not all *effectiveness* corresponds to *frequency*.

A Spearman’s rho correlation coefficient was computed to determine the relationship between the *frequency* and *effectiveness* of benchmarking for questions presented in Table 4.17. Spearman’s rho was calculated as the data were ordinal and not normally distributed (Field, 2013). No correlation was observed between the mean of responses for *frequency* and *effectiveness* (Table 4.18). A correlation between individual questions was not calculated due to the small sample size of $n = 20$ and non-significant average correlation of $r_s = 0.375$. Nevertheless, a scatterplot was created to examine the impact of the *frequency* of use of benchmarking on its *effectiveness* (Figure 4.12). The scatterplot determined that 10.5% of variability in the *effectiveness* of benchmarking is accounted for by its *frequency*. It is therefore understood that the *frequency* of use of benchmarking is a contributor to the *effectiveness* of benchmarking for performance improvement.

Table 4.17 Ranking of Questions on Benchmarking Included in the School System Questionnaire on Frequency and Effectiveness (n=20)

Question Number	Ranking of Questions on Benchmarking on 'Frequency'	Mean Frequency ²⁹	Question Number	Ranking of Questions on Benchmarking on 'Effectiveness'	Mean Effectiveness ³⁰
Q6-2	Has your school system recommended its schools to learn academic work practices from one another?	3.9	Q6-2	Has your school system recommended its schools to learn academic work practices from one another?	3.9
Q7-3	Has your school system recommended its schools to learn how to improve their holistic learning from one another?	3.8	Q5-3	Within your own school system, have you encouraged high-performing schools to assist low-performing schools to improve their performance?	3.9
Q8-2	Has your school system encouraged its schools to share non-academic work practices with each other?	3.75	Q7-3	Has your school system recommended its schools to learn how to improve their holistic learning from one another?	3.8
Q10-1	In order to promote learning and improvement has your school system learned work practices of other school systems through media, online sources, teacher exchange and/or visits?	3.7	Q8-1	Has your school system learned non-academic work practices from other school system(s)?	3.75
Q9-3	Has your school system encouraged schools within its school system to discuss and share new policies and/or reforms?	3.54	Q8-2	Has your school system encouraged its schools to share non-academic work practices with each other?	3.75
Q6-1	Has your school system learned academic work practices from other school system(s)?	3.375	Q5-4	Within your own school system, have you encouraged low-performing schools to get assistance from high-performing schools to improve their performance?	3.6
Q9-4	Has your school system encouraged schools within its school system to discuss and share strategies for implementing new policies and/or reforms?	3.3	Q6-1	Has your school system learned academic work practices from other school system(s)?	3.6

²⁹ Average of 'Mean Frequency' is 3.2, meaning that on average benchmarking is used between 'once a year' to 'more than once a year'.

³⁰ Average of 'Mean Effectiveness' is 3.5, meaning that on average the effectiveness of benchmarking lies between 'moderately effective' and 'reasonably effective'.

Q9-2	Has your school system learnt how holistic learning is provided from other school system(s)?	3.14	Q7-1	Has your school system learned how holistic learning is provided from other school system(s)?	3.5
Q8-1	Has your school system learnt non-academic work practices from other school system(s)?	3.11	Q10-1	In order to promote learning and improvement has your school system learnt work practices of other school systems through media, online sources, teacher exchange and/or visits?	3.38
Q5-4	Within your own school system, have you encouraged low-performing schools to get assistance from high-performing schools to improve their performance?	3	Q9-1	Has your school system considered education reforms of other school system(s) while revising and/or formulating its own reforms?	3.3
Q5-3	Within your own school system, have you encouraged high-performing schools to assist low-performing schools to improve their performance?	2.7		Has your school system encouraged schools within its school system to discuss and share strategies for implementing new policies and/or reforms?	3.25
Q9-2	Has your school system considered education policies of other school system(s) while revising and/or formulating its own policies?	2.6	Q9-4	Has your school system encouraged schools within its school system to discuss and share new policies and/or reforms?	3.18
Q9-1	Has your school system considered education reforms of other school system(s) while revising and/or formulating its own reforms?	2.46	Q9-3	Has your school system considered education policies of other school system(s) while revising and/or formulating its own policies?	3.16

Table 4.18 Spearman's Rho Correlation between the Mean of Frequency and Effectiveness of Benchmarking for School Systems

Correlations				
			Mean (Extent of Use)	Mean (Effectiveness)
Spearman's rho	Mean (Extent of Use)	Correlation Coefficient	1.000	0.375
		Sig. (2-tailed)		0.207
		N	13	13
	Mean (Effectiveness)	Correlation Coefficient	0.375	1.000
		Sig. (2-tailed)	0.207	
		N	13	13

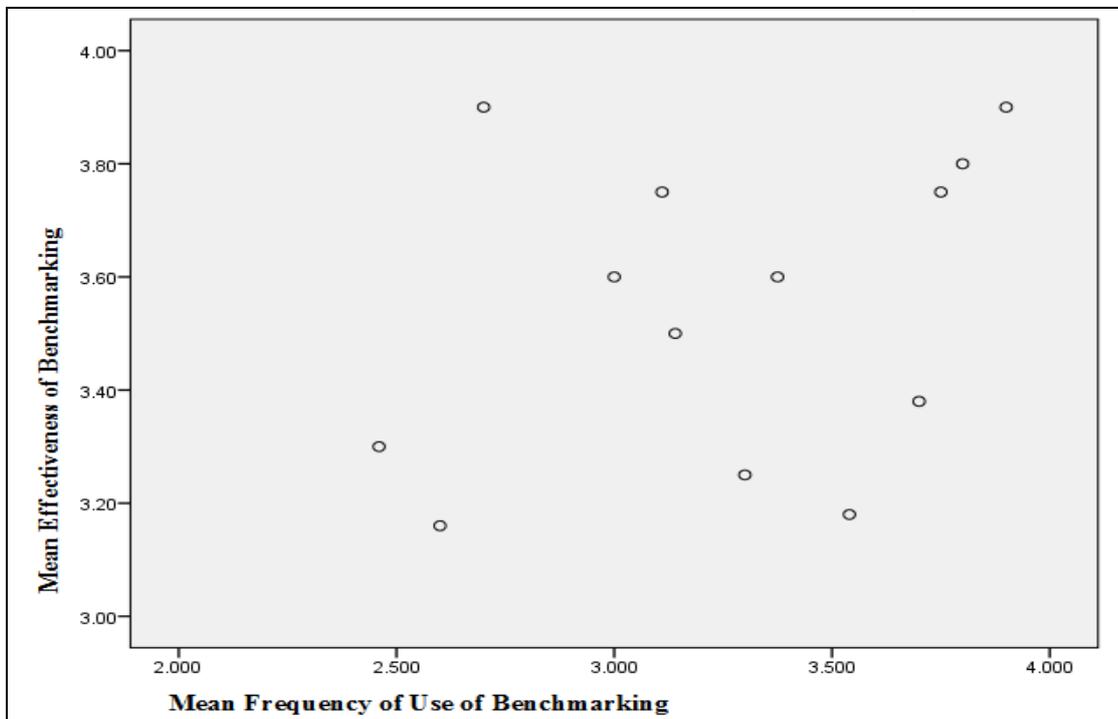


Figure 4.12 Scatter Plot between the Mean Frequency and Effectiveness of Benchmarking for School Systems

4.4.2.2 Findings Related to the Types of Benchmarking Techniques Used by School Systems

Of the surveyed school systems, an appreciable number presented examples demonstrating the use of benchmarking by school systems. The benchmarking techniques recognised from these examples are presented in Appendix 12. Thirty-seven benchmarking techniques are identified as being used by school systems for

performance comparison and for learning best practices from other school systems and for supporting best practice learning of schools, of which Figure 4.13 illustrates popular benchmarking techniques.

One of the noticeable observations is in regard to the scope of benchmarking techniques. It is obvious from Appendix 12 that each benchmarking technique can be applied to several learning areas (i.e. academic, no-academic etc.), as a large number of benchmarking techniques are demonstrated as being used for more than one question.

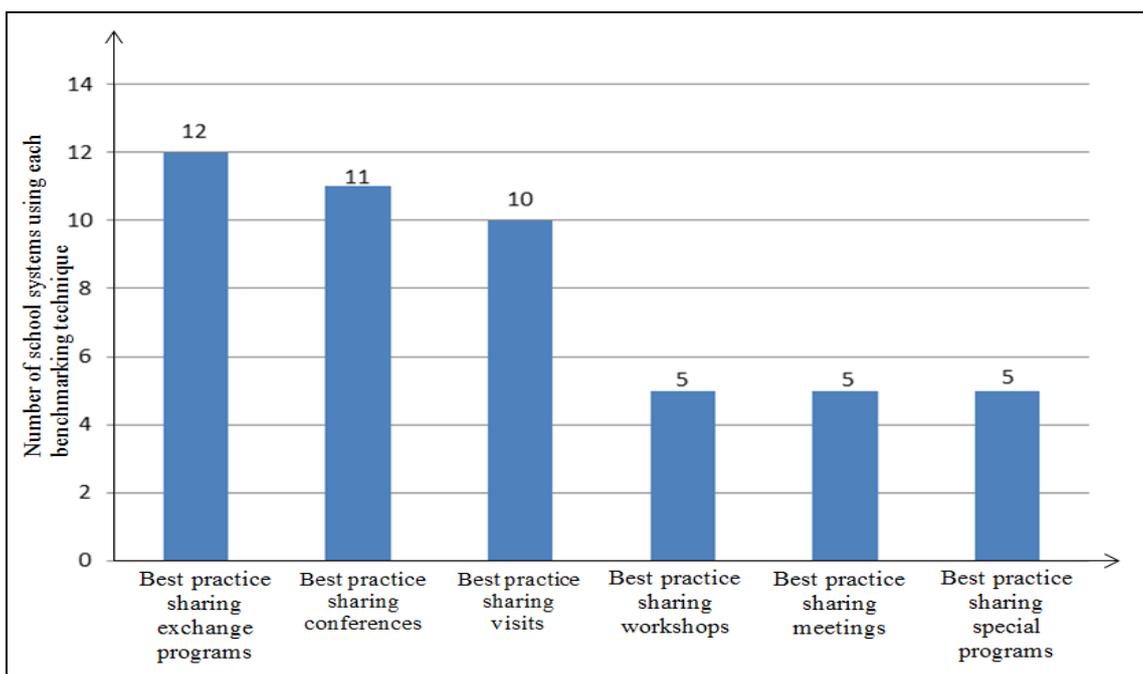


Figure 4.13 Popular Benchmarking Techniques Used by School Systems (n=20)

4.4.3 Analysis of the Survey Responses from Schools

The school survey data was collected from 7th September 2015 to 10th November 2015, and resulted in a total of 183 valid responses. The summary report of the survey was shared with the respondents for interpretive agreement and can be found in Appendix 9. Note, in the analysis, the term ‘schools’ refers to responding schools. The survey responses are now described.

From questions 1 to 8, the open-ended and closed-ended responses were intended to obtain background information about the respondent and their school (refer to Appendix 7), and are described as follows.

Questions 1-3: Profiles of Survey Respondents and the Distribution of Schools into School Systems

One hundred and eighty-three schools from 11 countries participated in the survey. The respondents included representatives of senior management teams of schools, particularly the principals. The distribution of participating schools into school systems is depicted in Figure 4.14 and the names of schools willing to be identified can be found in Appendix 9.

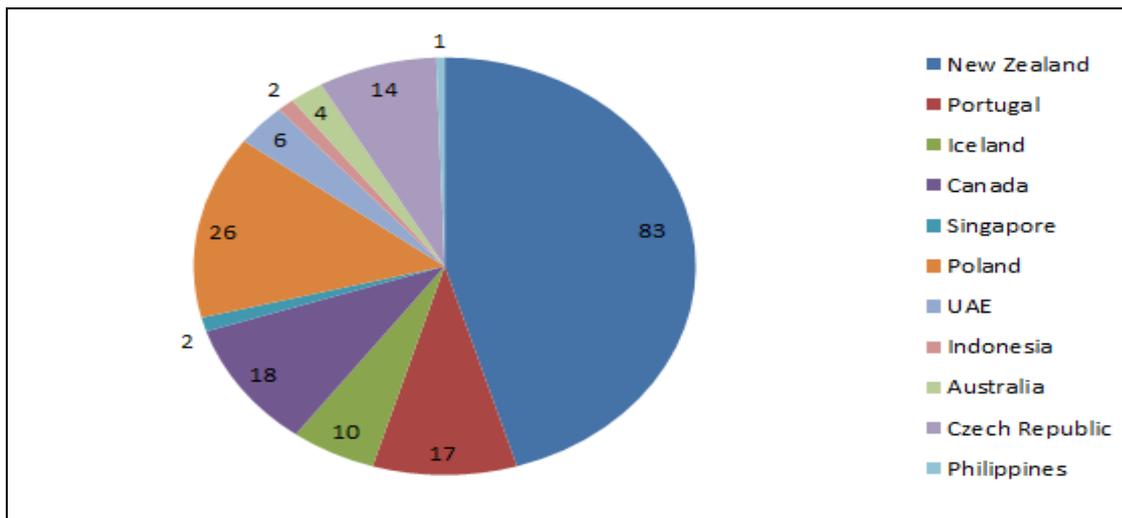


Figure 4.14 Distribution of Schools into School Systems (n=183)

Question 4:

How do you measure the performance of your school? Kindly specify in case of others.

For Question 4, the respondents had the opportunity to select more than one answer options (Figure 4.15). The options included: holistically, academically, and non-academically, on the basis of achievements, on the basis of number of admissions and other factors. The majority (83.70%) of the schools measured their performance holistically (as a whole, including academic, extracurricular activities i.e. sports, social awareness, participation in social activities, values etc.), 39.67% of the schools measured their performance academically, 14.67% measured their performance non-academically, 23.37% on the basis of achievements, 7.61% on the basis of number of admissions and 5.98% of the schools measured their performance on the basis of other criteria. It is understood that some schools measured their performance against a number of criteria.

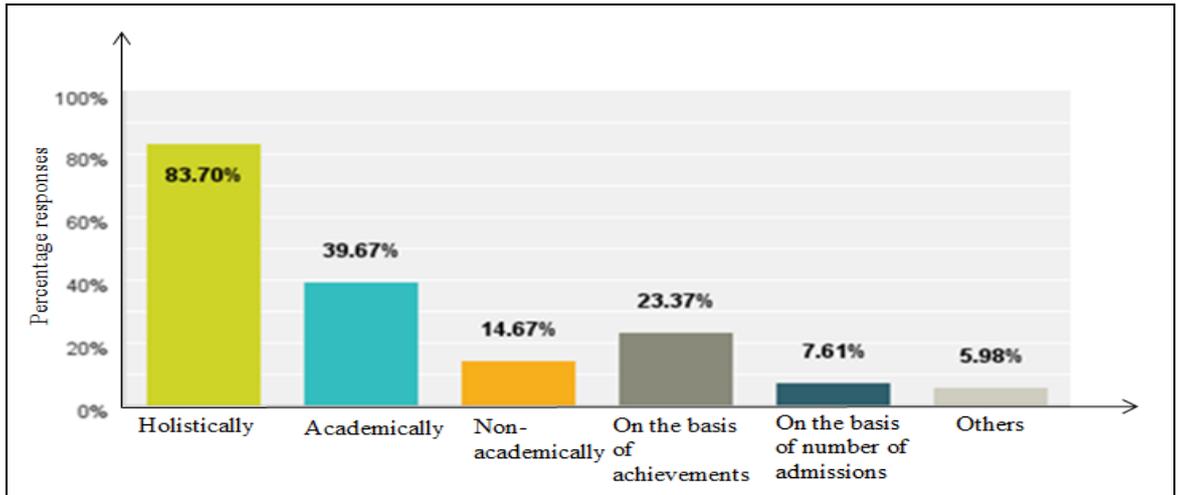


Figure 4.15 Criteria for Performance Measurement Adopted by Schools (n=183)

Question 5:

Considering the past 5 years, how would you rate the performance of your school?

Figure 4.16 shows that 21.20% of the respondents indicated a significant improvement in the performance of their school over the last 5 years and 60.33% indicated an improvement in performance, 17.39% indicated their performance to be somewhat the same and only 1.09% of the respondents indicated a decline in the performance of their school over the last 5 years. In total, more than 81% of the schools improved their performance over the last 5 years.

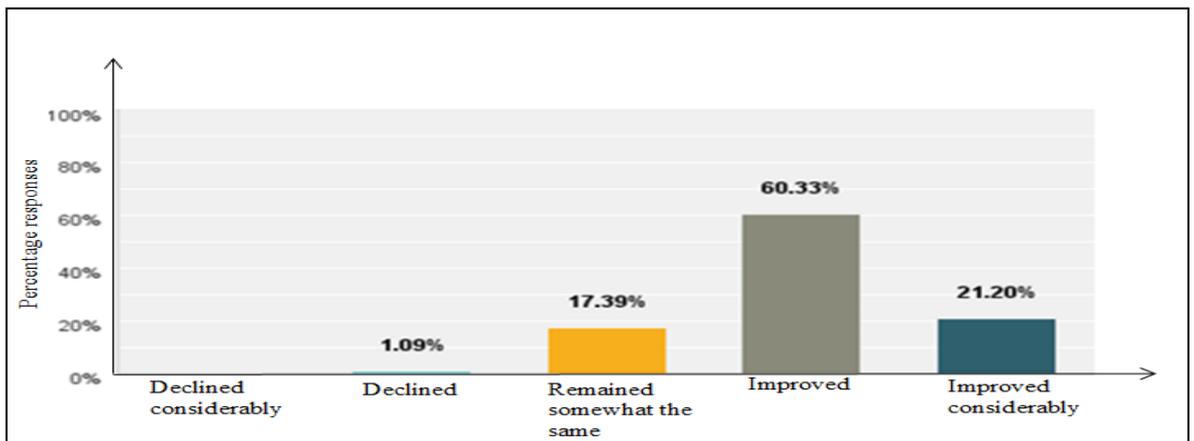


Figure 4.16 Change in the Performance of Schools Over the Last 5 Years (n=183)

Question 6:

To what extent are you satisfied with the quality of education at your school?

Figure 4.17 shows that 17.49% of the respondents were very satisfied with the quality of education provided at their school and 57.38% were satisfied, 14.21% were neither satisfied nor unsatisfied, and 5.46% of the respondents in each category were somewhat unsatisfied and very unsatisfied. In total, 74.87% of the respondents were satisfied with the quality of education provided at their school.

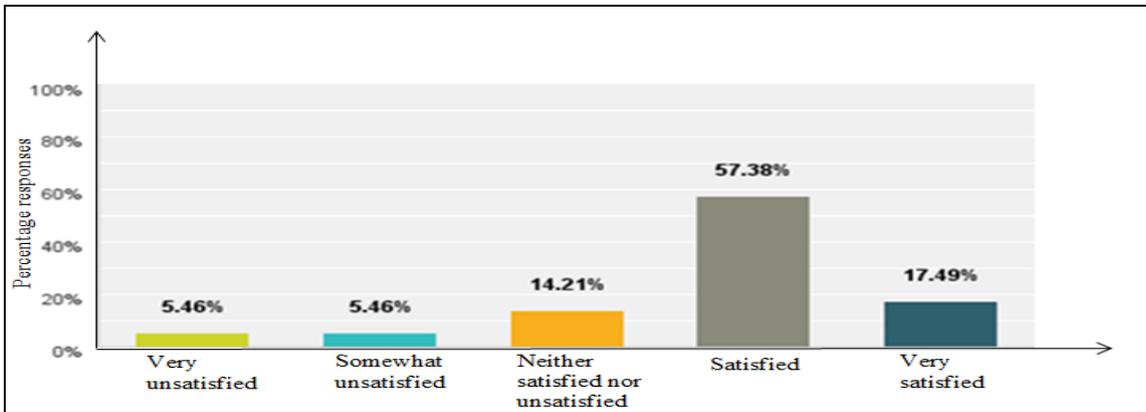


Figure 4.17 Level of Satisfaction with the Quality of Education Provided (n=183)

Question 7:

Are your answers based on the whole school?

The answers of the majority (93.99%) of the respondents encompassed the whole school (Figure 4.18).

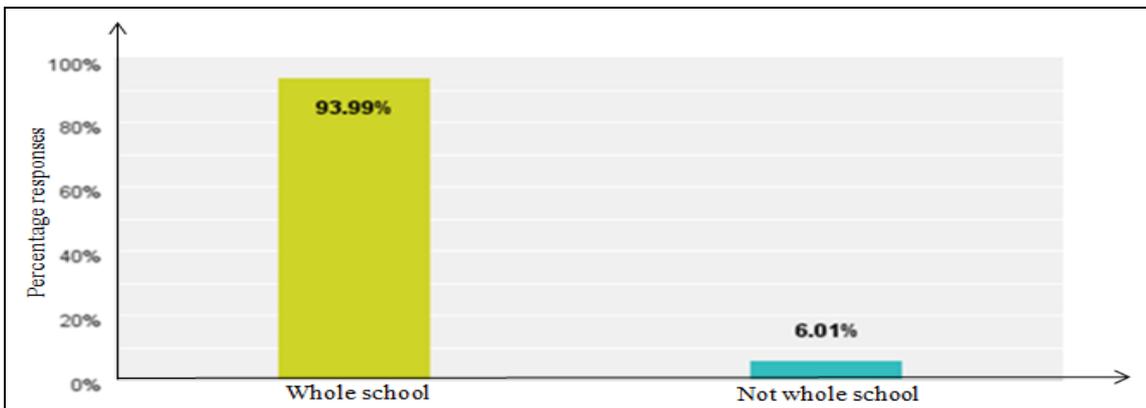


Figure 4.18 Scope of the Survey Responses (n=183)

Question 8:

What is the level of your school?

Figure 4.19 shows that 50.55% of the schools belonged to primary level, 20.33% belonged to secondary level, 17.58% belonged to both primary and secondary level, and

11.54% of the schools were related to other levels of schooling. The majority (88.46%) of the schools belonged to primary and secondary level.

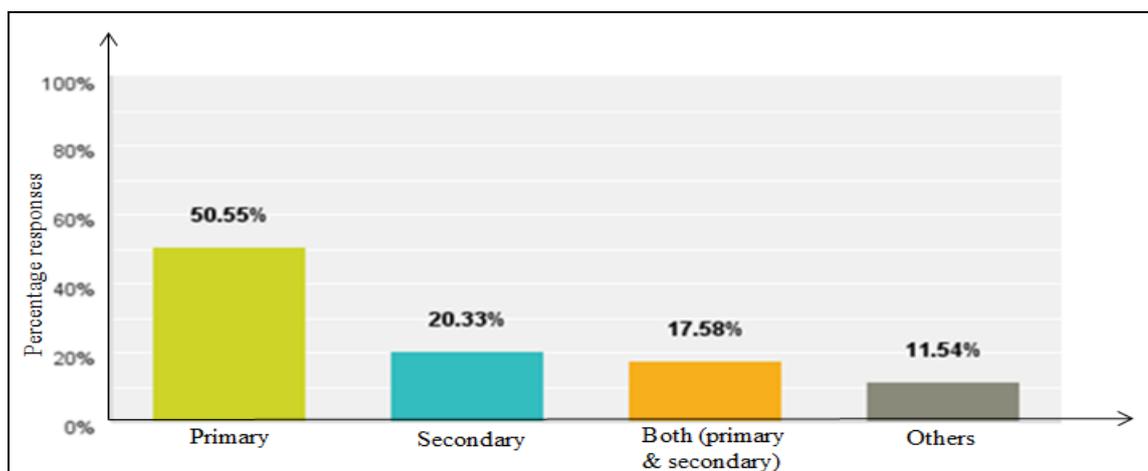


Figure 4.19 Level of Participating Schools (n=183)

From questions 9 to 12, the closed-ended responses described the use of benchmarking over the past 5 years (referred to as ‘Involved in Past 5 years’ in the survey presented in Appendix 7).

Question 9: Performance Measurement Activities

There was an inconsistency in the number of schools answering question 9 and its 6 sub-questions related to ‘Performance Measurement Activities’.

Considering the past 5 years, did your school at any point compare its performance against another school(s) for academic performance³¹?

(Q9-1)

Considering the past 5 years, did your school at any point compare its performance against another school(s) for non-academic performance³²?

(Q9-2)

Considering the past 5 years, did your school at any point compare its performance against another school(s) for holistic learning³³?

(Q9-3)

Considering the past 5 years, did your school at any point compare its performance against another organisation (e.g. industry)?

(Q9-4)

³¹ Refer to Appendix 1 for the definition of Academic Performance.

³² Refer to Appendix 1 for the definition of Non-academic Performance.

³³ Refer to Appendix 1 for the definition of Holistic Learning.

Figure 4.20 shows that 77.71% (or 136 out of 175) of the schools compared their academic performance with other schools, half (50% or 86 out of 172) of the schools compared their non-academic performance with other schools, 43.93% (or 76 out of 173) of the schools compared their holistic learning with other schools and 13.22% (or 23 out of 174) of the schools compared their performance with other organisations. Thus, schools compared their performance with other schools and/or organisations.

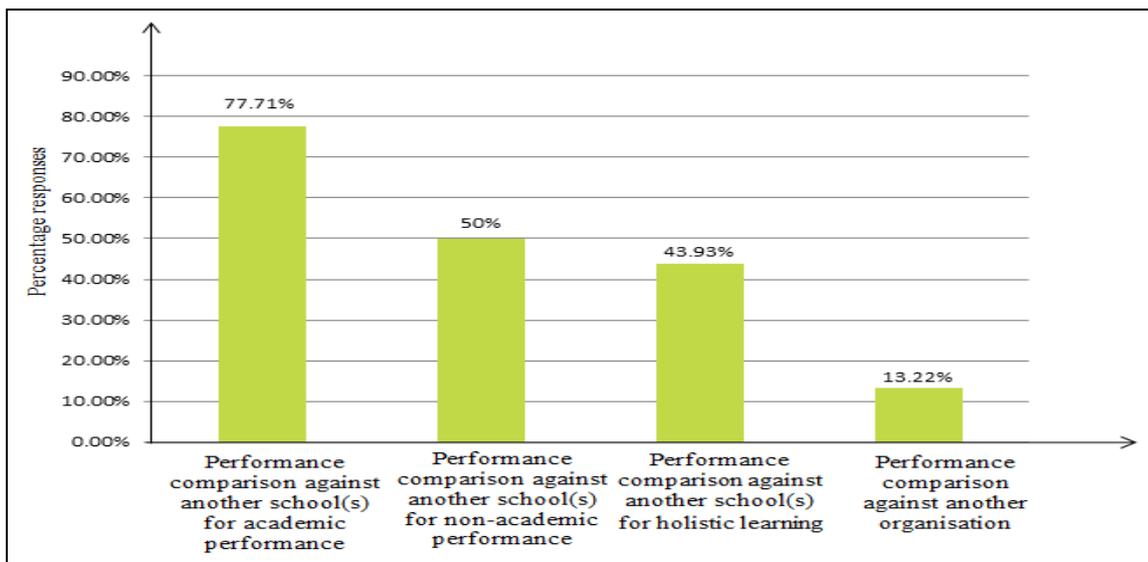


Figure 4.20 Performance Comparison (n=183)

Considering the past 5 years, did the performance comparison of your school with another school(s) and/or organisation(s) result in learning and/or improvement?

(Q9-5)

To what extent did the performance comparison (i.e. academic, non-academic etc.) assist your school in learning and/or improvement?

(Q9-6)

68.64% (or 116 out of 169) of the respondents answering Q9-1 to Q9-4 indicated that the performance comparison with another school (i.e. academic, non-academic and holistic) and/or organisation resulted in learning and/or improvement (refer to Appendix 9 for the answer to Q9-5). Of the responding schools, 9.76% indicated the performance to have improved significantly, 32.52% indicated the performance to have improved reasonably, 26.83% indicated the performance to have improved moderately, 25.20% reported the performance to have improved to some extent and 5.69% of the respondents indicated the performance to have improved very little (Figure 4.21).

Overall, all respondents identified that the performance comparison with another school (i.e. academic, non-academic and holistic) and/or organisation resulted in learning and improvement (Figure 4.21).

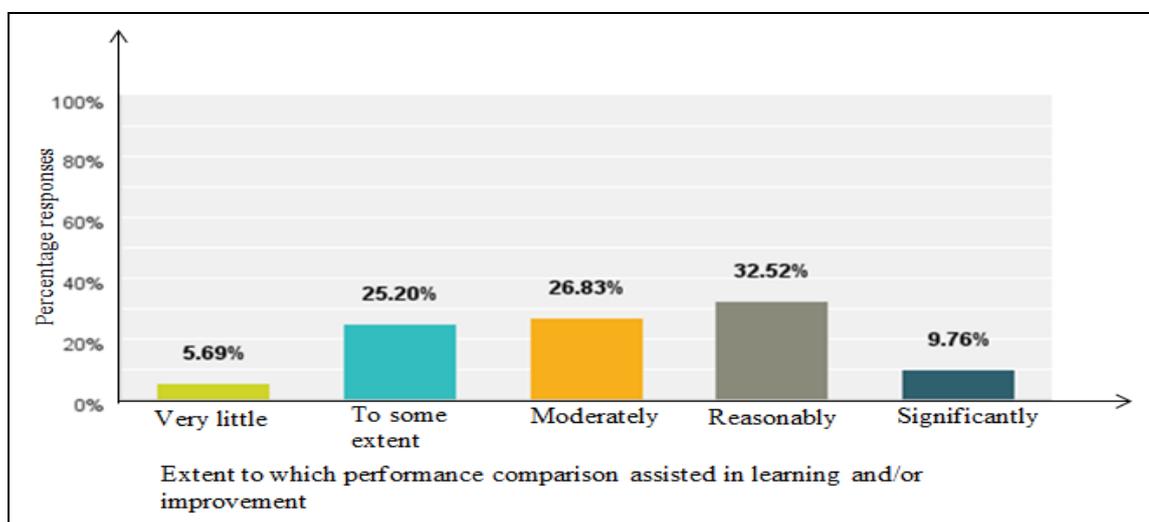


Figure 4.21 Learning and/or Improvement Resulting from Performance Comparison (n=183)

Note that for the following survey questions, the closed-ended responses also describe the *frequency* of use of benchmarking and its *effectiveness* for academic, non-academic and holistic learning. The responses for *frequency* and *effectiveness* are described in Appendix 9 and their Cross-tabulation is presented in Appendix 11. Moreover, these responses are discussed in Section 4.4.4. The open-ended questions allowed the respondents to provide examples for their closed-ended choices and enabled the researcher to recognise the underlying benchmarking techniques. In the following analysis, the closed-ended ('Involved in 5 years') and open-ended responses ('Kindly provide an example or examples of how you use this technique') are presented together.

Question 10: Learning Academic Work Practices

Question 10 and its three sections relate to 'Learning Academic Work Practices'.

- **Section I: Learning through Peers**

This section of Question 10 encompasses three sub-questions.

Considering the past 5 years, has your school encouraged staff at all levels to assist their peers?

Kindly provide an example or examples of how you use this technique.

(Q10-1)

Considering the past 5 years, has your school encouraged staff at all levels to get assistance from their peers?

Kindly provide an example or examples of how you use this technique.

(Q10-2)

One hundred and forty-nine schools responded to Q10-1 and one hundred and forty-eight schools responded to Q10-2. The majority (96.64% or 144 out of 149) of the schools encouraged their staff members to assist their peers and the majority (94.59% or 140 out of 148) of the schools encouraged their staff members to seek assistance from their peers (Figure 4.22). Therefore, the majority of the schools encouraged their staff members to learn from each other.

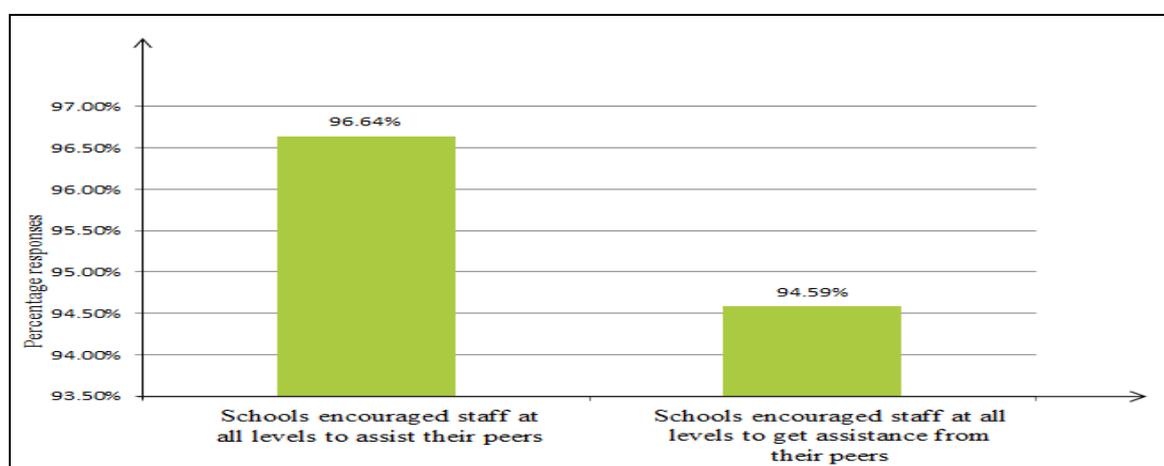


Figure 4.22 Schools Encouraged Staff to Learn from Each Other (n=183)

Of the responding schools, one hundred schools shared examples of benchmarking techniques used to encourage staff to assist their peers. The names of the used benchmarking techniques, the number of schools describing their use when providing an example and a sample of the respondents’ input are presented in Table 4.19.

Table 4.19 Examples of Benchmarking Techniques Used by Schools to Encourage Staff at All Levels to Assist their Peers

Benchmarking Technique	Number of Schools that Described the Use of Benchmarking Technique When Providing an Example	Voice of the Respondent
Best practice sharing	6	“Sharing of best practices and strategies for gap closing based on diagnostic assessment”
Best practice sharing clusters	7	“We have worked in a cluster of 3 schools in the development of visible learning”
Best practice sharing collaborative inquiry	3	“Collaborative Teacher Inquiry”

Best practice sharing collaborative lesson planning	12	“Planning lessons together”
Collaborative teaching including best practice sharing	15	“Collaborative teaching in all areas of the school. This means 2 or more teachers jointly responsible for the learning of a group of students”
Best practice sharing conferences	2	“Sharing information on conferences teachers attend”
Best practice sharing demonstration lessons	3	“Modelling”
Best practices sharing discussions	8	“Practice Analysis Conversations between leadership team members”
Best practices sharing education experts	3	“Outside advisors observe and give feedback as to how to improve practice to meet children’s needs.”
Best practice sharing exchange programs	2	“Taking part in school exchanges in e.g. Turkey organizing a school exchange to the Czech Republic this year”
Hybrid - best practice sharing visits & best practice sharing observations	2	“The teachers have visited other schools in Iceland and Europe and looked at different ways of teaching. They also looked at practical details in how the teaching was performed.”
Hybrid - best practice sharing visits & best practice sharing special projects	1	“Encouraging visiting successful PBL (Project Based Learning) classrooms.”
Best practice sharing job shadowing	1	“Shadowing”
Best practice sharing meetings	10	“We also share and discuss our experiences and knowledge gained at different events, during staff meetings which occur at least monthly.”
Best practice sharing mentoring	21	“Mentoring buddies”
Best practice sharing observations	11	“We regularly visit each other’s spaces to observe formally”
Best practice sharing online learning and sharing platform	2	“Using digital tools to support creativity in learning”
Professional Development (PD) including options for best practice sharing	10	“Professional development within and out of school”
Sharing best practices acquired through PD	3	“Formal sharing of professional development learning”
Best practice sharing through peer appraisal	10	“Peer appraisals including video followed by discussion and recommendations.”
Best practice sharing Professional Learning Communities (PLC)	11	“We have community learning teams and they have times to meet across the school”
Best practice sharing seminars	2	“Seminars for colleagues held by our teachers.”

Best practice sharing special projects	5	“There are also many projects developed at school which involve students and teachers from different subjects, and, sometimes from different schools. For example contests concerning arts and literature”
Tandem learning	1	“Tandem learning”
Best practice sharing teaching as inquiry	8	“Through inquiry into teaching practice that is shared”
Best practice sharing trainings	3	“Sharing experience with other teachers during meetings and training courses”
Best practice sharing visits	2	“School visits (to other schools in our vicinity)”
Best practice sharing walk-throughs	1	“Learning walks”
Best practice sharing workshops	1	“Providing teachers with workshops and training.”

In addition, eighty-four schools presented examples of benchmarking techniques used to encourage staff to get assistance from their peers. The names of the implemented benchmarking techniques, the number of schools describing their use when providing an example and a sample of the respondents’ input are presented in Table 4.20.

Table 4.20 Examples of Benchmarking Techniques Used by Schools to Encourage Staff at All Levels to Get Assistance from their Peers

Benchmarking Technique	Number of Schools that Described the Use of Benchmarking Technique When Providing an Example	Voice of the Respondent
Best practice sharing	4	“Formal acknowledgement and recognition of best practice within the school and agency given to those with heightened skills”
Best practice sharing clusters	2	“Each teacher meets once a term with teachers from up to 7 other schools in our cluster to share teaching inquiry. As a cluster we meet once a term altogether to consider a shared focus.”
Best practice sharing collaborative inquiry	4	“Collaborative inquiry”
Best practice sharing collaborative learning spaces	1	“We work in collaborative learning spaces”
Best practice sharing collaborative lesson planning	9	“Collaborative planning sessions”
Collaborative teaching including best practice sharing	6	“Collaborative teaching in all areas of the school - this means 2 or more teachers jointly responsible for the learning of a group of students”
Best practice sharing Conferences	1	“School conferences”

Best practice sharing demonstration lessons	3	“Peer teaching/moderation”
Best practices sharing discussions	4	“We regularly have discussions about what is working and what isn’t and we also encourage our staff to learn from one another”
Best practices sharing education experts	5	“We often ask experts from other institutions (including other schools) to lecture about specific subjects according to our needs.”
Best practice sharing job shadowing	1	“Shadowing”
Best practice sharing meetings	13	“We encourage staff to present at staff meetings, and to seek support from one another with specific skills.”
Best practice sharing mentoring	15	“There are mentoring programs for new teachers”
Best practice sharing observations	19	“Teachers are formally observed and supported in the classroom at least 3 times a year”
Best practice sharing online learning and sharing platform	4	“Using technology (google drive) to open information to everyone”
Professional Development (PD) including options for best practice sharing	3	“As a school we encourage our staff to participate in various courses and development programs in and outside school to further their teacher skills.”
Sharing best practices acquired through PD	1	“Individuals sent for training are obliged to conduct sharing at all levels”
Best practice sharing through peer appraisal	8	“We have cross sector (primary/secondary) buddies for appraisal and professional learning.”
Best practice sharing Professional Learning Communities (PLC)	4	“Through Professional Learning Communities within staff moderation of marked work”
Best practice resource sharing	2	“Exchange of educational resources”
Best practice sharing seminars	1	“Teachers are encouraged to come to seminars held by our experts in particular area.”
Best practice sharing special projects	5	“CLIL ³⁴ method in chemistry, biology and computer science.”
Tandem learning	1	“Tandem learning”
Best practice sharing teaching as inquiry	6	“Teaching as inquiry”
Best practice sharing trainings	1	“Individuals sent for training”
Best practice sharing visits	1	“School visits (to other schools in our vicinity).”
Best practice sharing workshops	1	“We also aim to have regular ‘problem solving’ workshops where we divide the staff into groups where each individual puts forward a ‘problem’

³⁴ CLIL stands for Content and Language Integrated Learning. CLIL programs have been promoted and sponsored by the European Union. CLIL refers to teaching subjects such as science, history and geography to students through a foreign language.

		that the group tries to solve.”
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Considering the past 5 years, has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through regular meetings, collaborative lesson planning, demonstration lessons, seminars, workshops, observations and/or face-to-face training?

Kindly provide an example or examples of how you use this technique.

(Q10-3)

One hundred and fifty-three schools responded to Q10-3. The majority (90.13%) of the schools encouraged senior teachers to share their teaching experience and work practices with other teachers through regular meetings and collaborative lesson planning, 81.51% encouraged senior teachers to share their teaching experience and work practices with other teachers through workshops, 78.29% encouraged senior teachers to share their teaching experience and work practices with other teachers through observations and more than 60% of the schools encouraged senior teachers to share their teaching experience and work practices with other teachers through demonstration lessons, seminars and face-to-face training (Figure 4.23).

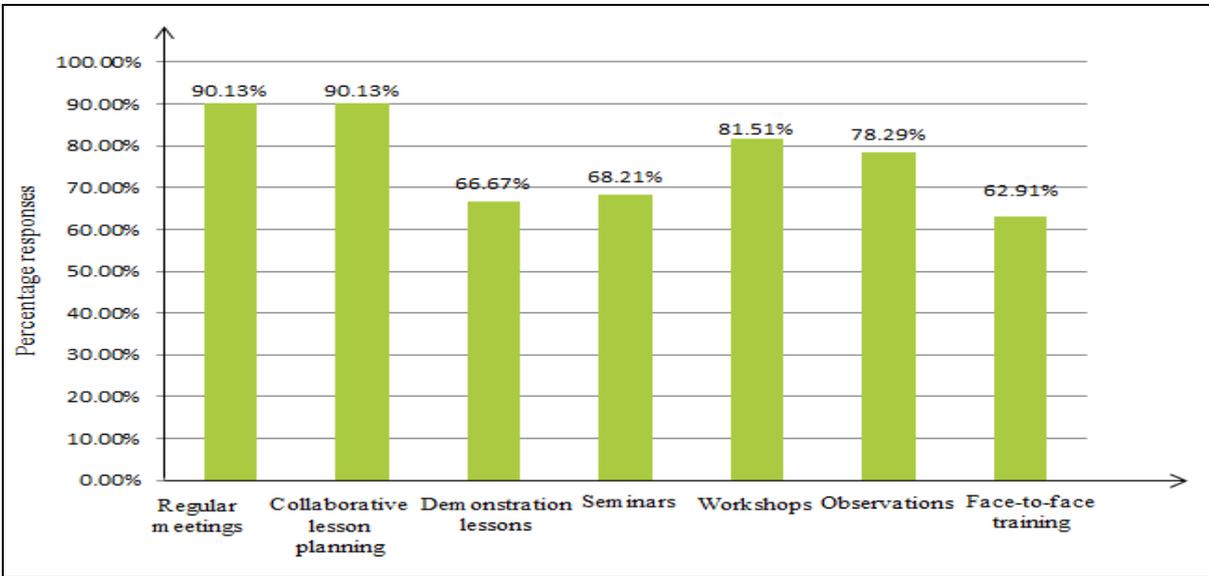


Figure 4.23 Techniques Adopted by Senior Teachers to Share Experience and Work Practices with Other Teachers (n=183)

Of the responding schools, sixty-eight schools presented examples of benchmarking techniques adopted to encourage senior teachers to share their teaching experience and work practices with other teachers. These examples also include the techniques

surveyed in Q10-3 and illustrated in Figure 4.23. The names of the adopted benchmarking techniques, the number of schools describing their use when providing an example and a sample of the respondents' input are presented in Table 4.21.

Table 4.21 Examples of Benchmarking Techniques through Which Senior Teachers Shared Experience and Work Practices with Other Teachers

Benchmarking Technique	Number of Schools that Described the Use of Benchmarking Technique When Providing an Example	Voice of the Respondent
Best practice sharing clusters	1	"Cluster work"
Collaborative teaching including best practice sharing	5	"Our teachers work in collaborative learning spaces (two teachers per space)."
Best practice sharing collaborative lesson planning	13	"Teams plan together and build pictures of good practice."
Best practice sharing Conferences	1	"Mini conferences are held for 11 years."
Hybrid - best practice sharing observations & best practice sharing conferences	1	"Lesson observation by HOD ³⁵ who will share feedback in post conferences with the teachers under her care."
Best practice sharing observations	8	"We have a system of teachers observing each other."
Best practice sharing demonstration lessons	8	"Teachers observing a senior teacher leading a class is the most effective method we have employed. It would be great to have more release time to enable this to happen more often"
Hybrid - best practice sharing demonstration lessons & best practice sharing observations	2	"Demonstrations by teachers with strengths in writing provided, followed by follow up observations in the classrooms of teachers as a school-wide focus in 2014-15."
Best practices sharing education experts	1	"External specialist consultant, on-site observations and feedback against needs."
Best practice sharing mentoring	15	"New teachers being guided by mentors."
Best practice sharing meetings	7	"Meetings with senior teachers."
Best practice sharing teacher only days	2	"Teacher Only Days where practice is shared."
Best practice sharing visits	1	"Teachers visiting other schools' experienced teachers to learn from them"
Best practice teacher inquiry	5	"Teacher Inquiry"
Best practice sharing trainings	5	"Teachers of our school regularly take part in different trainings and workshops where they

³⁵ Head of Department

		improve their knowledge and techniques of teaching and they often learn new methods of teaching.”
Professional Development (PD) including options for best practice sharing	6	“Our district has provided a series of professional learning opportunities for small groups of interested teachers. A group of 3-4 teachers focusing on a project is a powerful agent for change in a school and other teachers become interested and want to join in.”
Best practice sharing Professional Learning Communities (PLC)	3	“Professional learning groups have a range of experience for teachers in them, that share what is happening, what is working and what is not - at least monthly, sometimes fortnightly”
Best practice sharing through peer appraisal	12	“We have a system of teachers observing each other, and also being observed by senior staff and given feedback.”
Best practice sharing open lessons	1	“At the beginning of the school year teachers express their wish to conduct open classes.”
Best practice sharing online learning and sharing platform	4	“Using digital technology”
Data driven planning	1	“Support to use assessment data to inform planning.”
Best practice sharing workshops	12	“We run workshops where experienced teachers teach both other teachers and parents depending on the focus.”
Best practice sharing seminars	6	“Both in-house and out-of-house workshops and seminars are taken as per annual curriculum focus.”

• **Section II: Learning through Observations**

This section of Question 10 encompasses six sub-questions.

Considering the past 5 years, has your school undertaken observations of teachers’ lessons by the principal and/or senior teacher(s) for identifying strengths and weaknesses in teaching methodologies, followed by suggestions for improvement?

Kindly provide an example or examples of how you use this technique.

(Q10-4)

Considering the past 5 years, has your school undertaken observations of teachers’ lessons by external teachers (from outside your school) followed by their feedback and suggestions for improvement?

Kindly provide an example or examples of how you use this technique.

(Q10-5)

One hundred and forty-seven schools responded to Q10-4 and Q10-5. Figure 4.24 shows that 90.48% (or 133 out of 147) of the schools undertook observations of teachers' lessons by the principal and/or senior teacher(s) for identifying strengths and weaknesses in teaching methodologies followed by suggestions for improvement, and 52.38% (or 77 out of 147) of the schools undertook observations of teachers' lessons by external teachers (from outside your school) followed by their feedback and suggestions for improvement.

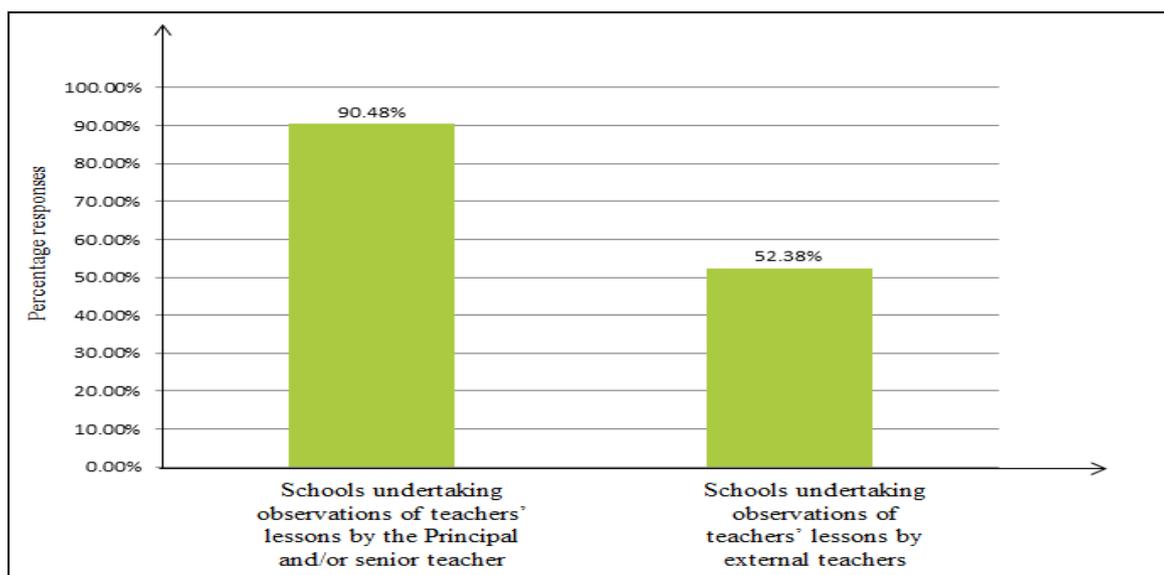


Figure 4.24 Schools Undertaking Observations of Teachers' Lessons (n=183)

Of the responding schools, sixty-nine schools shared examples of benchmarking techniques used to undertake observations of teachers' lessons by the principal and/or senior teachers, for identifying strengths and weaknesses in teaching methodologies followed by suggestions for improvement. The names of the implemented benchmarking techniques, the number of schools describing their use when providing an example and a sample of the respondents' input are presented in Table 4.22.

Table 4.22 Examples of Benchmarking Techniques through Which Schools Undertook Observations of Teachers' Lessons by the Principal and/or Senior Teacher

Benchmarking Technique	Number of Schools that Described the Use of Benchmarking Technique When Providing an Example	Voice of the Respondent
Best practice sharing appraisal observations	37	"All staff is observed as part of their performance evaluations which take place on three formal occasions throughout the year."
Best practice sharing mentoring observations	5	"Observations by Expert Maths Teacher."

Best practice sharing multifaceted observations by the principal	10	“As principal I visit and observe in every classroom at least once per year. The teachers invite me in at a time that suits them as I try to keep it low-key and unthreatening. Whilst I am in the room I observe the teacher but also work with students. I usually give the teacher verbal feedback. However, I provide written feedback if it is an area of development within our school e.g. raising achievement in writing is an area of development in the school, so if I am in the room during writing time I will provide written feedback. Teachers are also observed by their appraiser twice per year.”
Best practice sharing observations by education expert	1	“Observations by Mathematics consultant”
Best practice sharing observations of collaborative teaching	2	“Observation of Collaborative teaching”
Best practice sharing through observations of teaching practice	5	“Teachers lessons are observed with an emphasis on students, what the students are learning, how do they know how they are doing, what is their next step and where do they go for help. From this we can offer precise feedback to the teachers.”
Best practice sharing observations with curriculum focus	6	“Curriculum leaders observe and give feedback with suggestions for improvement.”
Best practice sharing walk-throughs	10	“Principal does multiple unannounced walk-throughs and gives feedback on matters arising.”

Of the responding schools, forty-two schools presented examples of benchmarking techniques used to undertake observations of teachers’ lessons by external teachers (from outside the school) followed by their feedback and suggestions for improvement. The names of the adopted benchmarking techniques, the number of schools describing their use when providing an example and a sample of the respondents’ input are presented in Table 4.23.

Table 4.23 Examples of Benchmarking Techniques through Which Schools Undertook Observations of Teachers’ Lesson by External Teachers

Benchmarking Technique	Number of Schools that Described the Use of Benchmarking Technique When Providing an Example	Voice of the Respondent
Best practice sharing appraisal observations	10	“These observations take place only in the context of the teacher’s evaluation process and not as a technique for performance improvement”
Best practices sharing education experts	13	“Numeracy facilitators have observed all teaching of maths and identified teachers in need of support.”

Best practice sharing independent external reviewer	6	“Outside observers from the local education office came in to check up on the level of education in our school. This is followed by an extensive report.”
Best practice sharing mentoring observations	3	“Mentoring programs with new teachers”
Best practice sharing observations by education authority	9	“The school is formally inspected once a year by the Dubai educational authority (KHDA)”
Tandem learning	2	“Specifically they have planned mathematics lessons together and looked at how the students are learning rather than ‘weaknesses’ in lessons”
Best practice sharing visits	1	“Accelerated Learning in Mathematics (ALiM) courses and visiting teachers”

Considering the past 5 years, has your school ensured that teachers participating in sharing sessions (e.g. workshops, seminars etc.) share learned lessons with their counterparts?

Kindly provide an example or examples of how you use this technique.

(Q10-6)

Considering the past 5 years, has your school appointed experienced teacher(s) as consultant(s), to share knowledge, skills and experience with in-service teachers? Kindly provide an example or examples of how you use this technique.

(Q10-7)

Considering the past 5 years, does the school have a website to facilitate teachers to share work practices and/or learn from each other?

Kindly provide an example or examples of how you use this technique.

(Q10-8)

One hundred and forty-seven schools answered Q10-6, one hundred and forty-four schools answered Q10-7 and one hundred and forty-six schools answered Q10-8. Figure 4.25 shows that 79.59% (or 117 out of 147) of the schools ensured that teachers participating in sharing sessions (e.g. workshops, seminars etc.) share learned lessons with their counterparts, more than half (51.39% or 74 out of 144) of the schools appointed experienced teachers as consultants to share their knowledge, skills and experience with in-service teachers, and 47.95% (or 70 out of 146) of the schools developed a website to facilitate teachers to share work practices and/or learn from each other.

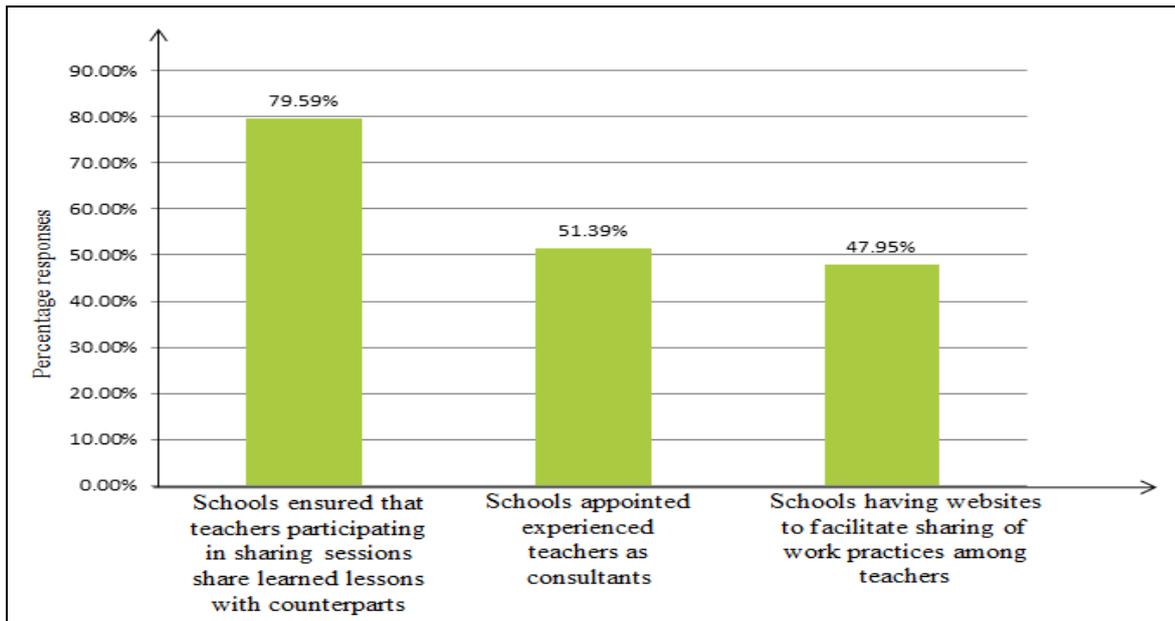


Figure 4.25 Schools Ensured Sharing of Learnings from Sharing Sessions, Appointed Experienced Teachers as Consultants and Developed Websites for Sharing and/or Learning Among Teachers (n=183)

Of the responding schools, fifty-eight schools shared examples of benchmarking techniques used by schools to ensure that teachers participating in sharing sessions (e.g. workshops, seminars etc.) share learned lessons with their counterparts. The names of the applied benchmarking techniques, the number of schools describing their use when providing an example and a sample of the respondents' input are presented in Table 4.24.

Table 4.24 Examples of Benchmarking Techniques through Which Schools Ensured Sharing of Learnings from Sharing Sessions

Benchmarking Technique	Number of Schools that Described the Use of Benchmarking Technique When Providing an Example	Voice of the Respondent
Best practice sharing collaborative lesson planning	1	"We share our teacher inquiry and work on planning together. This develops consistency and we see all learners of the cohort."
Best practice sharing conferences	2	"Mini conferences"
Best practice sharing informal discussions	1	"Informal conversations (people willing to learn always have a chance to broaden their knowledge; people "in possession" of knowledge are always ready to share experience)"
Best practice sharing meetings	31	"Teachers share learnings from PD in faculty and wider staff meetings."
Best practice sharing workshops	5	"By organizing workshops/conferences at school for our counterparts."

Best practice sharing teacher only days	2	“Each teacher in the school is required to share their learning inquiry at a Teacher Only Day”
Best practice sharing observations	1	“Sharing at Senior Staff and Staff meetings and sometimes in teacher’s classrooms.”
Professional Development (PD) including options for best practice sharing	2	“At professional learning days, staff share recent learnings.”
Best practice sharing through sharing feedback from external PD	5	“All staff attending external Professional Development workshops and training are expected to present in a range of ways formally to the staff to share their new or improved knowledge.”
Best practice sharing Professional Learning Communities (PLC)	2	“As a part of weekly team Professional Learning Groups.”
Best practice sharing online learning and sharing platform	4	“All teachers attending professional learning opportunities are expected to share course content with peers, through both shared online documentation and/or staff curriculum meeting sharing”

Thirty-one schools shared examples of benchmarking techniques adopted to appoint experienced teachers as consultants to share knowledge, skills and experience with in-service teachers. The names of the benchmarking techniques used, the number of schools describing their use when providing an example and a sample of the respondents’ input are presented in Table 4.25.

Table 4.25 Examples of Benchmarking Techniques through Which Schools Appointed Experienced Teachers as Consultants

Benchmarking Technique	Number of Schools that Described the Use of Benchmarking Technique When Providing an Example	Voice of the Respondent
Best practice sharing District/Ministry appointed consultants	1	“District math and literacy support teachers are valuable resources for classroom teachers and build capacity in a school in a supportive and non-threatening way.”
Best practices sharing education experts	19	“This year we had a grant of \$85,000 to make one of our teachers a consultant for our reading program. This has been very effective.”
Best practice sharing Ministry funded consultants	4	“Experienced teachers from the Ministry contracts have worked with teachers and leadership to promote student agency through data collection of teacher and student voice and subsequent reflective dialogues with teachers to consider their deliberate acts of teaching and next steps.”
Partnerships for learning and sharing best practices	1	“We have partnership with some colleges.”
Professional Development	6	“Program Leaders are given release time to

(PD) including options for best practice sharing		develop staff.”
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Forty-one schools presented examples of benchmarking techniques demonstrating development of a website to facilitate teachers to share work practices and/or learn from each other. The names of the applied methods, the number of schools describing their use when providing an example and a sample of the respondents’ input are presented in Table 4.26.

Table 4.26 Examples of Benchmarking Techniques Demonstrating Development of a Website for Sharing and/or Learning Among Teachers

Benchmarking Technique	Number of Schools that Described the Use of Benchmarking Technique When Providing an Example	Voice of the Respondent
Learning best practices from school website	7	“Practically all school activities are described on the schools website”
Learning best practices through web-based applications	34	“We use Office 365 to share collaboratively but do not have a website as such.” “It is an in-house sharing via Google docs.”

Kindly specify other effective means adopted at your school that enable teachers to learn from other teachers (from colleagues and from teaches at other schools).

(Q10-9)

Thirty-nine respondents shared other effective means (or benchmarking techniques) used at their school to enable teachers to learn from other teachers. The examples of effective benchmarking techniques, the number of schools describing their use when providing an example and a sample of the respondents’ input are presented in Table 4.27.

Table 4.27 Examples of Effective Benchmarking Techniques Used by Schools to Enable Teachers to Learn from Each Other

Benchmarking Technique	Number of Schools that Described the Use of Benchmarking Technique When Providing an Example	Voice of the Respondent
Best practice sharing collaborative lesson planning	2	“School-wide collaborative planning”
Best practice sharing conferences	1	“Conferences organized by teacher training centres”

Best practices sharing education experts	2	“The leader can organize an expert to come in and demonstrate to teachers.”
Best practice sharing mentoring	2	“Sharing and mentoring in every situation which offers such opportunity.”
Best practice sharing workshops	3	“Attending district-wide cross education sector voluntary workshops monthly around the area of digital learning in the 20th Century.”
Best practice sharing observations	2	“Teachers observing in each other’s classrooms (not based on experience etc.)”
Best practice sharing Professional Learning Community (PLC)	6	“We have community learning teams and they have times to meet across the school.”
Hybrid - best practice sharing clusters & best practice sharing Professional Learning Communities (PLC)	1	“Cluster PLGs ³⁶ for teachers”
Best practice sharing Special Interest Groups (SIG)	3	“Meet up and work with teachers from within the school and from other special schools in Auckland on Special Interest Groups.”
Best practice sharing online learning and sharing platform	7	“We have in school shared online documents as well as between school clusters shared online documents.”
Best practice sharing visits	3	“We visit other schools and they visit us, sharing the outcomes.”
Methods for informal learning of best practices	2	“Informal professional discussion”
Best practice sharing seminars	3	“Specific seminars”
Best practice sharing collaboration among teacher associations	1	“Collaboration with Portuguese English Teacher Association (APPI).”
Professional Development (PD) including options for best practice sharing	2	“Regularly participating in workshops, seminars, courses organized by external firms for teachers from Warsaw or the whole country.”
Best practice sharing clusters	2	“We have been networked with 3 other schools and work with them on related activities, we have staff who are in itinerant roles who work with staff”
Best practice sharing meetings	7	“Regular teachers’ meetings with the Principal and Vice-principals of the school to discuss all matters related to school activity; frequent school subject panels’ meetings; individual meetings with methodologists of particular subjects.”
Best practice teacher inquiry	2	“District support for Teacher Inquiry projects”
Best practice sharing	1	“Teachers’ focus group”

³⁶ Professional Learning Groups

focus group		
Best practice sharing through peer appraisal	1	“Appraisal documents/processes are thorough. Involve robust self-reflections and peers discussions (critical friend!).”

- **Section III: Learning from other Schools**

This section of Question 10 has five sub-questions.

Considering the past 5 years, has your school at any point collaborated with a local school (i.e. within your country or school system) to share pedagogical work practices (e.g. teaching methodologies)?

Kindly provide an example or examples of how you use this technique.

(Q10-10)

Considering the past 5 years, has your school at any point collaborated with an international school(s) (i.e. outside of your own school system) to share pedagogical work practices (i.e. teaching methodologies)?

Kindly provide an example or examples of how you use this technique.

(Q10-11)

One hundred and thirty-seven schools answered Q10-10 and Q10-11. Figure 4.26 shows that 76.64% (or 105 out of 137) of the schools collaborated with a local school to share pedagogical work practices and 39.42% (or 54 out of 137) of the schools collaborated with an international school to share pedagogical work practices (i.e. teaching methodologies).

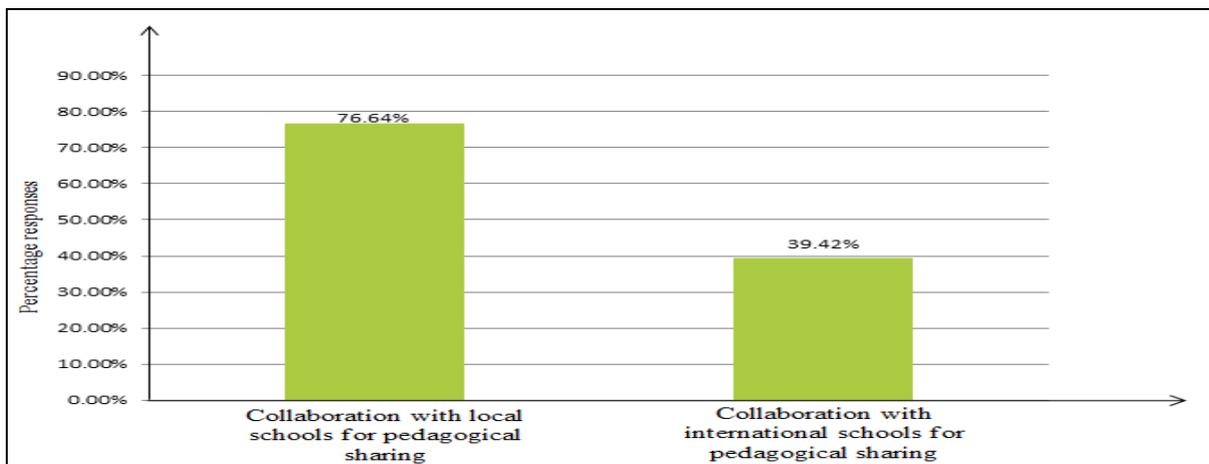


Figure 4.26 Schools Collaborated with Local and International Schools for Pedagogical Sharing (n=183)

Of the responding schools, fifty-six schools presented examples of benchmarking techniques adopted to collaborate with a local school (i.e. within their country or school system) to share pedagogical work practices. The names of the implemented benchmarking techniques, the number of schools describing their use when providing an example and a sample of the respondents' input are presented in Table 4.28.

Table 4.28 Examples of Benchmarking Techniques Demonstrating Collaboration with a Local School for Pedagogical Sharing

Benchmarking Technique	Number of Schools that Described the Use of Benchmarking Technique When Providing an Example	Voice of the Respondent
Best practice sharing seminars	2	"Shared practices seminars"
Best practice sharing trainings	2	"Trainings"
Best practice sharing professional support	2	"We shared writing samples with a neighbouring school to moderate teacher understanding of the national standards expected for each level."
Partnerships for learning and sharing best practices	4	"Within partnership with some colleges"
Best practice sharing online learning and sharing platform	1	"E-twinning ³⁷ "
Best practice sharing exchange programs	3	"Groups of students from other countries, for example, from China and from Great Britain have already come to our school to exchange experience"
Best practice sharing public lessons	1	"Public lessons to be viewed by interested teachers."
Best practice sharing across-sector collaboration	1	"We try to engage in such collaboration with colleges and universities."
Best practice sharing subject groups	2	"All French teachers met several times with French teachers from 3 other schools, Principals, and coaches to discuss and share best practices, curriculum, and strategies"
Best practice sharing conferences	1	"Conferences"
Best practice sharing visits	5	"Several teachers, including the master of the school have been in other schools and institutions sharing what we call in Portugal 'effective practices'."
Best practice sharing workshops	3	"Workshops"

³⁷E-twinning is an initiative of the European Commission that aims to encourage European schools to collaborate using Information and Communication Technologies (ICT) by providing the necessary infrastructure, such as online tools, services and support.

Best practice sharing clusters	19	“Our cluster of schools on the Kapiti Coast often works together on projects to raise student achievement.”
Best practice sharing inter-school networks	6	“We worked with other Montessori teachers from schools around New Zealand to develop a posted curriculum - a tool that can be used by students to know where they are and what their next learning areas need to be in order to be where they need to be.”
Best practice sharing meetings	7	“Sharing experience and pedagogical work practices with teachers of similar subjects during meetings.”
Best practices sharing education experts	1	“Shared PD from external providers.”
Best practice sharing through shared Professional Development	4	“Shared professional development in writing.”

Twenty-six schools shared examples of benchmarking techniques used to collaborate with an international school to share pedagogical work practices. The names of the applied benchmarking techniques, the number of schools describing their use when providing an example and a sample of the respondents’ input are presented in Table 4.29.

Table 4.29 Examples of Benchmarking Techniques Demonstrating Collaboration with an International School for Pedagogical Sharing

Benchmarking Technique	Number of Schools that Described the Use of Benchmarking Technique When Providing an Example	Voice of the Respondent
Learning best practices through research	2	“The Principal researches internationally”
Best practice sharing online learning and sharing platform	2	“E-twinning projects”
Best practice sharing observations	1	“Lesson observation”
Hybrid - best practice sharing observations & best practice sharing exchange programs	2	“During students’ exchange, teachers observe lessons and share pedagogical work practices.”
Best practice sharing exchange programs	10	“Our school has been a participant in the Comenius ³⁸ program, a European Union program for schools.”

³⁸ The Comenius program is a European Union educational project. It concerns school-level education and aims to help young people and educational staff better understand the range of European cultures, languages and values.

Best practice sharing visits	3	“Principal delegation to China focused on Asian awareness.”
Best practice sharing international projects	3	“NZ Special schools brought a team from a UK specialist school on Autism to deliver some workshops and they also worked in our school on focused areas.”
Best practice sharing international networks	5	“We collaborate with international Montessori schools on developing the adolescent curriculum, sharing out successes, and learning from theirs’.”

Considering the past 5 years, has your school learned about improvement initiatives at another school(s) through media, web sources, conferences/seminars, teacher exchange and/or visits?

Kindly provide an example or examples of how you use this technique.

(Q10-12)

One hundred and thirty-four schools responded to Q10-12. Figure 4.27 shows that 84.92% of the schools learned about improvement initiatives at other schools through conferences and/or seminars, 82.68% through visits, 80.15% through web sources, 61.42% through media and 24.81% of the schools learned about improvement initiatives at other schools through teacher exchange (Figure 4.27).

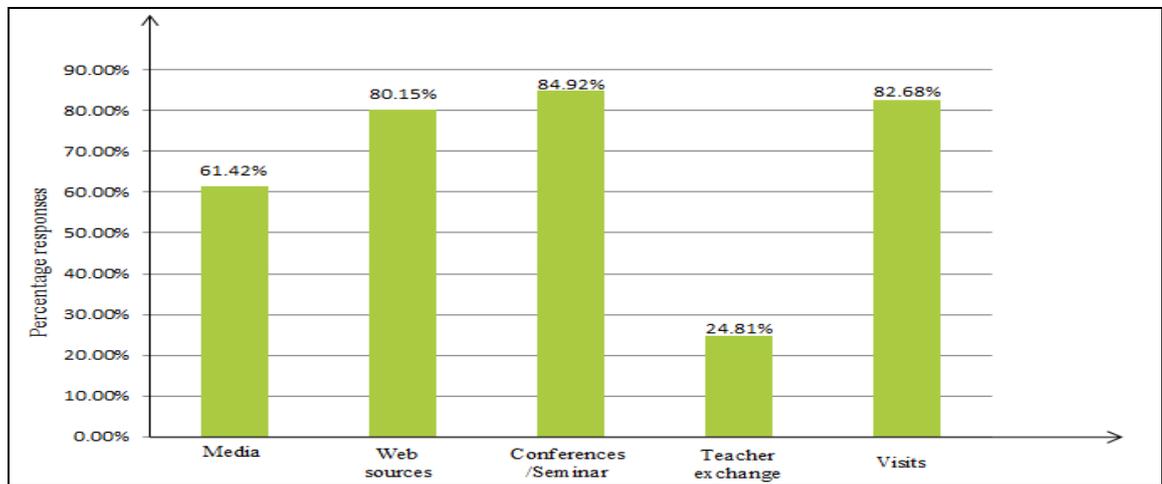


Figure 4.27 Techniques Adopted by Schools to Learn About Improvement Initiatives at Other Schools (n=183)

Of the responding schools, forty-seven schools shared examples of benchmarking techniques adopted to learn about improvement initiatives at other schools. These examples also include techniques surveyed in Q10-12 and presented in Figure 4.27. The names of the adopted benchmarking techniques, the number of schools describing their use when providing an example and a sample of the respondents’ input are presented in Table 4.30.

Table 4.30 Examples of Benchmarking Techniques Used by Schools to Learn About Improvement Initiatives at Other Schools

Benchmarking Technique	Number of Schools that Described the Use of Benchmarking Technique When Providing an Example	Voice of the Respondent
Best practice sharing online learning and sharing platform	6	“We follow initiatives of colleges on their websites.”
Best practice sharing meetings	3	“We participate in meetings with the representatives of these colleges or universities.”
Best practice sharing visits	17	“Visiting other schools to see what they do, how they operate.”
Learning best practices through research	1	“Teachers do their own research if they are motivated.”
Cooperation with educational publishers for best practice sharing	1	“The cooperation with educational publishers and the use of teaching resources widely available at their websites.”
Best practice sharing regional networks	3	“Deputy Principal is member of the Waikato AP/DP ³⁹ network and NZEALS ⁴⁰ and is recipient of much collaborative and shared learning, however this is mostly in the leadership sphere so not widely relevant to staff.”
Partnerships for learning and sharing best practices	1	“Also involvement with Waikato Institute of Professional Learning, in partnership with Toronto University has kept this school in touch with many other schools both nationally and internationally.”
Best practice sharing clusters	1	“Through cluster work”
Best practice sharing exchange programs	6	“An exchange of ideas for an interesting way of teaching particular topics.”
Collaboration with relevant organisations for best practice sharing	1	“As Principal I have been a member of New Zealand Minister of Education Cross-Sector Forum with other educator leaders and the Ministerial 21st Century Reference Group which has informed this school closely with progressive initiatives led by government such as IES ⁴¹ and digital learning in the classroom for raising student achievement.”
Professional Development (PD) including options for best practice sharing	2	“Attending PD and finding out what other schools do.”
Best practice sharing seminars	2	“They also regularly attend seminars and visit other schools in order to widen their horizon and learn from others.”

³⁹ Assistant Principal/Deputy Principal

⁴⁰ New Zealand Education Administration and Leadership Society

⁴¹ IES or Investing in Educational Success is a New Zealand Government initiative aimed at lifting student achievement as well as offering new career opportunities for teachers and principals.

Best practice sharing through media	4	“Keeping a watch through various media”
Best practice sharing through external evaluation	1	“External evaluation”
Best practice sharing workshops	4	“Our German teachers often go to Germany on different workshops.”
Best practice sharing conferences	7	“Attending conferences”

Kindly specify other effective means adopted at your school to learn from other schools. (Q10-13)

Twenty-three schools shared other effective means (or benchmarking techniques) adopted to learn from other schools. The names of effective benchmarking techniques, the number of schools describing their use when providing an example and a sample of the respondents’ input are presented in Table 4.31.

Table 4.31 Examples of Effective Benchmarking Techniques Used by Schools to Learn from Other Schools

Benchmarking Technique	Number of Schools that Described the Use of Benchmarking Technique When Providing an Example	Voice of the Respondent
Best practice sharing workshops	1	“Contact with other Principals at overseas workshops”
Best practice sharing inter-school competitions	1	“Participation in interscholastic competitions organized by other schools.”
Best practice sharing international projects	2	“International PASCH ⁴² projects”
Best practice sharing principal learning network	3	“Working closely alongside other local Principals to collaborate on efforts to raise student achievement.”
Best practice sharing visits	3	“Case study visits to other schools to dialogue of successful strategies which ensure student success and positive outcomes.”
Best practice sharing online learning and sharing platform	1	“Use of IT ⁴³ ”
Best practice sharing local schools’ collaboration	4	“Teachers from our school prepare lessons for teachers and pupils of basic schools from our town, where they popularize natural sciences (project of EU).”
Best practice sharing clusters	3	“Working as a cluster to raise student achievement”

⁴² PASCH stands for the “Schools: Partners for the Future” initiative. It is a global network of some 1,800 schools that place a high value on German.

⁴³ Information Technology

Best practice sharing communities of schools	3	“We are at the early stages of being part of a community of schools/learning.”
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Considering the past 5 years, which academic work practices have you learned from other school(s)? (Q10-14)

The academic work practices learned from other schools are provided in Appendix 9.

Question 11: Holistic Learning

Question 11 has five sub-questions.

Considering the past 5 years, has your school included provision of holistic learning in its strategy?

Kindly provide an example or examples of how you use this technique.

(Q11-1)

The answer to this question is provided in Appendix 9.

Considering the past 5 years, has your school compared its holistic learning with other schools?

Kindly provide an example or examples of how you use this technique.

(Q11-2)

Considering the past 5 years, has your school learned how holistic learning is provided by other schools?

Kindly provide an example or examples of how you use this technique.

(Q11-3)

One hundred and twenty-seven schools answered Q11-2 and one hundred and twenty-five schools responded to Q11-3. Figure 4.28 shows that 34.65% (or 44 out of 127) of the schools compared their holistic learning with other schools and 36% (or 45 out of 125) of the schools learned provision of holistic learning from other schools.

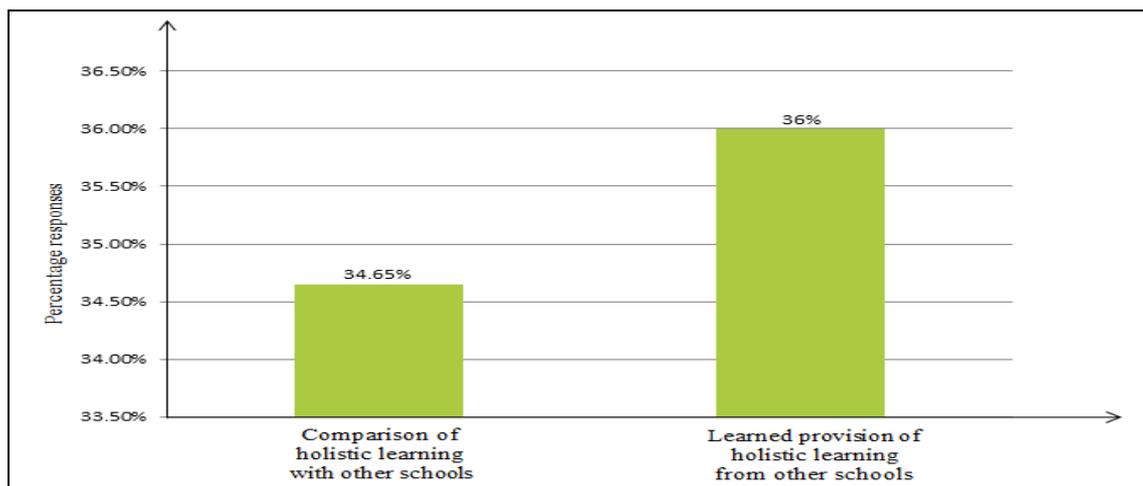


Figure 4.28 Schools Compared Holistic Learning with Other Schools and Learned Provision of Holistic Learning from Other Schools (n=183)

None of the responding schools shared benchmarking techniques used for comparing holistic learning with other schools.

Eighteen schools shared examples of benchmarking techniques adopted to learn provision of holistic learning from other schools. The names of the adopted benchmarking techniques, the number of schools describing their use when providing an example and a sample of the respondents' input are presented in Table 4.32.

Table 4.32 Examples of Benchmarking Techniques through Which Schools Learned Provision of Holistic Learning from Other Schools

Benchmarking Technique	Number of Schools that Described the Use of Benchmarking Technique When Providing an Example	Voice of The Respondent
Best practice sharing conferences	1	"Use of ideas from PB4L ⁴⁴ conferences."
Best practice sharing events and competitions	2	"We are invited to different events and we participate in those events with our students."
Best practice sharing informal discussions	4	"Informal dialogue with leader colleagues."
Best practice sharing meetings	2	"Principal network meetings, teachers' cluster group meetings"
Performance benchmarking	2	"We analyse the school profiles and rankings"
Best practice sharing Professional Learning Groups (PLG)	2	"Through a local PLG (Professional Learning Group) of 5 Principals."
Learning best practices through research	4	"We have researched other schools (websites, etc.) but this has not been a huge part of our own

⁴⁴ Positive Behaviour for Learning

		holistic learning journey”
Best practice sharing seminars	1	“Seminars alongside other Principal leaders”
Best practice sharing visits	2	“Visits to other schools”
Best practice sharing workshops	3	“Thanks to taking part in workshops organized for students from different schools, even from abroad.”

Considering the past 5 years, has your school measured the performance of its students holistically (on the whole, including academics, social, mental, and physical aspects e.g. extracurricular activities i.e. sports)? (Q11-4)

The answer to this question is provided in Appendix 9.

Considering the past 5 years, which holistic approach (es) have you learned from other school(s)?

(Q11-5)

The holistic approaches learned from other schools are presented in Appendix 9.

Question 12: Learning Non-academic Work Practices

Question 12 has 5 sub-questions.

Considering the past 5 years, has your school at any point collaborated with a local school (i.e. within your country or school system) for sharing and/or exchanging non-academic work practices?

Kindly provide an example or examples of how you use this technique.

(Q12-1)

Considering the past 5 years, has your school at any point collaborated with an international school (i.e. outside of your own school system) for sharing and/or exchanging non-academic work practices?

Kindly provide an example or examples of how you use this technique.

(Q12-2)

Considering the past 5 years, has your school at any point encouraged sharing and/or exchanging of non-academic work practices among staff?

Kindly provide an example or examples of how you use this technique.

(Q12-3)

One hundred and twenty-seven schools responded to Q12-1, one hundred and twenty-six schools responded to Q12-2 and one hundred and twenty-four schools responded to Q12-3.

Figure 4.29 shows that 59.84% (or 76 out of 127) of the schools learned non-academic work practices through collaboration with a local school and 30.16% (or 38 out of 126) of the schools learned non-academic work practices through collaboration with an international school. Further, 63.71% (or 79 out of 124) of the schools encouraged sharing and/or exchange of non-academic work practices among staff.

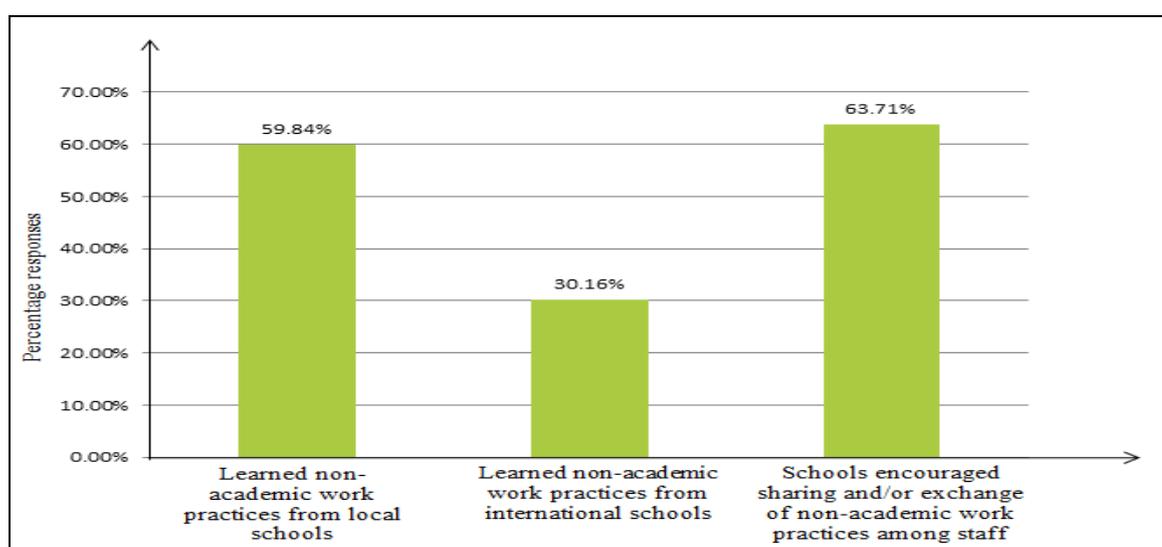


Figure 4.29 Schools Collaborating with Local and International Schools for Sharing and/or Exchange of Non-academic Work Practices and Encouraging Sharing and/or Exchange of Non-Academic Work Practices Among Staff (n=183)

Of the responding schools, thirty-seven schools shared examples of benchmarking techniques used to learn non-academic work practices from a local school. The names of the adopted benchmarking techniques, the number of schools describing their use when providing an example and a sample of the respondents' input are presented in Table 4.33.

Table 4.33 Examples of Benchmarking Techniques Used by Schools to Collaborate with a Local School for Sharing and/or Exchange of Non-Academic Work Practices

Benchmarking Technique	Number of Schools that Described the Use of Benchmarking Technique When Providing an Example	Voice of the Respondent
Best practice sharing clusters	1	"In development with local cluster"
best practice sharing events and competitions	7	"Organization of various competitions, collaboration with different schools and"

		fulfilling common projects.”
Best practice sharing conferences	1	“Un-conference”
Best practice sharing exchange programs	6	“We exchange information frequently with other schools in our district when it comes to the administrative side of things.”
Best practice sharing meetings	5	“Our school district facilitates this information through regular meetings with school administrators.”
Best practice sharing online learning and sharing platform	5	“E-learning”
Best practice sharing Professional Learning Community (PLC)	3	“Leadership team members are all part of external professional learning groups.”
Best practice sharing shared projects	3	“Network of schools focusing on leadership and vision development.”
Best practice sharing special initiatives	10	“Through the First Time Principals Program”

Sixteen schools shared examples of benchmarking techniques used to share and/or learn non-academic work practices through collaboration with an international school. The names of the adopted benchmarking techniques, the number of schools describing their use when providing an example and a sample of the respondents’ input are presented in Table 4.34.

Table 4.34 Examples of Benchmarking Techniques Used by Schools to Collaborate with an International School for Sharing and/or Exchange of Non-Academic Work Practices

Benchmarking Technique	Number of Schools that Described the Use of Benchmarking Technique When Providing an Example	Voice of the Respondent
Best practice sharing collaboration facilitators	2	“To hire a Comenius assistant.”
Best practice sharing conferences	1	“Australasian Mercy Secondary School Association (AMSSA) conference”
Best practice sharing exchange programs	8	“Students and teachers of other countries that visited our school to Exchange non-academic work practices”
Methods for informal learning of best practices	2	“Sharing examples of strategic planning sessions and gaining community involvement in such.”
Best practice sharing online learning and sharing platform	1	“We did do a Skype Science lesson with our First Nations sister school in Kashechewan, Ontario.”
Best practice sharing special networks	1	“Librarian networks”
Best practice sharing special projects	1	“I did talk to a school in Australia about joining forces on a Quality of life project using the Beach Road Scale from the U.S. But at the time I

		couldn't cope with an Action Research project on this scale so it went on hold.”
Best practice sharing workshops	1	“Exchange stays of pupils, language development, workshops, sport and cultural activities.”

Twenty-eight schools shared examples of benchmarking techniques used to encourage sharing and/or exchange of non-academic work practices among staff. The names of the adopted benchmarking techniques, the number of schools describing their use when providing an example and a sample of the respondents’ input are presented in Table 4.35.

Table 4.35 Examples of Benchmarking Techniques Used by Schools to Encourage Sharing and/or Exchange of Non-Academic Work Practices Among Staff

Benchmarking Technique	Number of Schools that Described the Use of Benchmarking Technique When Providing an Example	Voice of the Respondent
Best practice sharing strategic planning	3	“Strategic planning, curriculum design and development, vision creation.”
Best practice sharing meetings	8	“Middle leaders sharing expertise on common challenges.”
Best practice sharing online learning and sharing platform	3	“Setting up our online assessment tool and also our online performance system called Bluesky ⁴⁵ which we are working on this year”
Best practice sharing Professional Learning Communities (PLC)	3	“Within our Learning and Change Network, we discuss our shared mission and strategic plan, which then filters back into our individual schools.”
Professional Development (PD) including options for best practice sharing	4	“Leadership team members have shared professional readings with staff in the areas of personality traits, mindset etc.”
Best practice sharing special programs	3	“We share lessons on character and take turns hosting an assembly once per month to highlight a particular character trait. Staff members take turns presenting at the assembly.”
Best practices sharing staff feedback	1	“Feedback on productions, what worked and what not etc.”

⁴⁵ BlueSky is a UK based software solution to help teachers and schools to raise their performance.

Considering the past 5 years, which non-academic work practices have you learned from other school(s)?

(Q12-4)

The non-academic work practices learned from other schools are presented in Appendix 9.

While learning from other schools, which of the following points are considered by your school?

(Q12-5)

Ninety-eight schools responded to Q12-5. For Q12-5, the respondents had the liberty to select more than one answer options. 78.57% of the schools considered learning area while selecting a school to learn from, 68.37% focused on required resources, 66.33% focused on expected outcomes/benefits, 54.08% considered the performance level of the other school, 35.71% focused on the realisation of results, 20.41% focused on the maturity of the other school and 3.06% of the schools considered other points while selecting a school to learn from (Figure 4.30). Therefore, the schools considered a number of points while selecting a school to learn from.

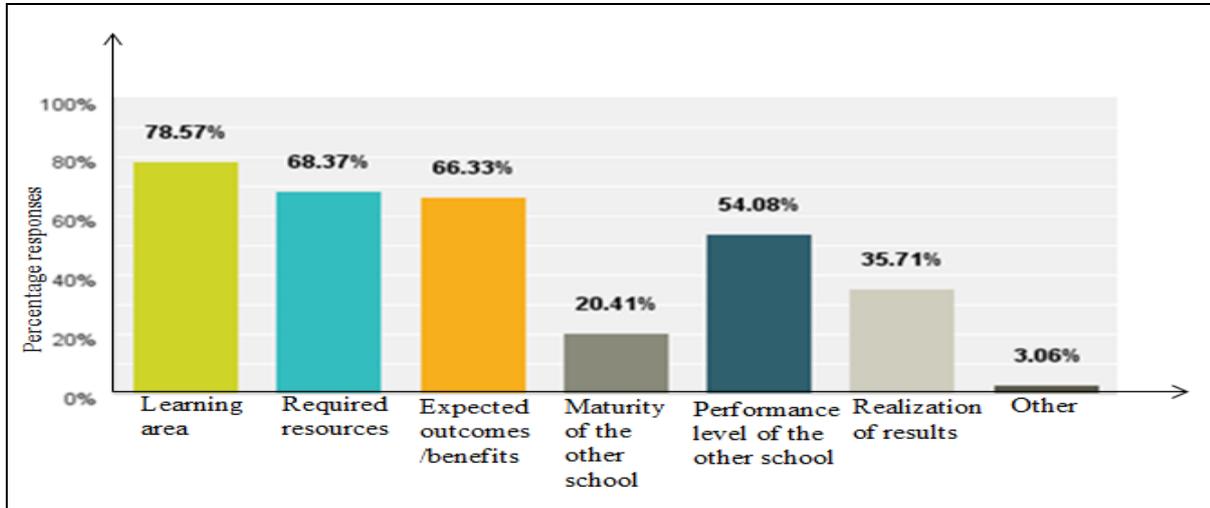


Figure 4.30 Points Considered by Schools While Choosing a School to Learn From (n=183)

Since the last four questions did not contribute to the objective of the survey, their responses are not included in the analysis. These questions were designed to obtain respondent's details for providing a summary report of the survey and to inquire about further participation (refer to Appendix 7 for these questions).

4.4.4 Findings of the Survey with Schools

The survey with purposively selected schools suggests that schools use benchmarking for performance comparison and to learn best practices from other schools and for supporting best practice learning of their teachers. It is established that schools use benchmarking for performance comparison with other schools (i.e. academic, non-academic and holistic) and organisations (refer to Figure 4.20), however, the majority of schools have compared their academic performance with other schools (refer to Figure 4.20). All schools comparing performance with other schools and/or organisations confirmed that the performance comparison contributed towards learning and/or improvement (refer to Figure 4.21).

It is further established that schools use benchmarking to learn academic and non-academic work practices (i.e. best practices) from local and international schools (refer to Figures 4.26 and 4.29); however most of the local and international collaboration is developed for the sharing of academic work practices (refer to Figure 4.26). The schools reported learning best practices and initiatives operating at other schools through media, web sources, conferences/seminars, teacher exchange and visits (refer to Figure 4.27) and considered a number of points while selecting a school to learn from, of which, learning area is considered important by a large number of schools (refer to Figure 4.30).

In addition, schools also use benchmarking to encourage teachers to collaborate with each other (refer to Figure 4.22) for learning and sharing of work practices (i.e. best practices). The techniques used for the learning of best practices between teachers include: regular meetings, collaborative lesson planning, demonstration lessons, seminars, workshops, observations and face-to-face training (refer to Figure 4.23). Of these techniques, regular meetings and collaborative lesson planning are used the most. Teachers learn best practices from other teachers (refer to Figure 4.22) including senior teachers, external teachers, consultants and principals (refer to Figures 4.24 and 4.25). Moreover, less than half of the schools have also developed a website to facilitate sharing of work practices among teachers (refer to Figure 4.25).

4.4.4.1 Findings Related to the Frequency of Use of Benchmarking and its Contribution to Performance

In order to determine the frequency of benchmarking used by schools, the researcher calculated a mean of responses for *frequency* for each survey question presented in Appendix 11 (Table 4.36). It is found that on a 5-point Likert scale the mean *frequency* ranges between 3 and 4.6, which means that the schools use benchmarking from ‘once a year’ to between ‘more than once a year’ and ‘frequently’. An examination of means shows that the use of benchmarking for learning and development of teachers by a senior teacher through meetings and collaborative lesson planning has the highest mean for *frequency*, while the use of benchmarking for learning academic work practices from an international school has the lowest mean (Table 4.36). This finding suggests that schools place great focus on intra-school learning.

In addition to *frequency*, the researcher also calculated a mean of responses for *effectiveness* for each survey question presented in Appendix 11 (Table 4.36), and found that on a 5-point Likert scale the mean *effectiveness* ranges between 3 and 4.2, which means that benchmarking ranges from being ‘moderately effective’ to between ‘reasonably effective’ and ‘highly effective’ in improving the performance of a school. A review of means shows that the use of benchmarking for learning and development of teachers by a senior teacher through collaborative lesson planning has the highest mean for *effectiveness*, whereas the use of benchmarking for learning about improvement initiatives at another school through media has the lowest mean (Table 4.36). It is obvious from Table 4.36 that not all *effectiveness* corresponds to *frequency*.

A Spearman’s rho correlation coefficient was computed to determine the relationship between *frequency* and *effectiveness* of benchmarking for questions presented in Table 4.36. Spearman’s rho was conducted as the data were nonparametric (Field, 2013). A moderately positive correlation was observed between the mean of responses for *frequency* and *effectiveness*, producing an average correlation of $r_s = 0.659$ (Table 4.37). Due to a significant positive average correlation, a Spearman’s rho correlation coefficient was computed for each of the 26 questions inquiring into the application of benchmarking (Table 4.38).

Positive correlation: There was a moderate positive correlation between the *frequency* and *effectiveness* of benchmarking for the following questions: Q10-1 to Q10-3-3, Q10-3-6, Q10-7 and Q11-1 (Table 4.38).

There was a weak positive correlation between the *frequency* and *effectiveness* of benchmarking for the following questions: Q10-3-4, Q10-3-5, Q10-3-7 to Q10-6, Q10-8 and Q10-10, Q10-12-2 to Q10-12-5, Q11-2, and Q11-4 to Q12-3 (Table 4.38).

No correlation: No correlation existed between the *frequency* and *effectiveness* of benchmarking for the following questions: Q10-11, Q10-12-1 and Q11-3 (Table 4.38).

In addition, a scatterplot was created to examine the impact of the *frequency* of use of benchmarking on its *effectiveness* (Figure 4.31). The scatterplot determined that 33.7% of variability in the *effectiveness* of benchmarking for schools is accounted for by its *frequency*. Therefore, it is determined that the *frequency* of use of benchmarking is a significant contributor to the *effectiveness* of benchmarking for performance improvement.

Table 4.36 Ranking of Questions on Benchmarking Included in the School Questionnaire on Frequency and Effectiveness (n=183)

Question Number	Ranking of Questions on Benchmarking on 'Frequency'	Mean Frequency ⁴⁶	Question Number	Ranking of Questions on Benchmarking on 'Effectiveness'	Mean Effectiveness ⁴⁷
Q10-3-1	Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through Regular Meetings?	4.6	Q10-3-2	Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through Collaborative Lesson Planning?	4.2
Q10-3-2	Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through Collaborative Lesson Planning?	4.6	Q10-3-1	Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through Regular Meetings?	4.1
Q10-1	Has your school encouraged staff at all levels to assist their peers?	4.5	Q10-7	Has your school appointed experienced teacher(s) as consultant(s), to share knowledge, skills, and experience with in-service teachers?	4.1
Q10-2	Has your school encouraged staff at all levels to get assistance from their peers?	4.5	Q10-1	Has your school encouraged staff at all levels to assist their peers?	4
Q10-8	Does the school have a website to facilitate teachers to share work practices and/or learn from each other?	4.5	Q10-3-6	Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through Observations (i.e. teachers observing senior teachers delivering lesson)?	4
Q10-12	Has your school learned about improvement initiatives at another school(s) through Web sources?	4.3	Q10-2	Has your school encouraged staff at all levels to get assistance from their peers?	3.9
Q10-3-7	Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through Face-to-face training (provided by senior teachers)?	4.1	Q10-3-3	Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through Demonstration Lesson (i.e. in which a	3.9

⁴⁶ Average of 'Mean Frequency' is 3.8, meaning that on average benchmarking is used between 'once a year' to 'more than once a year'.

⁴⁷ Average of 'Mean Effectiveness' is 3.7, meaning that on average the effectiveness of benchmarking lies between 'moderately effective' and 'reasonably effective'.

				senior teachers how a good class is supposed to be)?	
Q12-3	Has your school at any point encouraged sharing and/or exchanging of non-academic work practices among staff?	4.1	Q10-3-7	Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through Face-to-face training (provided by senior teachers)?	3.9
Q10-3-3	Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through Demonstration Lesson (i.e. in which a senior teachers how a good class is supposed to be)?	4	Q12-3	Has your school at any point encouraged sharing and/or exchanging of non-academic work practices among staff?	3.9
Q10-3-5	Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through Workshops?	4	Q10-4	Has your school undertaken observations of teachers' lessons by the principal and/or senior teacher(s) for identifying strengths and weaknesses in teaching methodologies, followed by suggestions for improvement?	3.8
Q10-3-6	Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through Observations (i.e. teachers observing senior teachers delivering lesson)?	4	Q10-8	Does the school have a website to facilitate teachers to share work practices and/or learn from each other?	3.8
Q10-6	Has your school ensured that teachers participating in sharing sessions (e.g. workshops, seminars etc.) share learned lessons with their counterparts?	4	Q11-3	Has your school learned how holistic learning is provided by other schools?	3.8
Q10-3-4	Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through Seminars?	3.9	Q10-6	Has your school ensured that teachers participating in sharing sessions (e.g. workshops, seminars etc.) share learned lessons with their counterparts?	3.7
Q10-4	Has your school undertaken observations of teachers' lessons by the principal and/or senior teacher(s) for identifying strengths and weaknesses in teaching methodologies, followed by suggestions for improvement?	3.9	Q10-10	Has your school at any point collaborated with a local school (i.e. within your country or school system) to share pedagogical work practices (e.g. teaching methodologies)?	3.7

Q10-7	Has your school appointed experienced teacher(s) as consultant(s), to share knowledge, skills, and experience with in-service teachers?	3.9	Q10-3-5	Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through Workshops?	3.7
Q10-12-1	Has your school learned about improvement initiatives at another school(s) through Media?	3.8	Q10-12-5	Has your school learned about improvement initiatives at another school(s) through Visits?	3.7
Q10-12-3	Has your school learned about improvement initiatives at another school(s) through Conferences/Seminars?	3.8	Q10-5	Has your school undertaken observations of teachers' lessons by external teachers (from outside your school) followed by their feedback and suggestions for improvement?	3.6
Q10-10	Has your school at any point collaborated with a local school (i.e. within your country or school system) to share pedagogical work practices (e.g. teaching methodologies)?	3.7	Q10-12-4	Has your school learned about improvement initiatives at another school(s) through Teacher Exchange?	3.6
Q12-1	Has your school at any point collaborated with a local school (i.e. within your country or school system) for sharing and/or exchanging non-academic work practices?	3.6	Q12-1	Has your school at any point collaborated with a local school (i.e. within your country or school system) for sharing and/or exchanging non-academic work practices?	3.6
Q10-12-5	Has your school learned about improvement initiatives at another school(s) through Visits?	3.5	Q10-11	Has your school at any point collaborated with an international school(s) (i.e. outside of your own school system) to share pedagogical work practices (i.e. teaching methodologies)?	3.5
Q11-3	Has your school learned how holistic learning is provided by other schools?	3.4	Q10-12-2	Has your school learned about improvement initiatives at another school(s) through Web sources?	3.5
Q11-2	Has your school compared its holistic learning with other schools?	3.3	Q10-12-3	Has your school learned about improvement initiatives at another school(s) through Conferences/Seminars?	3.5
Q10-12-4	Has your school learned about improvement initiatives at another school(s) through Teacher Exchange?	3.2	Q11-2	Has your school compared its holistic learning with other schools?	3.5
Q10-12-4	Has your school learned about improvement initiatives at another school(s) through Teacher Exchange?	3	Q12-2	Has your school at any point collaborated with an international school (i.e. outside of your own school system) for sharing and/or	3.5

				exchanging non-academic work practices?	
Q10-5	Has your school undertaken observations of teachers' lessons by external teachers (from outside your school) followed by their feedback and suggestions for improvement?	3	Q10-3-4	Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through Seminars?	3.5
Q10-11	Has your school at any point collaborated with an international school(s) (i.e. outside of your own school system) to share pedagogical work practices (i.e. teaching methodologies)?	3	Q10-12-1	Has your school learned about improvement initiatives at another school(s) through Media?	3.1

Table 4.37 Spearman's Rho Correlation between the Mean of Frequency and Effectiveness of Benchmarking for Schools

Correlations				
			Mean (Extent of Use)	Mean (Effectiveness)
Spearman's rho	Mean (Extent of Use)	Correlation Coefficient	1.000	.659**
		Sig. (2-tailed)		0.000
		N	26	26
	Mean (Effectiveness)	Correlation Coefficient	.659**	1.000
		Sig. (2-tailed)	0.000	
		N	26	26

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

Table 4.38 Summary Table Representing Correlation between the Frequency and Effectiveness of Benchmarking for Schools (n=183)

Question Number	Questions on Benchmarking	Correlation Coefficient (between Frequency and Effectiveness of Benchmarking)
Q10-1	Has your school encouraged staff at all levels to assist their peers?	.510** ⁴⁸
Q10-2	Has your school encouraged staff at all levels to get assistance from their peers?	.554**
Q10-3-1	Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through Regular Meetings?	.522**
Q10-3-2	Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through Collaborative Lesson Planning?	.597**
Q10-3-3	Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through Demonstration Lesson (i.e. in which a senior teachers how a good class is supposed to be)?	.573**
Q10-3-4	Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through Seminars?	.253* ⁴⁹
Q10-3-5	Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through Workshops?	.259**
Q10-3-6	Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through Observations (i.e. teachers observing senior teachers delivering lesson)?	.519**
Q10-3-7	Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through Face-to-face training (provided by senior teachers)?	.418**
Q10-4	Has your school undertaken observations of teachers' lessons by the	.441**

⁴⁸ **. Correlation is significant at the 0.01 level (2-tailed)

⁴⁹ *. Correlation is significant at the 0.05 level (2-tailed)

	principal and/or senior teacher(s) for identifying strengths and weaknesses in teaching methodologies, followed by suggestions for improvement?	
Q10-5	Has your school undertaken observations of teachers' lessons by external teachers (from outside your school) followed by their feedback and suggestions for improvement?	.376**
Q10-6	Has your school ensured that teachers participating in sharing sessions (e.g. workshops, seminars etc.) share learned lessons with their counterparts?	.431**
Q10-7	Has your school appointed experienced teacher(s) as consultant(s), to share knowledge, skills, and experience with in-service teachers?	.528**
Q10-8	Does the school have a website to facilitate teachers to share work practices and/or learn from each other?	.411**
Q10-10	Has your school at any point collaborated with a local school (i.e. within your country or school system) to share pedagogical work practices (e.g. teaching methodologies)?	.420**
Q10-11	Has your school at any point collaborated with an international school(s) (i.e. outside of your own school system) to share pedagogical work practices (i.e. teaching methodologies)?	.249
Q10-12-1	Has your school learned about improvement initiatives at another school(s) through Media?	.176
Q10-12-2	Has your school learned about improvement initiatives at another school(s) through Web sources?	.275**
Q10-12-3	Has your school learned about improvement initiatives at another school(s) through Conferences/Seminars?	.316**
Q10-12-4	Has your school learned about improvement initiatives at another school(s) through Teacher Exchange?	.467*
Q10-12-5	Has your school learned about improvement initiatives at another school(s) through Visits?	.448**
Q11-1	Has your school included provision of holistic learning in its strategy?	.541**
Q11-2	Has your school compared its holistic learning with other schools?	.357*
Q11-3	Has your school learned how holistic learning is provided by other schools?	.292
Q11-4	Has your school measured the performance of its students holistically (on the whole, including academics, social, mental, and physical aspects e.g. extracurricular activities i.e. sports)?	.402**
Q12-1	Has your school at any point collaborated with a local school (i.e. within your country or school system) for sharing and/or exchanging non-academic work practices?	.456**
Q12-2	Has your school at any point collaborated with an international school (i.e. outside of your own school system) for sharing and/or exchanging non-academic work practices?	.430**
Q12-3	Has your school at any point encouraged sharing and/or exchanging of non-academic work practices among staff?	.350**

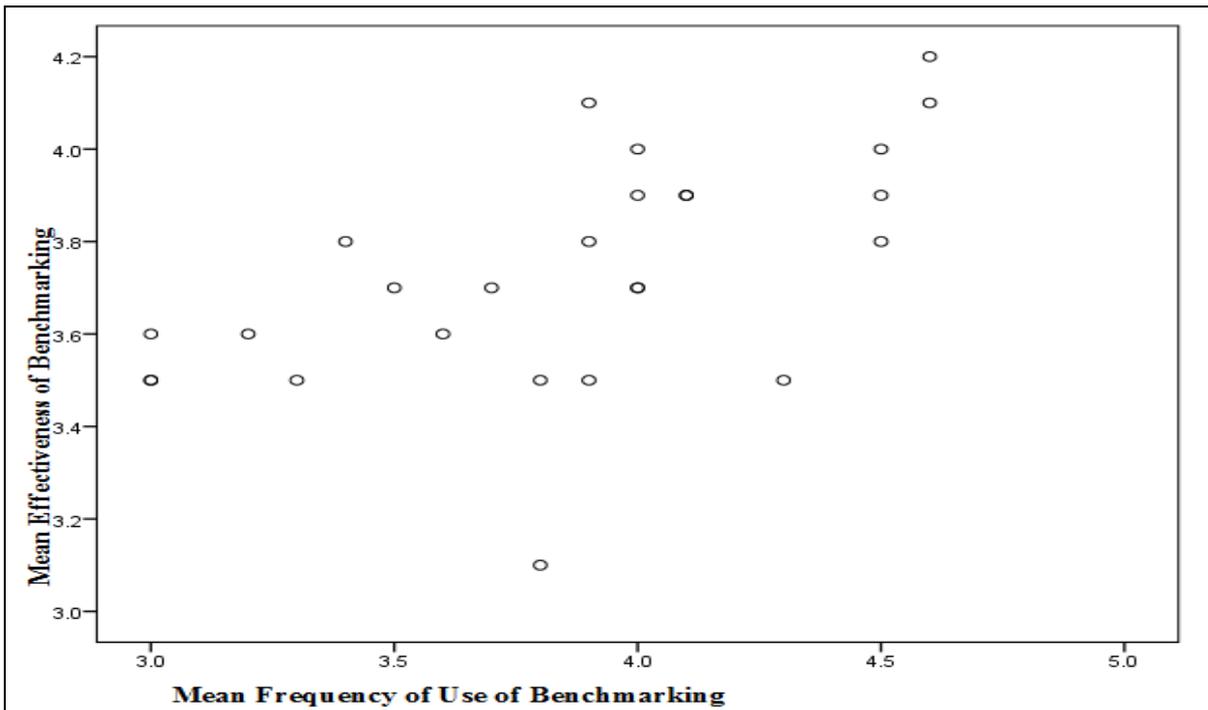


Figure 4.31 Scatterplot between the Mean Frequency and Effectiveness of Benchmarking for Schools

4.4.4.2 Findings Related to the Types of Benchmarking Techniques Used by Schools

A considerable number of the surveyed schools presented examples demonstrating the use of benchmarking. The benchmarking techniques recognised from these examples are presented in Appendix 13. Eighty-six benchmarking techniques are identified as being used by schools for performance comparison and to learn best practices from other schools and for supporting best practice learning of teachers, of which Figure 4.32 displays popular benchmarking techniques.

One of the significant observations is in regard to the scope of benchmarking techniques. It is clear from Appendix 13 that each benchmarking technique can be applied to several learning areas (i.e. academic, no-academic etc.), as a large number of benchmarking techniques are demonstrated as being used for more than one question (refer to Appendix 13). More importantly, some ‘hybrid’ benchmarking techniques are also presented in Appendix 13. The existence of hybrid techniques indicates that benchmarking techniques can be used independently and in combination with others.

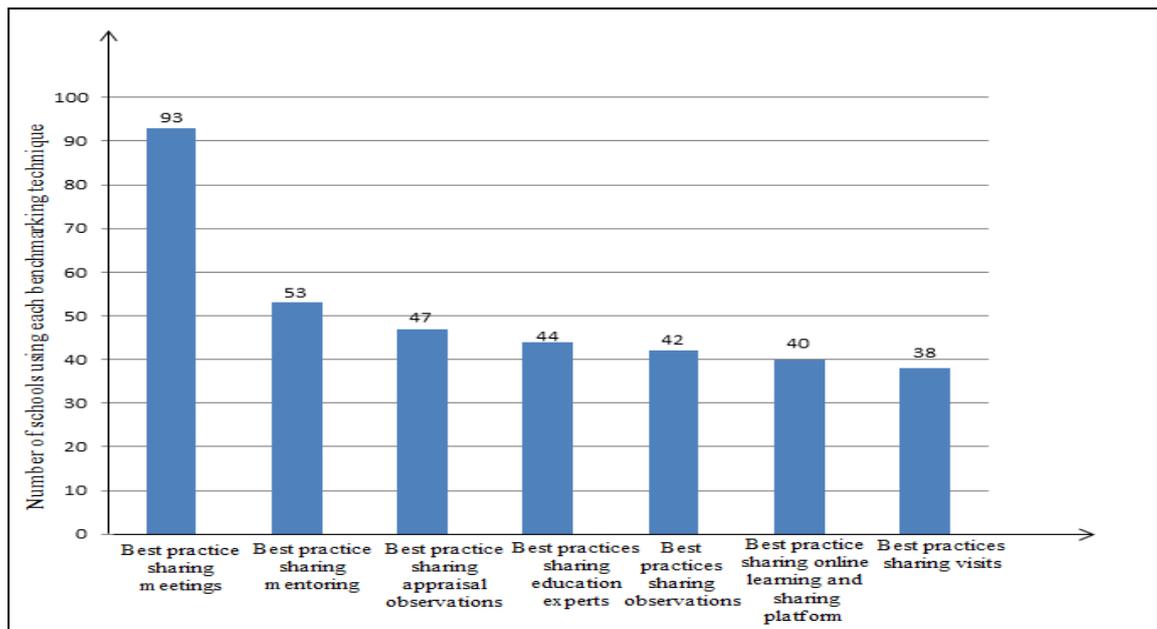


Figure 4.32 Popular Benchmarking Techniques Used by Schools (n=183)

4.5 Inferences Made from the Findings of the Survey with School Systems and Schools

This section presents the conclusions drawn from the findings of quantitative-qualitative survey with school systems and schools. The survey represents the second phase of the research (refer to Figure 3.1, Chapter 3). The prime purpose of the survey was to fulfil objective 2 (refer to Figure 1.2, Chapter 1) and answer the third and fourth research questions (refer to Table 3.1, Chapter 3). The findings of the survey corroborated the findings of the literature review (refer to Sections 2.7.1 and 2.7.3, Chapter 2).

The survey with purposively selected school systems and schools established that benchmarking is used by school systems and schools. Benchmarking is used by school systems to compare performance with other school systems and to learn best practices from other school systems and to support best practice learning of their schools (refer to Section 4.4.2), and by schools to compare performance with other schools and to learn best practices from other schools and to support best practice learning of their teachers (refer to Section 4.4.4). As the school systems and schools confirmed that the performance comparison contributed towards learning and/or improvement (refer to Sections 4.4.2 and 4.4.4), it can be deduced that the performance comparison with another school system or school was intended to identify areas needing improvement. In addition, it is also established that school systems learn best practices from other

organisations (refer to Table 4.12), and schools learn best practices from other sectors (refer to Tables 4.27, 4.28 and 4.30) and compare performance with other organisations (refer to Figure 4.20). These findings are self-reported by the survey respondents and have not been triangulated with empirical evidence. In the first phase of the research, the literature findings demonstrated the use of benchmarking by school systems and schools for performance comparison and for learning best practices from other school systems, schools, sectors and organisations, in addition to supporting the best practice learning of their schools and teachers respectively (refer to Section 2.7.1, Chapter 2). The survey findings corroborate the findings of the literature review and empirically validate the use of performance benchmarking (refer to Figures 4.3 and 4.20) and best-practice benchmarking (refer to Figures 4.5 to 4.8 and Figures 4.22 to 4.29) by school systems and schools. Moreover, school systems and schools are found to place more focus on using benchmarking for intra-system and intra-school learning, respectively (refer to Sections 4.4.2 and 4.4.4).

Most school systems have adopted benchmarking to learn academic work practices (refer to Figure 4.5), and the majority of schools have used benchmarking for the comparison of academic performance (refer to Figure 4.20) and for the improvement of academic work practices (refer to Figure 4.26). Earlier on, the literature review determined that benchmarking is mainly used by school systems and schools for the comparison and improvement of academic performance (refer to Section 2.7.1, Chapter 2). It can be concluded that school systems and schools generally use benchmarking for the comparison and improvement of academic performance.

The survey respondents included twenty school systems and 183 schools. As 88.89% of school systems and 68.64% of schools using benchmarking over the last 5 years also experienced an improvement in performance (refer to Figures 4.3 and 4.21), it can be deduced that school systems and schools are likely to obtain improved performance from benchmarking. Previously, several literature sources (Voss *et al.*, 1997; Fong *et al.*, 1998; Ulusoy & Ikiz, 2001; Searles *et al.*, 2013; Mourshed *et al.*, 2010; Tucker, 2016) have emphasised that benchmarking leads to improved performance. The association between benchmarking and performance improvement has also been acknowledged in the preliminary conceptual model (refer to Figure 2.3, Chapter 2).

In addition, the survey findings are indicative of the operation of benchmarking within school systems and schools. It is found that benchmarking options are linked to the strategic plans and goals of a school system (refer to Tables 4.11 and 4.12) and school (refer to Table 4.35) and are initiated for the sharing of strategic plans between schools (refer to Tables 4.13 and 4.34). Moreover, the school system initiated benchmarking options have been introduced by the Ministry of Education and include options for partnering with another school system (refer to Table 4.6), clustering of schools (refer to Tables 4.7 and 4.10) and the appointment of consultants (refer to Tables 4.6 and 4.25). The survey findings acknowledged the appointment of a program coordinator for facilitating international exchange programs (refer to Table 4.34). Previously, the literature review proposed that benchmarking results in improved performance when benchmarking implementation is aligned with the objectives (Bhutta & Huq, 1999) and strategic plans (Davies & Kochhar, 1999) of a school system or school. Additionally, the findings of the literature review (refer to Section 2.7.1, Chapter 2) suggested that in well performing school systems and schools a benchmarking initiative is introduced by the Ministry of Education/School Board and/or school's management in areas aligned with the strategic focus and is handled by an expert.

For supporting objective 2 and answering research question three (refer to Table 3.1, Chapter 3), the averages of 'Mean *frequency*' and 'Mean *effectiveness*' are calculated. It is demonstrated that on average benchmarking is used between 'once a year' to 'more than once a year' by school systems and schools and results in attaining 'moderately effective' to 'reasonably effective' performance improvement (refer to Tables 4.17 and 4.36). It is noted that the averages of both the means correspond, indicating towards an association between *frequency* and *effectiveness*.

To this end, a Spearman's rho correlation was conducted to determine the relationship between *frequency* and *effectiveness*. No relationship was observed between the two variables for school systems, however a moderate positive correlation was observed for schools. The absence of relationship between the two variables for school systems is possibly due to the small sample size, as a sample size of 20 violates the assumptions of several statistical tests and the results thus obtained are not reliable.

As a next step, a scatterplot was created for an investigation of the relationship between *frequency* and *effectiveness* of benchmarking. The scatterplot demonstrated that the

frequency of use of benchmarking accounts for 10.5% of variability in the *effectiveness* of benchmarking for school systems, and 33.7% for schools. It is therefore established that the *frequency* of use of benchmarking is a contributor to the *effectiveness* of benchmarking for performance improvement. In other words, the more benchmarking is used, the better the performance. This finding validates the relationship between benchmarking and performance improvement, which is the theoretical underpinning of the preliminary conceptual model (refer to Figure 2.3, Chapter 2). The researcher envisages that in addition to the *frequency* of use of benchmarking, the variation in *effectiveness* of benchmarking could also be attributed to the cultural characteristics of a school system or school; as these characteristics have been found to have an impact on the adoption and optimisation of benchmarking (refer to Section 2.4.3, Chapter 2). Some of these cultural characteristics have already been identified among the theoretical underpinnings of the preliminary conceptual model of effective benchmarking (Figure 2.3, Chapter 2).

The coefficient of determination called R^2 which is used to predict variation in mean between two variables was not calculated for two reasons. Firstly, there is no correlation between the mean of *frequency* and *effectiveness* for school systems (refer to Table 4.18) and there is only a moderately significant correlation for schools (refer to Table 4.37). Secondly, the data from the responses of *frequency* and *effectiveness* are not normally distributed and some of the data are missing. Although twenty school systems and 183 schools participated in the survey, not all the respondents recorded their responses for *frequency* and *effectiveness* for all survey questions (Appendix 14).

Besides indicating *frequency* and *effectiveness*, the school systems and schools also presented examples describing the use of benchmarking for performance comparison and for learning best practices from other school systems and schools and for supported best practice learning of their schools and teachers, and hence enabled the researcher to answer the fourth research question. Thirty-seven benchmarking techniques used by school systems and 86 benchmarking techniques used by schools are identified and are presented in Appendices 12 and 13 respectively. Some of these benchmarking techniques were primarily recognised through the examples of use of benchmarking acquired from the literature review (refer to Appendix 2).

A review of benchmarking techniques presented in Appendices 12 and 13 shows that some benchmarking techniques are common between school systems and schools. In addition, a number of benchmarking techniques are demonstrated to be applied for learning best practices in multiple areas of learning (tabulate each benchmarking technique against survey questions in Appendices 12 and 13). Thus, it can be stated that the choice of a benchmarking technique is independent of its level of application (school system or school) and area of learning. It is important to mention that Appendix 13 also presents some ‘hybrid’ benchmarking techniques. The existence of hybrid techniques indicates that benchmarking techniques can be used independently and in combination with others.

4.6 Chapter Summary

The chapter outlined the design and implementation of the survey with school systems and schools. The findings supported the fulfilment of research objective 2 and answered the third and fourth research questions.

The quantitative-qualitative survey had twofold benefits. Firstly, it supported research objective 1 by empirically validating the use of benchmarking by school systems and schools. In supporting objective 2, the survey with purposively selected school systems and schools demonstrated that, on average, benchmarking is used between ‘once a year’ to ‘more than once a year’ by school systems and schools and results in ‘moderately effective’ to ‘reasonably effective’ performance improvement; the survey also presented the used benchmarking techniques. Notably, the survey findings established that the *frequency* of use of benchmarking is a contributor to the *effectiveness* of benchmarking for performance improvement, for both school systems and schools.

Eventually, the findings enabled the researcher to identify school systems and schools attaining effective performance from the use of benchmarking. These school systems and schools indicated *effectiveness* of benchmarking as ‘reasonably effective’ and/or ‘highly effective’. In the next phase of the research, interviews were planned with these school systems and schools for exploring effective benchmarking techniques and reasons for their effectiveness.

CHAPTER 5: AN EXPLORATION OF BENCHMARKING TECHNIQUES CONTRIBUTING TO IMPROVED PERFORMANCE OF SCHOOL SYSTEMS AND SCHOOLS

5.1 Introduction to the Chapter

This chapter describes Phase 3 of the multiphase mixed methods research design (refer to Figure 3.1, Chapter 3), which is the qualitative interview stage of the research. The purpose of this phase, as explained in Section 3.4.3 (Chapter 3), is to obtain rich qualitative data to accomplish the third research objective by assimilating benchmarking techniques resulting in the effective performance⁵⁰ of school systems and schools. In order to fulfil this purpose, school systems and schools that participated in the survey (Chapter 4) and indicated the achievement of reasonably to highly effective performance from benchmarking were invited for structured interviews for the collection of theme-based data. This chapter describes the plan for structured interviews with participants⁵¹ from school systems and schools, the actual interview process, and the emerging findings and inferences.

This chapter is divided into four main sections: Section 5.2 presents the interview planning; Section 5.3 describes the structured interview process and the method used for the interpretation of interviews; Section 5.4 describes the administration of structured interviews, analysis of interview responses and the emerging findings; and Section 5.5 presents inferences made from the findings. Finally, the chapter conclusion is presented in Section 5.6.

5.2 Interview Planning

An interview is a complex investigation (Gibbs, 2008); however, it is a popular and widely used means of collecting qualitative data (Burns, 2003). By following a structure and a purpose (Brinkmann & Kvale, 2009), an interview helps to understand how people perceive and interpret the world around them (Burns, 2003). As the researcher was interested in a meticulous exploration of effective benchmarking techniques and the reasons for their success, the structured interview was an appropriate choice which

⁵⁰ Effective performance = Improved performance

⁵¹ Participant is a person who answers the questions, usually in an interview or group interview (Saunders *et al.*, 2010)

could be undertaken by working through a list of predetermined questions (Burns, 2003). For ensuring greater consistency and reliability (Burns, 2003), the interviews followed a plan for the systematic investigation of the practice of benchmarking. Kvale (2007) presented a model-based plan for qualitative interview investigation which is adopted as a guide. The following steps were adapted from Kvale for the purpose of this research.

5.2.1 Thematizing

Thematizing enables the articulation of the purpose and themes of a structured interview. The purpose of the structured interview was in agreement with the third research objective for answering the fifth, sixth and seventh research questions (refer to Table 3.1, Chapter 3). The purpose of the structured interview was twofold: to comprehend the benchmarking techniques resulting in effective performance (or improved performance) of school systems and schools, and to conceptualise the factors leading to that performance. The interviews examined the notion of benchmarking and elucidated the varying perspectives of benchmarking within school systems and schools (Creswell, 2013).

Themes are defined as explanations and interpretations of the problem under investigation (Silverman, 1989) and were developed for a theoretical clarification of benchmarking techniques resulting in improved performance of school systems and schools (Kvale, 2007). As the purpose of the interviews was to examine the structure of benchmarking implementation followed by school systems and schools, it was considered important to explore ‘effective benchmarking techniques’⁵² in relation to the core steps of a benchmarking process. Therefore, themes were developed by taking into consideration the steps described as best practices in a benchmarking process by Anand and Kodali (2008). These steps were considered reliable as they emerged through the conscientious benchmarking of existing benchmarking processes (refer to Section 2.2.4, Chapter 2). Eight themes were identified and related to the main steps of a benchmarking process (refer to Figure 2.2, Chapter 2). The themes were developed both deductively and inductively and included: purpose, prerequisites, partner selection criteria, resources, benchmarking approach, barriers, benefits and factors leading to effectiveness.

⁵² Effective benchmarking techniques are the techniques producing improved performance.

5.2.2 Designing

Since designing an interview involves planning the procedures and techniques for obtaining important knowledge (Brinkmann & Kvale, 2009), an interview schedule was developed prior to the interview to ensure the reliability and consistency of the interview process. An interview schedule is a collection of questions designed to be asked by the interviewer and is used in a structured interview (Bryman & Bell, 2015; Kumar, 2010). The schedule comprised of questions that were short and easy to understand (Kvale, 2007), and followed the predetermined themes for an investigation of benchmarking techniques resulting in improved performance based on the experience of interview participants (Zuckerman, 1977; Kvale, 2007).

The interview schedule was meant to “provide the data that will contribute to answering” (Maxwell, 2008, p. 236) the research questions for gaining deeper understanding of benchmarking techniques resulting in improved performance and to conceptualise the reasons for that performance. The validity of the interviews was ensured by having well-constructed and well-tested interview schedules (Johnson & Turner, 2003). Two interview schedules were developed: one for school systems and the other for schools. Initially, the interview questions were reviewed by the research supervisors and revised accordingly. Then a pilot interview was conducted to test the reliability and adequacy of the interview schedules and for observing data trend.

As the qualitative interview followed the quantitative-qualitative survey (Creswell & Clark, 2011), the interview participants were carefully selected from the survey respondents to ensure the acquisition of valid and reliable information (Zohrabi, 2013). The participants included knowledgeable and well-positioned persons belonging to those school systems and schools that had achieved improved performance from benchmarking and showed their willingness to participate. Hence, a purposive sampling strategy was adopted for interviews, which according to Tashakkori and Teddlie (1998) is the “selection of individuals/groups based on specific questions/purposes of the research in lieu of random sampling and on the basis of information available about these individuals/groups” (p. 76).

5.2.3 Interviewing

An interview could be conducted face-to-face, via a video or an audio call through the telephone system or the internet. As the traditional telephonic interview is discouraged

in the established literature (Gillham, 2005; Novick, 2008) due to lack of visual contact, each interview was conducted via a video or an audio call via Skype. A visual encounter is considered necessary to develop rapport and for monitoring the responses and interest of interview participants (Irvine, Drew & Sainsbury, 2013) and to make the participants feel comfortable and open to sharing in-depth insights. A Skype video call was the preferred mode of the majority of interview participants; however three interviews were conducted via a Skype audio call due to internet connection issue at the respondents' end.

Structured interviews were conducted with elite interviewees (Zuckerman, 1977) belonging to school systems and schools, meaning that they included leaders or persons in powerful positions (Brinkmann & Kvale, 2009). Approaching an interviewee is a key problem when studying elite interviewees (Hertz & Imber, 1995) but the researcher did not encounter this problem as the interview participants had already participated in the survey and were interested in the exploration of their benchmarking techniques. Before the interview, a reminder email was sent to each interview participant to ensure their availability. During the interview, each benchmarking technique was explored in detail by consistently following the interview schedule. The interviews assisted in gaining rich data on benchmarking techniques resulting in improved performance. In order to maintain a consistent interviewing style the interviews were conducted solely by the researcher (Irvine *et al.*, 2013).

Saturation is an important criterion to justify an adequate sample size in a qualitative phenomenological inquiry (Guest, Bunce, & Johnson, 2006). Numerous researchers provided guidelines on participant selection for reaching saturation in a qualitative study (Guest *et al.*, 2006), of which Creswell (2013) recommended between five and twenty-five interviews for a phenomenological study. Saturation was therefore expected to occur with 23 structured interviews, including 4 interviews with representatives of school systems and 19 of schools.

5.2.4 Transcribing

The interviews were audio recorded and later transcribed from oral to written mode as an initial analytic process (Brinkman & Kvale, 2009). The interviews were transcribed verbatim by the researcher and were later transformed into a literary style (Brinkman &

Kvale, 2009). Subsequently, information relevant to each theme was identified and saved in a corresponding Excel file.

5.2.5 Analysis

Immersion is the first step of data analysis, and is required to bring clarity to disjointed elements of data by translating them into themes to present a clearer picture of the association between benchmarking and effectiveness (Green, Willie, Hughes, Small, Welch, Gibbs & Daly, 2007). A thorough analysis was conducted by listening to the interview recordings and reading and re-reading the transcribed information (Renner & Taylor-Powell, 2003) for allocating the collected information into appropriate themes. The analysis was designed to find answers to questions included in the interview schedule (Renner & Taylor-Powell, 2003) for gaining deeper understanding of benchmarking techniques resulting in improved performance and reasons for that performance. The analysis of structured interviews with school systems is presented in Section 5.4.1 and with schools in Section 5.4.3.

5.2.6 Reporting

The expounded benchmarking techniques were presented in the form of a spreadsheet (Renner & Taylor-Powell, 2003) with information allocated to themes. The description of themes is presented in Table 5.1 and Table 5.2 illustrates the relationship between themes and the core steps of a benchmarking process, it also illustrates how the themes were developed. The results of the structured interviews with school systems are presented in Section 5.4.2 and of schools in Section 5.4.4, and the inferences are described in Section 5.5.

Table 5.1 Themes and Their Description [Adapted from Anand and Kodali (2008)]

Themes	Description
Purpose	The purpose of benchmarking explains the rationale behind the use of each benchmarking technique
Prerequisites	Any prior condition to be fulfilled before conducting benchmarking
Partner selection criteria	Reason(s) for the selection of benchmarking partner(s) (a school system/school to learn from)
Resources	Description of finance, time and people required for the implementation of benchmarking
Benchmarking approach	Benchmarking approach describes the benchmarking process followed by a school system or school, and could either be formal or informal
Barriers	An obstacle hindering the implementation of benchmarking
Benefits	Advantages gained from the implementation of benchmarking
Factors leading to effectiveness	Factors that have helped in achieving improved performance from the implementation of benchmarking

Table 5.2 Relationship between the Themes and Main Steps of a Benchmarking Process

Development of Themes	Themes Corresponding to the Main Steps of a Benchmarking Process	Main Steps of a Benchmarking Process [Adapted from Figure 2.2, Chapter 2]
Deductively	Purpose	Planning
	Prerequisites	
	Partner selection criteria	
	Resources	
	Benchmarking approach	Execution
	Barriers	
	Benefits	Evaluation
Inductively	Factors leading to effectiveness	

5.3 Structured Interview Process

A structured interview gives each interview participant the same context of questioning and ensures that each of the participants receives exactly the same stimulus (Bryman & Bell, 2015). The selection of this style of interviewing corresponded with the research objective and served as a guide for obtaining relevant information. The following research objective was achieved from the structured interviews:

- Determine those benchmarking techniques that have been effective contributors to the performance of school systems and schools and explore their implementation detail and reasons for effectiveness

This objective is important as it helped to explore how benchmarking techniques producing improved performance have been implemented and which factors have contributed to the achievement of that performance. As explained earlier (in Section 5.2.1), another purpose of exploring the implementation detail is to comprehend the process followed by school systems and schools while implementing benchmarking.

5.3.1 Mapping of Interview Questions with the Research Objective

The interview questions were mapped to research objective 3 and the corresponding research questions (refer to Table 3.1, Chapter 3), whereas the sub-questions corresponded to the themes presented in Table 5.1. The mapping of interview questions with the research objective, research questions and themes is illustrated in Table 5.3 for a school system and in Appendix 15 for a school.

Table 5.3 Mapping of the Research Objective, Research Questions and Themes with Interview Questions for a School System

Steps of Structured Interview	Interview Questions	Focus of Interview Questions
Introduction	<p>Introduce self, appreciate participant for their time</p> <p>Introduce the research and its significance for school systems</p> <p>Refer the participant to their survey response</p> <p>Request permission for audio recording</p>	<p>To get the interviewee and interviewer comfortable in talking and listening to each other</p> <p>To prepare the interviewee to talk on the topic</p> <p>Ethical requirement</p>
Question 1	<p>How does your school system: learn from other school systems; support the learning of its schools; learn from other sectors and/or organisations; Which learning approaches (or benchmarking techniques) resulted in improved performance?</p>	<p>The purpose of this question is to determine the focus of benchmarking and identify benchmarking techniques producing improved performance. (RQ 5)</p>
Question 2	<p>Can you elaborate on how each effective learning approach is used?</p> <p>The elaboration is prompted through the following sub-questions:</p>	<p>The purpose of this question is to explore implementation detail of benchmarking techniques resulting in improved performance. (RQ 6)</p>
Sub-questions of Question 2 (mapped to themes and research objective 3)	What is the purpose of this learning approach?	Understand the reasons for conducting benchmarking (theme)
	What are the prerequisites for implementing this learning approach?	Develop understanding of the precondition for benchmarking (theme)
	How is the best practice partner(s) selected?	Description of partner selection process (theme)
	How do you plan for this learning approach? How do you implement it? Do you evaluate the outcomes? How?	Understand the adopted benchmarking process (theme)
	How much time, money and people are required?	Understand the resources required for benchmarking (theme)
	What are the barriers/challenges to the implementation of this learning approach? How did you overcome them?	Description of potential obstacles and the propensity of the school system to learn (theme)
	What are the outcomes/benefits of this learning approach?	Description of results achieved from benchmarking (theme)
Question 3	<p>How would you rate the effectiveness of this learning approach on a scale from 1 to 5?</p> <p>Rating: 1 = ineffective; 2 = not very effective; 3 = moderately effective; 4 = reasonably effective; 5 = highly effective</p>	<p>Aids in understanding the success of benchmarking</p>

	Which factors enabled you to achieve those outcomes?	The purpose of this question is to comprehend factors that led to successful benchmarking (theme). (RQ 7)
Repeat Questions 1 till 3 for each effective learning approach adopted by a school system to: learn from other school systems; support learning of its schools; learn from other sectors and/or organisations		
Closing	Thank the interviewee for their time and information	To end the interview politely and formally

5.3.2 Technique for Interpreting Structured Interviews

A technique called content analysis was chosen to analyse and interpret interview data (Figure 5.1). Bryman and Bell (2015) describe content analysis as: “an approach to the analysis of documents and texts that seeks to quantify content in terms of predetermined categories in a systematic and replicable manner” (p. 291). The categorisation process in content analysis is intended to organise large amount of text into much fewer categories (Weber, 1990). Content analysis led to the categorisation of data on the basis of pre-developed categories (Kvale, 2007), which are the themes presented in Table 5.1. The definitions of the themes were developed prior to the interview (Kvale, 2007, p. 106) and the analysis process was built into the interview process by developing a theme-based interview schedule (refer to Table 5.3 and Appendix 15). Careful probing was done during the interview to ascertain easy categorisation of shared information (Kvale, 2007).

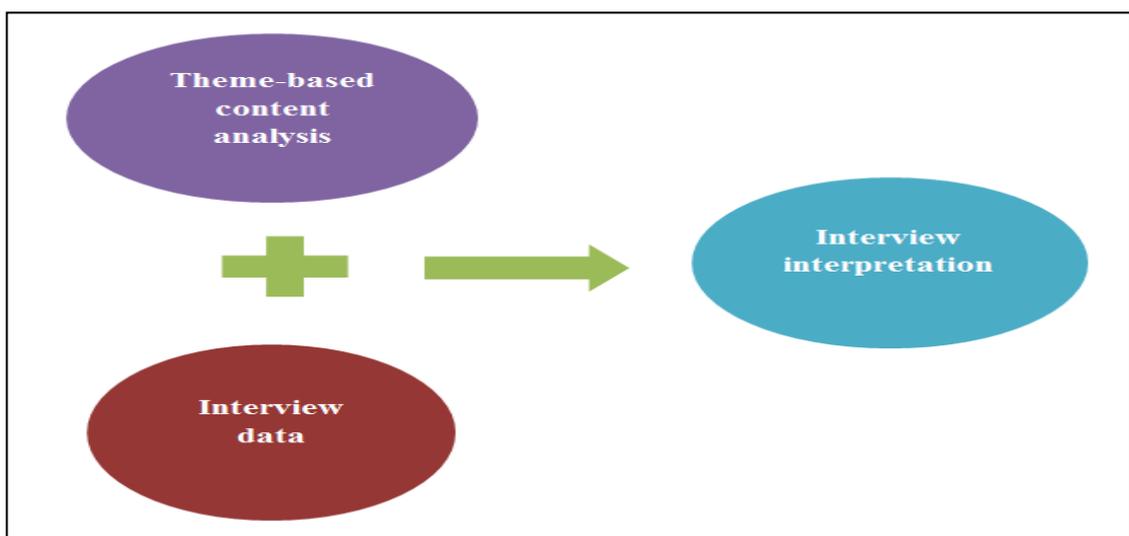


Figure 5.1 Interpretation of Structured Interview

5.4 Administration, Analysis and Results of Structured Interviews

Structured interviews were conducted with interview participants from four school systems and 19 schools. The interviews were meant to comprehend benchmarking techniques producing effective outcomes for school systems and schools. At the beginning of the interview, the interviewer's understanding of benchmarking was understood and the rationale for interview communicated. Since the flexibility of interview timetable is important for elite interviewing (Morrissey, 1970, as cited in Stephens, 2007), a flexible interview invitation was sent to each interview participant (Appendix 16) and each interview was conducted at a mutually agreed date and time. The interview participants were sent a reminder email prior to the interview to ensure their availability and the interview was conducted via Skype, lasting approximately 60 to 120 minutes. The interviews were audio recorded with permission from the participants and were later transcribed manually. The transcription enabled the researcher to categorise the acquired information into themes. In order to obtain interpretive agreement (refer to Section 3.5.4, Chapter 3), the researcher sent copies of interview transcriptions to interview participants for review. The analysis of the interview responses of school systems is presented in Section 5.4.1, and of schools in Section 5.4.3.

5.4.1 Analysis of the Interview Responses from School Systems

Profiles of the Interview Participants

The representatives of four school systems participated in the structured interviews. The interview participants included knowledgeable persons belonging to Ministries of Education and/or School Board with extensive experience and association with their school system and are referred to as 'interviewee' in the analysis. The profiles of the interview participants are presented in Table 5.4.

Table 5.4 Profiles of Interview Participants from School Systems

Serial Number	Code Assigned to Interviewee	Designation of Interviewee	Work Experience
1	SS-1	Director General at Ministry of Education, Science and Culture	30 years
2	SS-2	Superintendent of School District	20 years
3	SS-3	President of the Executive Board, Institute of Educational Evaluation	35 years
4	SS-4	Education Advisor, National Institute of Education	30 years

Since a small number of school systems participated in the structured interviews, a narrative of each structured interview is presented below. In these narratives, the researcher describes effective benchmarking techniques applied by the participating school systems. From this recount, sub-themes are pulled out against each of the themes and are supported by the participants' voice.

Narrative of Structured Interview with SS-1

Interviewee SS-1 was the representative of a school system based in Europe. The interviewee was the Director General of the Ministry of Education, Science and Culture. The Director General was enthusiastic about becoming a research participant and explained the manifestation of benchmarking within his school system.

The first conceived benchmarking technique was intended for *learning the online published reforms* of a high-performing school system in international assessments. This benchmarking technique was administered in 2014 and aimed at revising the reforms of the school system by learning education reforms from Ontario. On the basis of the studied reforms, the Ministry of Education proposed a strategy whereby the school system would follow the example of Ontario in setting a small number of clear goals, promoting positive attitudes and building capacity to introduce change. The Director General described the significance of broad and across the board cooperation and measures to promote a unified leadership of the reform, and explained that the school system now places special focus on research, dissemination of knowledge, and support for schooling. Interviewee SS-1 believed that such a reform revision would improve the performance of school system in international assessments.

In addition to the above, Interviewee SS-1 described that the Ministry of Education organises *conferences* for teachers on ad hoc basis. These conferences are attended by a variable number of schools and enable teachers from different schools to come together to share best practices. They also provide an opportunity to network with colleagues from across the school system.

Another interesting benchmarking technique followed by the Ministry of Education is called *dissemination of best practices*. Interviewee SS-1 thoughtfully explained that in order to promote learning and improvement within the school system, the Ministry of Education distributes reports of good practices from other school systems to schools within. In addition, the Ministry also publishes evaluation reports of schools and

disseminates them across the school system to provide an opportunity to schools to learn from the findings of those reports.

Narrative of Structured Interview with SS-2

Interviewee SS-2 was the representative of a school system based in the USA. The interview was conducted with the superintendent of the School District, who had tremendous insights into every aspect of creating and managing a performance-based school system. Although benchmarking had been followed as a routine activity within the school system, specific examples included *training*, *partnerships* and *observations*. The superintendent proudly explained the operation of all these benchmarking techniques as they contributed towards a significant improvement in the performance of the School District.

Interviewee SS-2 proudly spoke of the School District's *training* sessions organised for all teachers within the district three times a year. While explaining the operation of trainings, he described that trainings take place 3 to 4 times a year and their collective duration ranges from 10 to 30 days. The majority of teachers choose to participate in trainings due to their demonstrated benefits, that is, Professional Development. The superintendent claimed that the training session organised during summer holidays is of most significance and a large number of teachers choose to participate. This training is funded by the School District and requires huge capital investment as training is provided to all teachers within the School District.

Further explaining the operation of training, Interviewee SS-2 described that after a training session teachers utilise learnings from the training to collaboratively plan for the next year. They make structured plans called Plan, Implement, Evaluate and Refine (PIER). An integral element of PIER is reflection, so the district goes through a reflection period at the end of each school year to evaluate the effectiveness of trainings. The reflection focuses on outcomes of training-based planning, such as: What was expected to happen? Did it happen? What changes were made to the lesson and how were they made? At the end of each school year, the whole district goes through these reflection questions to evaluate the effectiveness of the training process.

The superintendent believes that such a unique training process has been extremely beneficial for sharing ideas across school boundaries and was instrumental in creating a sense of ownership among teachers, as they collectively discuss existing teaching

processes and options for their modification. Interviewee SS-2 claimed that training enhances communication across the entire School District and leads to more effective instructions for accelerating students' learning.

The superintendent described the implementation of another benchmarking technique in which the School District works in *partnership* with other school districts. Interviewee SS-2 meticulously described how partnerships are created among school districts interested in broadening options for student learning and they usually last for 5 to 10 days. The partner school districts are selected through word of mouth and the cost of partnership is borne by the partnering districts. The number of people participating in a partnership and their roles are decided beforehand. These partnerships follow a plan and last until the objectives of partnership are achieved.

While explaining the general operation of partnerships, Interviewee SS-2 specified that partnerships are usually developed with 6 to 8 other school districts for exchanging students and teachers to participate in trainings. To provide elaborated learning options for students, the district sends its students along with some teachers to one of the partner districts to attend trainings not offered at the School District. In a similar manner, while organising training programs for its students, the School District invites students from partner districts. Teachers and administrators from partner districts are also invited to join in to observe training programs at the School District. Subsequently, they can borrow ideas from the School District and use them in their own district or they may conduct a similar training in their own school district.

In this way, students get a chance to participate in trainings not provided by the School District. The value of such an approach is that, on many levels, it expands the menu of learning opportunities for students, and it does so in such a way that each school district does not have to build its own redundant programs. The superintendent expressed that such partnerships help to develop and strengthen relationships between district leaders in addition to broadening options for student learning.

Another interesting benchmarking technique shared by Interviewee SS-2 was meant for *observations*. After being informed about this observation-based appraisal process, the researcher considers it a unique yet effective process for improving pedagogy and consequently student learning. This observation process is known as Performance Evaluation Process or PEP and is based on the idea of continuous improvement. These

observations are carried out to assess the performance of all teachers within the School District three times a year. During this process, teachers are observed by a senior teacher or staff member while taking a class and are later provided with feedback on their performance. The feedback describes teaching strengths and the areas for which improvement is required. Each teacher is scored based on their performance feedback, and this score eventually determines their performance pay. This incentive-based process of evaluation enables teachers to earn money through performance outcomes. The PEP inspires teachers to focus on improving performance by working with mentors (at state or district level) and other staff members. This learning setup helps to grow capacity in areas needing improvement. The PEP is conducted three times a year, at the beginning of the year, mid-year and at the year's end; however, teachers only get performance pay once a year.

The PEP clarifies expectations of teachers and enables the district management to sit down three times a year one-on-one to reflect on teachers' craft. This process leads to the recognition of teachers' work and motivates teachers to engage in a process of continuous improvement.

Narrative of Structured Interview with SS-3

Interviewee SS-3 was the representative of a European country. The interviewee was the President of the Executive Board, Institute of Educational Evaluation. Although the President acknowledged the significance of benchmarking, he was unable to provide specific examples as benchmarking was practised quite informally and to a small extent.

Specifically, Interviewee SS-3 explained that the school system uses benchmarking for learning best practices from other school systems by extracting useful information from the *reports of international assessments*, such as the PISA results. While talking about the learning environment between schools, Interviewee SS-3 described that national exams are used to inform on the *performance* of schools and *reports of these results* are shared with all schools. The President of the Executive Board hesitantly indicated the absence of a culture of collaboration within the school system, which presumably hinders benchmarking from thriving.

Narrative of Structured Interview with SS-4

Interviewee SS-4 was the representative of another school system from Europe. The interview was conducted with the Education Advisor from the National Institute of Education. The Education Advisor had a deep understanding of benchmarking projects of the school system. Although benchmarking prevailed in the past and was still being used even today, the Education Advisor described how a large-scale exchange project promoted collaboration and learning between schools. The name of this project is Content and Language Integrated Learning (CLIL) and was intended for the *exchange* of teachers between school systems from Europe and North America. This project was funded by the European Union and has been initiated to promote the learning of subjects, such as physics, history and geography etc., through the use of a foreign language, such as English, French or German.

The purpose behind this program is to equip students to compete globally by enabling them to learn new languages in addition to their own regional languages. The program had initially received tremendous resistance from teachers and parents as they were expected to learn these foreign languages to support learning of students. They also dreaded a decline in student achievement due to the use of new languages. Although there was a decline in students' performance at the beginning, their performance improved as they became proficient in using those foreign languages. This program has been successful in certain areas of the school system.

Due to participation in this project, networks are being created between schools for teachers to collaborate more and more across schools and even across regions. As part of this project, resources are provided for teachers to go to visit other schools in Europe and North America to learn their effective CLIL strategies. Interviewee SS-4 explained that the school system is focused on getting the best CLIL strategies from other school systems, such as those in Finland, Germany and France. The program enabled students to learn new languages and at the same time provided an opportunity to teachers to continuously learn effective teaching methodologies.

Sub-themes Conceptualised against Each Predetermined Theme from the Benchmarking Techniques Contributed by School Systems

The information acquired from the above presented narratives was categorised into themes presented in Table 5.1 and is referred to as sub-themes (refer to Section 5.2.1).

These sub-themes are presented in Table 5.5 and represent the responses of the interviewees against each of the themes. Each of these sub-themes is now described.

Table 5.5 Sub-Themes Extracted from Structured Interviews with School Systems

Theme	Sub-themes Extracted from the Implementation Details of Effective Benchmarking Techniques
Purpose	<ul style="list-style-type: none"> ● Sharing and acquisition of best practices ● Teacher development ● Performance measurement ● Broaden learning options for students ● Learn best practices from well performing school systems ● Dissemination of best practices
Prerequisites	<ul style="list-style-type: none"> ● Availability of required resources
Partner selection criteria	<ul style="list-style-type: none"> ● Alignment of partner’s best practices to strategic goals ● Geographical proximity ● Absence of criteria ● Area of learning ● Shared interest ● Performance level
Resources	<ul style="list-style-type: none"> ● People involved in benchmarking ● Time required for benchmarking ● Finance required for benchmarking
Benchmarking approach	<ul style="list-style-type: none"> ● Informal benchmarking process
Barriers	<ul style="list-style-type: none"> ● Adaption of best practices ● Resistance from stakeholders ● Amount of required resources
Benefits	<ul style="list-style-type: none"> ● Acquisition and implementation of best practices ● Promotion of reciprocity ● Promotion of Professional Development ● Leveraging off relationships/networks ● Student development
Factors Leading to effectiveness	<ul style="list-style-type: none"> ● Teachers’ commitment to excellence ● Availability of finance ● Description of roles of people involved

Theme: Purpose

This theme describes the rationale for undertaking benchmarking.

The following sub-themes describe the purposes for undertaking benchmarking.

- **Sub-theme: Sharing and Acquisition of Best Practices**

Benchmarking is recognised to be used for the sharing and learning of best practices. Interviewee SS-2 was generally enthusiastic about his school system's benchmarking efforts in relation to this sub-theme. He particularly found training programs valuable, and stated that by participating in trainings "teachers are sharing ideas across school boundaries". Benchmarking is credited to promote sharing and acquisition of best practices by: the organising of conferences for teachers (Interviewee SS-1) and by the creation of networks with other school systems and between schools for promoting the learning of teachers and students across schools and even across regions (Interviewee SS-4).

- **Sub-theme: Teacher Development**

Benchmarking is proven to support teacher development. The mechanisms related to this sub-theme included: the organising of system-wide training programs (Interviewee SS-2), international exchange programs (Interviewee SS-4) and conferences (Interviewee SS-1).

Interviewee SS-2 proclaimed the significance of benchmarking for teacher development by stating that:

"We want to make sure that schools within our own district are learning from each other. So, even within our district we spend time ... where we bring teachers together from all of the different schools and we do training together and we do planning based on that training ... and then they get together and they share their ideas about what they are planning for the next year, and they take ideas from each other."

- **Sub-theme: Performance Measurement**

Benchmarking is demonstrated to be used for performance measurement. Interviewee SS-2 meticulously described his school system's benchmarking efforts concerning this sub-theme as:

"Performance Evaluation Process is a really good process to help teachers get feedback about their own performance and it gives them clear guidance about not only where they are performing but where we would like to see them perform in future."

On the other hand, Interviewee SS-3 succinctly described the use of benchmarking for performance measurement of schools.

- **Sub-theme: Broaden Learning Options for Students**

In order to support this sub-theme, Interviewee SS-2 stated that benchmarking is used for broadening learning options for students by developing partnership with other school districts. He stated that:

“We make partnerships with other school districts where we exchange students. When we provide training for our students we could add some of their students and then in exchange when they are doing training in their district we can send some of our students to them and our students are able to participate in something that we are not providing. The value in that is on many levels it expand the menu of student learning opportunities in multiple districts and it does that in a way that each school district does not have to build its own redundant program.”

- **Sub-theme: Learn Best Practices from Well Performing School Systems**

Benchmarking is identified to be used for learning best practices from well performing school systems. Regarding this sub-theme, Interviewee SS-1 vividly described an example of revising education reforms in which the school system “published a white paper on selected educational issues and in that white paper ... relied very much on examples from Canada”.

- **Sub-theme: Dissemination of Best Practices**

Benchmarking is claimed to be used for dissemination of best practices. Some of the mechanisms used for the dissemination of best practices included: publication of school evaluation reports so that schools can learn from the evaluation of other schools (Interviewees SS-1 and SS-3), development of a report encompassing good practices of other school systems and distributing it among the schools (Interviewee SS-1) and reports of international assessments (Interviewee SS-3). In regard to this sub-theme, Interviewee SS-1 said that: “we try to publish good practice descriptions and evaluation reports”.

More importantly, while explaining the publication of good practices of other school systems, Interviewee SS-1 confessed that “it is more ad hoc but not formal, but I agree it could be done much more formally”.

Theme: Prerequisites

The prerequisites refer to any prior conditions that have to be fulfilled before conducting benchmarking. Identification and management of prerequisites is extremely important for benchmarking.

The following sub-theme describes the precondition for conducting benchmarking.

- **Sub-theme: Availability of Required Resources**

Interviewees SS-2 and SS-4 were generally confident about the efforts of their school systems in relation to this sub-theme. Interviewee SS-2 explained that huge resources are required while organising training programs for all teachers within the school district, and Interviewee SS-4 described that financial support of European Union for exchange programs enabled the school system to effectively learn best practices for promoting CLIL.

In relation to organising training sessions for all teachers within the school district, Interviewee SS-2 stressed the significance of funds by stating that:

“Our teachers are in little villages and there are no roads so they have to fly in chartered airplanes ... so that we can all gather in the same area.”

Theme: Partner Selection Criteria

The partner selection criteria describe the reasons for choosing a benchmarking partner. It is important to select a partner carefully based on the purpose of benchmarking.

The following sub-themes describe the criteria for selecting a benchmarking partner.

- **Sub-theme: Alignment of Partner’s Best Practices to Strategic Goals**

The selection of a best practice school system was described as a partner selection criterion by Interviewee SS-1, who was generally confident about his school system’s benchmarking efforts in relation to this sub-theme. He described that the partner school system is selected based on the alignment of partner’s best practices to the strategic goals of the school system. He specifically mentioned that in 2014 the school system “published a white paper on selected educational issue, and in that white paper relied very much on examples from Canada ... how they improve literacy?”

- **Sub-theme: Geographical Proximity**

The geographical proximity of the benchmarking partner was stated to be a consideration while implementing benchmarking. Interviewee SS-4 supported this sub-

theme and highlighted the importance of geographical proximity by describing that the European Union funds exchange programs for “creating networks of schools. Teachers are becoming more and more collaborative across schools and even across regions within Spain. They have good resources to look at other schools in Europe and North America.”

- **Sub-theme: Absence of Criteria**

Some benchmarking techniques have no partner selection criterion as they are intended for all related parties. In supporting this sub-theme, Interviewee SS-1 highlighted that conferences are organised for all teachers within the school system. While explaining the sharing of best practices among schools, Interviewee SS-1 said that: “we publish evaluation reports so that they (the schools) can learn from the evaluation of schools (other schools).”

- **Sub-theme: Area of Learning**

Benchmarking was claimed to be initiated between school systems based on the area of learning. In relation to this sub-theme, Interviewee SS-2 declared that the school district developed partnership with those school districts that offer training programs for students in areas not offered by the school district. The interviewee described that: “The district makes partnerships with other school districts... to exchange students... when we provide training in construction, we can add some of their students in the program... and in exchange when they are doing training we are not providing...we can send some of our students to them and our students are able to participate in something we are not providing.”

- **Sub-theme: Shared Interest**

Benchmarking is identified to involve partners having a shared learning interest. Interviewee SS-2 agreed with this sub-theme and narrated that the school district developed ties with other school districts on the basis of shared interests. He said that: “we have a Microsoft IT academy session where students come in from many districts, and they come in and they work on Microsoft IT academy coursework.”

- **Sub-theme: Performance Level**

Benchmarking is also found to be initiated with school systems based on their performance level. In relation to this sub-theme, Interviewee SS-1 stated that:

“We try to find examples of good practices that have received attention recently....we try to learn from countries that are doing well and what they are doing differently from us, so that is a continuous learning process.”

Theme: Resources

Resources are integral for conducting benchmarking and include finance, time and people required for the implementation of benchmarking.

The following sub-themes describe the resources required for undertaking benchmarking.

- **Sub-theme: People Involved in Benchmarking**

Benchmarking is found to require the involvement of a specific type and number of people.

In favouring this sub-theme, Interviewee SS-1 described that sometimes the school system “holds conferences when something interesting is taking place” and a variable number of schools participate in these conferences. While explaining the significance of trainings, Interviewee SS-2 said that:

“Teachers volunteer their time...a high percentage of those teachers chooses to participate because they know it’s going to be very effective in helping them develop plans for the next year. It’s going to make the student experience and their (the teachers’) experience in the upcoming year far better.”

- **Sub-theme: Time Required for Benchmarking**

The time required for benchmarking is found to depend upon the purpose of benchmarking. In relation to this sub-theme, Interviewee SS-2 described that the training time at a “minimum is 10 days a year ... some years we have actually gone to 30 days a year”.

- **Sub-theme: Finance Required for Benchmarking**

Benchmarking is reported to require finance for its implementation and the utilisation of finance depends upon the purpose of benchmarking. Interviewees SS-1, SS-2 and SS-4 reported the significance of this sub-theme for benchmarking. Interviewee SS-2 described that holding training for teachers needs huge capital investment, as “training is offered to all teachers within the school district”; whereas, Interviewee SS-1 explained that learning education reforms of other school systems incurred no cost.

Theme: Benchmarking Approach

The benchmarking approach refers to the benchmarking process followed by school systems for undertaking benchmarking. A formal benchmarking process follows a benchmarking methodology, whereas an informal benchmarking process does not follow a benchmarking methodology.

The following sub-theme describes the benchmarking approach adopted by the school systems for the implementation of benchmarking techniques.

- **Sub-theme: Informal Benchmarking Process**

Interviewees SS-1, SS-2 and SS-3 described their school systems' benchmarking efforts in relation to this sub-theme. Interviewee SS-2 was clear about his school system's benchmarking efforts in relation to this sub-theme and described that the School District organises training programs for all teachers within the district. These training programs are planned for areas needing improvement that have been identified through the strategic plan. After the training, the district goes through a reflection period to evaluate the effectiveness of training. Interviewee SS-2 further added: "there are a number of things in this process that are evaluated, so it is very holistic". In addition, Interviewee SS-2 described that once teachers have received training they make a plan on how to implement that training, "they develop what we call PIER plans, it means Plan, Implement, Evaluate and Refine".

Interviewee SS-1 explained that the Ministry of Education plans and organises conferences for schools from time to time, to encourage schools to share best practices. The effectiveness of these conferences is measured anecdotally. In particular, Interviewee SS-1 confirmed that the school system encourages learning and sharing between schools "but it is not very formal". He further explained that "some informal connection between schools and professional groups like subject teachers" are created. Alternatively, Interviewee SS-3 explained that the assessment reports of schools are distributed throughout the school system to promote learning, however, the effectiveness of these reports is not measured.

Theme: Barriers

A barrier refers to an obstacle hindering the implementation of benchmarking.

The following sub-themes describe the barriers hindering benchmarking.

- **Sub-theme: Adaption of Best Practices**

Benchmarking outcomes are reported as being dependent on how the learned best practices are adapted. In order to support this sub-theme, Interviewee SS-1 described that one of the greatest challenges associated with learning best practices from other school systems is adapting them according to the needs and culture of the school system. In relation to this sub-theme, Interviewee SS-1 said that:

“When we publish white papers, we often take examples from other countries.”

- **Sub-theme: Resistance from Stakeholders**

Benchmarking outcomes are found as being dependent upon the attitude of stakeholders. Regarding this sub-theme, Interviewee SS-4 described that some teachers and parents opposed students’ participation in exchange programs introduced for the learning of content through the use of a foreign language because they dreaded a decline in student achievement due to the use of a new language. In this regard, Interviewee SS-4 stated that:

“Contentious issues and some resistance from teaching staff and parents who think that the level of attainment in specific subjects can be reduced by the introduction of such programs”.

- **Sub-theme: Amount of Required Resources**

Benchmarking is reported to be impacted by the amount of resources required. In relation to this sub-theme, Interviewee SS-2 described that organising training programs for all teachers within the school system incurs huge cost. He explained that: “our staff members are volunteering in the summer ... it’s still something that most school districts don’t do, so we start to pay for travel and lodging and food and stuff”.

Theme: Benefits

Benefits are advantages gained from the use of benchmarking.

The following sub-themes describe the benefits obtained from benchmarking.

- **Sub-theme: Acquisition and Implementation of Best Practices**

Benchmarking is claimed to result in the acquisition and implementation of best practices. This sub-theme was supported by Interviewee SS-1, who reported that the use of benchmarking for reform learning resulted in adaption and implementation of best practices in the form of new reforms. He further explained that conferences and

dissemination of best practices promote learning of best practices. Interviewee SS-1 explained that: “reports that are about good practices in European countries” are prepared to learn from those countries.

- **Sub-theme: Promotion of Reciprocity**

Benchmarking is stated to promote reciprocity. Regarding this sub-theme, Interviewee SS-2 described that participation in a training program provided teachers with an opportunity to learn and share best practices and it “clarifies the expectations and it forces us three times a year to sit down one-on-one with these teachers and reflect upon their craft.”

- **Sub-theme: Promotion of Professional Development**

Benchmarking is claimed to promote the Professional Development of teachers. This sub-theme was supported by Interviewees SS-2 and SS-4. Interviewee SS-2 described that the training programs involve collaborative planning and contribute to the Professional Development of teachers, and Interviewee SS-4 highlighted that teachers learned effective CLIL strategies through participation in exchange programs.

- **Sub-theme: Leveraging Off Relationships/Networks**

Benchmarking is believed to leverage off relationships/networks. In supporting this sub-theme, Interviewee SS-2 described that: “in our trainings we invite teachers and administrators from other districts to see what we are doing” with the idea to establish and strengthen relationships with those school districts.

- **Sub-theme: Student Development**

Benchmarking is claimed to lead to student development. Interviewee SS-4 supported this sub-theme by describing that students’ participation in exchange programs “broadens the mind, broadens the perspective for academic achievement”.

Theme: Factors Leading to Effectiveness

These are the factors that have helped school systems achieve improved performance from the use of benchmarking.

The following sub-themes describe the factors contributing to successful benchmarking.

- **Sub-theme: Teachers' Commitment to Excellence**

Benchmarking is claimed to be successful when teachers are committed to learn and improve their pedagogy. Interviewee SS-4 confirmed this sub-theme by highlighting that teachers' commitment to continuous improvement contributes to the success of exchange programs.

- **Sub-theme: Availability of Finance**

Benchmarking is recognised to be successful when the required finance is available. To confirm this sub-theme, Interviewee SS-2 asserted that funds are integral for successfully organising district-wide training programs for teachers.

- **Sub-theme: Description of Roles of People Involved**

Benchmarking is claimed to be successful when the required number of related people are made available for the time of benchmarking and their roles are clearly defined. Interviewee SS-2 substantiated this sub-theme by describing that agreement on the number of people participating in a partnership and their roles are important while planning a partnership.

5.4.2 Results of Structured Interviews with School Systems

The structured interviews with purposively selected school systems showed that benchmarking, in the form of benchmarking techniques, is used by school systems for performance measurement and for the learning and implementation of best practices.

5.4.2.1 Results Related to Benchmarking Techniques Producing Improved Performance

The implementation detail of effective learning approaches contributed by school systems enabled the researcher to identify the underlying benchmarking techniques. Figure 5.2 presents the benchmarking techniques resulting in improved performance of school systems. In Figure 5.2, the term *best practices* is used to indicate that meetings and conferences etc. involve learning and sharing of best practices to be regarded as benchmarking techniques. The benchmarking techniques presented in Figure 5.2 are used for performance measurement and for the learning and implementation of best practices (refer to Table 5.5) and show that benchmarking could be used to measure the performance of schools and teachers and to learn best practices from other school systems and also between schools and teachers (refer to Section 5.4.1).

The implementation detail of the assimilated effective benchmarking techniques encouraged the researcher to deduce that school systems use benchmarking informally as none of the school systems were seen to follow a benchmarking process. In order to study the structure of these informal benchmarking techniques, their implementation detail was categorised into the themes presented in Table 5.1 (refer to Table 5.5 and Section 5.4.1). This categorisation showed that these benchmarking techniques have possibly resulted in improved performance by following the steps on planning, execution and/or evaluation (refer to Table 5.2), which are the core steps of a benchmarking process. Hence, it can be suggested that the school systems achieved improved performance by informally following the main steps of a benchmarking process. Interviewee SS-1 acknowledged the significance of a benchmarking process by admitting that the publication of good practices of other school systems should follow a systematic approach for greater results and benefits.

The explanation and examples of expounded benchmarking techniques are presented in Table 5.6. The implementation detail of these benchmarking techniques (refer to Section 5.4.1) revealed that benchmarking could be used for a variety of purposes and could produce several benefits. Nevertheless, the prerequisites and partner selection criteria have to be considered and the resources provided. Moreover, in order to obtain improvement from the use of benchmarking, it is important to take all benchmarking partners on board and to adapt the learned best practices to make them culture and context specific.

An important finding emerging from the examples presented in Table 5.6 is that a benchmarking technique could be used independently and in combination with others, for performance measurement and the learning and implementation of best practices. It is inferred from these examples that a number of benchmarking techniques could be used together as part of a single benchmarking project.

5.4.2.2 Results Related to the Factors Contributing to Improved Performance

Whilst investigating benchmarking techniques resulting in improved performance, the researcher also conceptualised the factors which enabled school systems to achieve that performance (refer to Table 5.5 and Section 5.4.1). The interviewees identified three factors which have enabled their school systems to achieve improved performance from the informal use of benchmarking. These factors included: teachers' commitment to

excellence, availability of finance and description of the roles of people involved. Each of these factors was contributed by a single school system. These factors are discussed in Section 5.5.

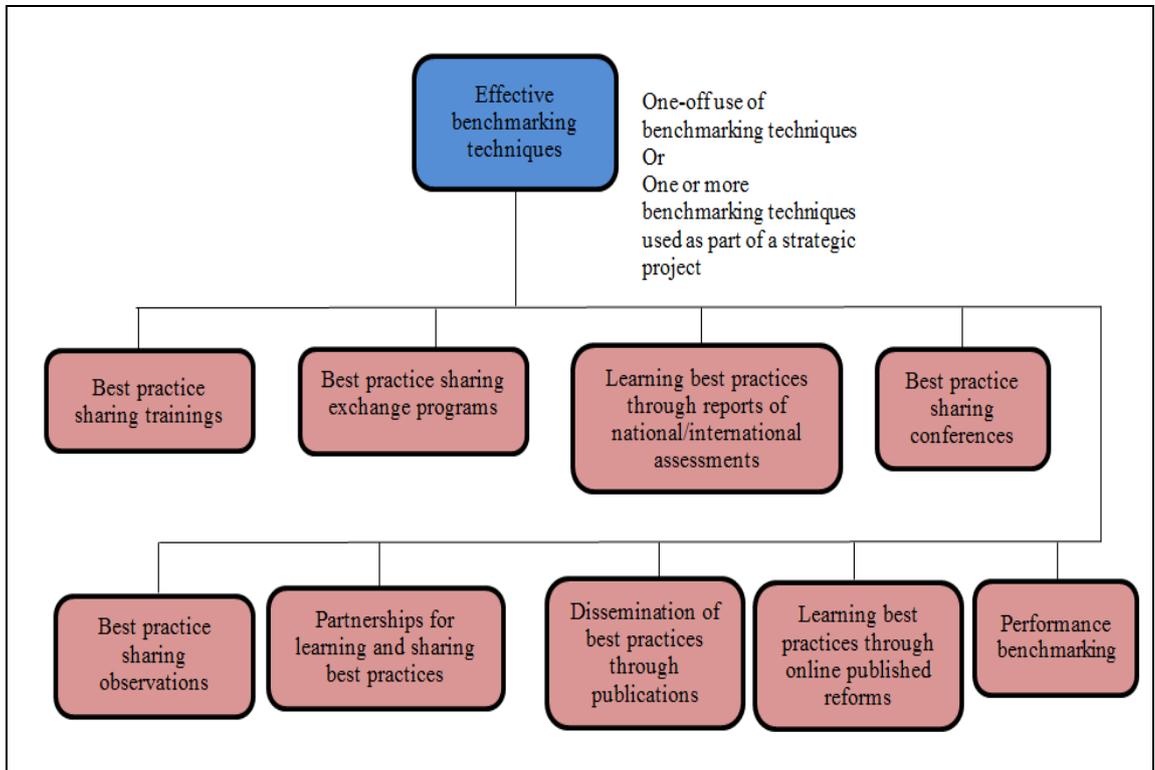


Figure 5.2 Benchmarking Techniques Resulting in Improved Performance of School Systems

* The term *best practices* represents the learning and sharing of best practices

Table 5.6 Benchmarking Techniques Resulting in Improved Performance of School Systems, their Explanation and Examples

Serial Number	Benchmarking Technique	Explanation	Example of How the Technique is Used by a School System	Strengths of the Example	Shortcomings of the Example
1	Best practice sharing trainings	An informal learning approach in which a school system organises training sessions to promote best practice learning of teachers.	The School District of Interviewee SS-2 organises annual district-funded training sessions for teachers. The trainings are aligned with the strategic focus of the School District and are organised for all teachers. The purpose of trainings is to share best practices. These trainings are followed by collaborative lesson planning based on the learnings acquired from trainings and the effectiveness of these trainings is reviewed at the end of the year.	This example describes a thorough training program which is carefully planned and executed.	These trainings are informal and are not necessarily facilitated by individual having experience of handling benchmarking projects.
2	Best practice sharing exchange programs	An informal learning approach in which a school system learns best practices during exchange of teachers and/or students with another school system.	Interviewee SS-4 described the participation of school system in an exchange program called CLIL. This exchange program was sponsored by the European Union to promote CLIL and to encourage	In this example, the exchange program was aligned with the strategic focus of European Union and was rigorously implemented by European	Although this exchange program was promoted by the European Union, it lacked a thorough evaluation of outcomes. The use of a benchmarking process could

			school systems to share CLIL strategies. The use of foreign languages increased as an outcome of this exchange program.	countries to encourage learning of new languages.	have enabled a systematic evaluation.
3	Best practice sharing observations	An informal learning approach used by a school system in which teachers improve their teaching methodologies through observation of their lesson by an expert, a senior teacher or a member of senior management team. Typically, observations are followed on with feedback. Sometimes observations are supported with demonstration by the observer.	According to Interviewee SS-2, observations for the sake of performance evaluation help to identify areas for improvement for each teacher and enable them to improve performance by working with mentors (at state or district level) and other staff members. This learning setup helps to grow capacity in expected areas of improvement.	The observations follow an exhaustive process, as performance gaps are identified and incentives are offered for improving performance.	Observations are well-planned and follow steps on planning, execution and evaluation; however, they do not adhere to a benchmarking process.
4	Partnerships for learning and sharing of best practices	An informal learning approach in which associations are established between school systems to fulfil a shared purpose. The partnerships are loosely structured and last until the	The School District of Interviewee SS-2 plans and develops partnerships with 6-8 other school districts in which they collaboratively exchange students for participation in trainings not offered by the School District. Some	Partnerships are well planned, as the School District searches for districts offering trainings in the areas of interest.	The effectiveness of such a partnership is measured anecdotally. However, the use of a benchmarking process would ensure a comprehensive evaluation of outcomes.

		purpose and objectives of partnership are achieved.	staff members also accompany students and learn best practices through this partnership. Such partnerships have been quite successful.		
5	Dissemination of best practices through publications	An informal learning approach through which a school system ensures learning of best practices by schools and/or teachers, by disseminating publications related to the area of learning.	The Ministry of Education supports learning and improvement of its schools by distributing reports on good practices of other school systems. Moreover, the Ministry publishes evaluation reports of its schools and distributes them among the entire school system to promote intra-system learning. (Interviewee SS-1)	The publication of such reports enables schools to learn local and international best practices.	The Ministry publishes these reports on ad hoc basis and there is lack of evaluation of effectiveness of publications. The following of a benchmarking process would ensure a systematic process and more relevant publications in future.
6	Best practice sharing conferences	An informal learning approach in which a school system provides an opportunity to teachers to improve their teaching skills by participating in conferences.	The school system organises conferences for teachers from time to time for sharing of best practices and Professional Development. These conferences are related to an area of teaching and learning. (Interviewee SS-1)	Conferences provide teachers with an opportunity to network with teachers from across the school system.	The conferences are sporadic and their effectiveness is not evaluated. However, the use of a benchmarking process would safeguard more systematic conferences in future.
7	Performance benchmarking	An informal approach used by a school system in which performance benchmarks	According to Interviewee SS-3, national exams are used to assess the performance of schools.	The publication of reports as an offshoot of national exams provides an	The performance results are shared between schools but lack a well-defined objective.

		are collected and compared.	Subsequently, reports of these exams are published and shared with all the schools.	opportunity for self-assessment.	Following a benchmarking process would promote systematic planning and actions following on from these reports.
8	Learning best practices through online published reforms	An informal learning approach in which a school system learns best practices through online publications of other school systems.	Interviewee SS-1 described that the school system studied education reforms of a good performing school system to revise its own reforms. The good performer was selected based on the alignment of their reforms with the strategic focus of the school system.	The school system identified a good performer in international assessments for learning and adapting their education reforms.	The use of a benchmarking process would ascertain systematic learning and implementation of reforms.
9	Learning best practices through reports of national/international assessments	An informal learning approach in which a school system learns best practices by reviewing reports of international assessments and ensures learning of best practices by the schools through the dissemination of reports of national assessments within the school system.	Interviewee SS-3 described that the school system learns best practices from other school systems by reviewing reports of international assessments i.e. PISA results. In addition, the school system publishes reports on national assessments and distributes them among the schools, so that best practices could be learned.	The school system learns best practices and promotes best practice learning of schools by distributing assessment reports.	The effectiveness of learning and distributing best practices is not measured. A benchmarking process would ensure a comprehensive evaluation of outcomes.

5.4.3 Analysis of the Interview Responses from Schools

Profiles of the Interview Participants

The interviews were conducted with the representatives of 19 schools. The interview participants included the heads of schools and/or senior teachers with extensive teaching experience and association with their school. The profiles of the interviewees and the categorisation of their schools into school systems can be found in Table 5.7.

Table 5.7 Profiles of Interview Participants from Schools

Serial Number	Code Assigned to Interviewee	Designation of Interviewee	Categorisation of Schools into School System
1	S-1	Head of Early and Junior Years	Australia
2	S-2, S-3, S-4, S-5, S-13, S-18	Principal	New Zealand
3	S-10, S-14, S-19	Principal	Canada
4	S-11	Principal	Poland
5	S-6	Vice Principal	Singapore
6	S-7	Consultant Teacher	New Zealand
7	S-8	Senior English Teacher	Czech Republic
8	S-9, S-15, S-17	Senior English Teacher	Poland
9	S-16	Senior English Teacher	Iceland
10	S-12	English Teacher	Poland

Sub-themes Conceptualised against Each Predetermined Theme from the Benchmarking Techniques Contributed by Schools

As a large number of schools (19) participated in the structured interviews, it is not possible to provide narratives of the structured interviews. Therefore, sub-themes are extracted from interviews against each predetermined theme (refer to Table 5.1) and are presented in Table 5.8. These sub-themes are now explained.

Table 5.8 Sub-Themes Extracted from Structured Interviews with Schools

Theme	Sub-themes Extracted from the Implementation Details of Effective Benchmarking Techniques
Purpose	<ul style="list-style-type: none"> ● Sharing and acquisition of best practices ● Teacher development ● Identification of improvement areas ● Enhance collaboration among schools ● Creative problem solving ● Development and sharing of ideas ● Contact development ● Impact student learning ● Collaborative teaching ● Collaboration with other sectors and organisations ● Performance measurement

Prerequisites	<ul style="list-style-type: none"> ● Formalised and well-communicated objectives and deliverables ● Affinity and trust ● Mindfulness of relevant advancements ● Systematic planning ● Formal introduction ● Required qualifications
Partner selection criteria	<ul style="list-style-type: none"> ● Geographical proximity ● Shared interests ● Performance level of partner ● Best practice school ● Ministry selected partners ● Absence of criteria ● Voluntary participation ● Earlier ties
Resources	<ul style="list-style-type: none"> ● People involved in benchmarking ● Time required for benchmarking ● Finance required for benchmarking
Benchmarking approach	<ul style="list-style-type: none"> ● Informal benchmarking process
Barriers	<ul style="list-style-type: none"> ● Associated cost and time ● Variation in perception of partners ● Access to resources and updates ● Restricted participation ● Lack of formalised program ● Demonstrating sustained focus ● Relationship and communication between partners ● Lack of structured feedback ● Lack of equipment
Benefits	<ul style="list-style-type: none"> ● Acquisition of best practices ● Promotion of reciprocity ● Promotion of cultural awareness ● Promotion of Professional Development ● Leveraging off relationships/networks ● Enhancement of students' learning and achievement ● Promotion of transparency ● Creation of awareness of strengths and weaknesses
Factors leading to effectiveness	<ul style="list-style-type: none"> ● Culture of trust and collaboration ● Teachers' commitment to excellence ● Teachers' competency ● Positive work environment ● Use of innovative practices ● Willingness to change ● Relationship between benchmarking partners ● Learning from a school system/school that had similar

	<p>issues</p> <ul style="list-style-type: none"> • Knowing your learners • Consistent use of benchmarking • Resources • A structured approach to learning
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Theme: Purpose

This theme describes the rationale for undertaking benchmarking.

The following sub-themes describe the purpose of benchmarking.

- **Sub-theme: Sharing and Acquisition of Best Practices**

Benchmarking is demonstrated to be used for sharing and acquisition of best practices. The Interviewees were generally enthusiastic about their schools’ benchmarking efforts in relation to this sub-theme. The mechanisms for sharing and acquisition of best practices included: visits (Interviewees S-2 and S-16), creation of interest-based networks with other schools (Interviewees S-1 and S-2), staff meetings (Interviewees S-1, S-3, S-11, S-12, S-17, S-18 and S-19) and collaborative lesson planning (Interviewees S-1, S-6 and S-10).

Among the schools sharing this sub-theme, Interviewee S-2 described vividly how the school learns best practices from other schools that are in somewhat similar phase of growth and development for learning their best practices through professional dialogue and discussion, and reported that:

“Every second year we take our staff on an inspire tour ... because we a new school only 5 years old... In 2011 we took all our staff up to Auckland... visited new schools... to reflect on our practices... staff learn about trials and tribulations that they have gone through so that we can learn by their reflection.”

- **Sub-theme: Teacher Development**

Benchmarking is demonstrated to be used for teacher development. In relation to this sub-theme, the following mechanisms were used: teacher exchange (Interviewees S-13 and S-15), Professional Development programs (Interviewees S-1 and S-7), novice teacher development programs (Interviewees S-1, S-2, S-8, S-9 and S-17) and workshops and seminars (Interviewees S-9 and S-11) involving learning and sharing of best practices.

Interviewee S-7 shared the significance of using subject specialist mentors for teacher development as:

“Our school operates a mentor within the school and the teachers are invited to have a mentor to work alongside them for a year. I specifically do that in Maths and I draw on my 25 to 30 years of experience to work alongside a teacher who may not be feeling strong in the subject area ... I coach, demonstrate teaching, watch the teacher or teach side by side.”

- **Sub-theme: Identification of Improvement Areas**

Benchmarking is reported as being used for the identification of improvement areas. Regarding this sub-theme, observations (Interviewees S-1, S-3, S-4, S-5, S-10 and S-11) and Ministry supported collaborative endeavours (Interviewee S-14) were used. Interviewee S-5 was enthusiastic about the outcomes of observations in relation to this sub-theme and considered observations as a great opportunity to learn about weaknesses for improving on them.

Interviewee S-14 commented on how the School Board together with the schools drives system-wide improvement:

“Our board sponsors what’s called ‘Distributive Leadership Forum’, where selected teachers and administrators of all the schools come together and we talk about some central ideas on how to improve our system as a whole. In the past, we had focused on literacy and now we are focused on numeracy as a system.”

- **Sub-theme: Enhance Collaboration Among Schools**

Benchmarking is determined to be undertaken to enhance collaboration among schools. In order to support this sub-theme, schools formed interest-based groups (Interviewees S-2, S-5, S-6 and S-19), organised inter-school collaborative lesson planning (Interviewee S-10) and developed links with international schools through online sources (Interviewee S-10).

Interviewee S-5 spoke about a successful mechanism for enhancing collaboration among schools and said that:

“I setup a group of seven schools a year ago to focus on the teaching of writing ... we joined together and we had a high-powered consultant who worked in each of the seven schools and sometimes all the teachers from all the seven schools came together ... it was really quite exciting.”

- **Sub-theme: Creative Problem Solving**

Benchmarking is reported to be used for creative problem solving. In relation to this sub-theme, teachers discussed problems in cluster meetings (Interviewee S-11), during teacher support programs (Interviewee S-14), through the operation of network learning communities (Interviewees S-6 and S-19) and through collaborative teaching (Interviewee S-2). The mechanism used at the school of Interviewee S-11 divides the school into clusters on the basis of subjects and cluster meetings are held once a month to find solutions to cluster specific issues. On the other hand, Interviewee S-14 described that teachers have shared lesson preparation time in which they discuss problems with colleagues and are provided with solutions. In addition, Interviewees S-6 and S-19 described holding meetings among school groups for solving common problems under the guidance of an expert.

- **Sub-theme: Development and Sharing of Ideas**

Benchmarking is determined to be used for the development and sharing of ideas. The mechanisms used to support this sub-theme included: open lessons (Interviewees S-4, S-11 and S-15), exchange programs (Interviewee S-11), monthly staff meetings (Interviewee S-19) and webinars and research (Interviewee S-2). Interviewee S-11 explained that planning open lessons for teachers of the region serves as a means of sharing unique and effective pedagogical methods for dealing with learning issues of students. In addition, Interviewee S-2 expressed that continuously learning from the latest research of eminent researchers helped to develop and strengthen pedagogy for attaining improvement in student learning.

- **Sub-theme: Contact Development**

Contact development is another important area for which benchmarking is applied. In supporting this sub-theme, contacts were development with other schools through: exchange programs (Interviewee S-11) and by becoming part of local principals' association (Interviewee S-13). Besides developing contacts with other schools, contacts were also established with tertiary institutes (Interviewees S-12 and S-13) and industry (Interviewee S-17). Interviewee S-13 highlighted how developing contacts with other schools supported the learning and development of the school:

“We have a local principals’ association, so we meet monthly ... discuss issues that may be common to all of us ... have professional learning workshops.”

- **Sub-theme: Impact Student Learning**

Benchmarking is stated to be used for improving student learning. The mechanisms supporting this sub-theme included: participation in clusters (Interviewees S-5, S-6 and S-18) and School Board meetings (Interviewee S-12). Interviewee S-12 described vividly how the school's Headmaster holds meetings called School Board meetings with all teachers for 3 hours after school every 2 to 3 weeks. The purpose of these meetings is to develop plans to improve students' learning.

While explaining this sub-theme, Interviewee S-18 described that the school was part of a cluster learning approach intended for lower decile schools with priority learners. This approach enabled primary schools, high schools and Early Childhood Education (ECE) centres to get an opportunity to learn each other's best practices for improving student learning.

- **Sub-theme: Collaborative Teaching**

Benchmarking is explained to be used for collaborative teaching. The mechanisms used to support this sub-theme included: paired classrooms (Interviewee S-7) and pods (Interviewee S-2). Interviewee S-2 was quite enthusiastic about her school's benchmarking efforts in relation to this sub-theme. She felt that it generally had a positive impact on performance with an additional impact on morale. She described that in a pod structure all classes of the same year level operate together and are taught collaboratively by two or more teachers. The pod structure fosters collaborative teaching and learning, and learning enhancement by forming groups of mixed ability students. In addition, teachers are given the opportunity to collaboratively discuss and plan their lessons.

- **Sub-theme: Collaboration with other Sectors and Organisations**

The schools use benchmarking for collaboration with other sectors and organisations. The mechanisms supporting this sub-theme included: collaboration with a tertiary institute (Interviewee S-12), developing contacts with industry (Interviewee S-4) and forming a partnership with industry (Interviewee S-17). Interviewee S-4 was excited about her school's benchmarking efforts in relation to this sub-theme. She described that a distinctive relationship has been developed with industry for improving learning of high school students. As a large portion of high school education is oriented around

business, the school has developed links with entrepreneurial business round tables to enable students to learn business skills.

- **Sub-theme: Performance Measurement**

The schools also use benchmarking for the performance measurement of teachers and students. The mechanisms favouring this sub-theme included: staff meetings (Interviewee S-18), local principals' associations (Interviewee S-13) and observations (Interviewee S-7).

Interviewee S-18 was confident about his school's benchmarking attempts in relation to this sub-theme. He believed that staff meetings have created a positive impact on the overall performance of teachers and students and significantly promoted a culture of collaboration. He described that staff meetings serve multiple purposes as they enable teachers to discuss teaching methodologies, current learning issues of students and reflect on achievement data. During a meeting, teachers reflect on their teaching practices, student assessment data and methods used for student assessment, including the overall assessment process.

Theme: Prerequisites

The prerequisites include any prior conditions that have to be fulfilled before conducting benchmarking.

The following sub-themes explain the prerequisites for conducting benchmarking.

- **Sub-theme: Formalised and Well-communicated Objectives and Deliverables**

The successful application of benchmarking is known to rest on the effective development of objectives and their timely communication to benchmarking participants. This sub-theme was supported by Interviewees S-1, S-4, S-7, S-9, S-11, S-14, S-15, S-17 and S-19. Specifically, Interviewee S-4 was generally confident about her school's benchmarking efforts in relation to this sub-theme. She expressed how formalised objectives and their effective communication have contributed to the achievement of improved performance from visits planned for learning best practices from international Montessori schools. Additionally, Interviewee S-14 described that when his school was participating in a collaborative project promoted by the School Board, all the schools within the School Board were formally informed by the Board

about the requirements and deliverables of the project. While explaining the process of monthly staff meetings, Interviewee S-19 said:

“I spend a great deal of time sharing my expectations and my experience.”

- **Sub-theme: Affinity and Trust**

Healthy relations and trust between benchmarking partners are considered integral for producing effective performance. This sub-theme was supported by Interviewees S-1, S-3, S-5, S-10, S-11, S-13, S-14, S-16, S-17 and S-19, and has been known to teachers due to their association with the school and by being part of past learning and sharing endeavours. Interviewee S-14 was satisfied with his school’s benchmarking efforts in relation to this sub-theme. He explained candidly that teachers are cognizant of the importance of collaborative planning and peer support due to a strong culture of collaboration and support. While openly praising his school’s culture, Interviewee S-11 explained that teachers are familiar with the structure of open lessons as these are conducted from time to time.

- **Sub-theme: Mindfulness of Relevant Advancements**

Being aware of relevant advancements in the field of education promotes benchmarking. The mechanisms related to this sub-theme included: staying in touch with latest research in the field (Interviewee S-2) and being cognizant of upcoming relevant webinars (Interviewee S-2) seminars and conferences (Interviewee S-13) and Professional Development events for learning best practices (Interviewees S-1 and S-19).

Staying updated with the latest research and webinars of educational researchers was reported to be important for initiating benchmarking for learning from the researchers by Interviewee S-2. Specifically, she said:

“We use research from Michel Fullan, Andy Hargraves and John Hattie. We are implementing the Reading Café, which is from States... that means we use research from other countries or other educators ... yesterday I was on an international webinar with Michel Fullan and ... I was participating in part of that webinar ... that’s how we use research. And thinking at the moment ... looking at new pedagogies for deep learning so that’s been based on webinar with Michel Fullan.”

- **Sub-theme: Systematic Planning**

Benchmarking is conceptualised to begin through systematic planning. This sub-theme has been supported by Interviewees S-2, S-4, S-5, S-6, S-7 and S-19. In relation to this sub-theme, Interviewee S-2 enthusiastically described how her school's benchmarking efforts have been successful due to meticulous planning. She said:

“We have a very clear lens of what we are developing. So we will go and visit schools. We will go and look at the ERO reports ... we will look at adviser's references. We worked with the visible learning advisers last year ... they gave us schools to consider... we looked at schools that had got ERO reports recommendations from advisory organisations that were deemed to be successfully working on things that we were thinking about or developing in the early stages. So then we go and meet with and explain what we do.”

- **Sub-theme: Formal Introduction**

Benchmarking projects are expected to be introduced in a formal manner. Interviewees S-2 and S-19 were generally confident about their school's benchmarking efforts in relation to this sub-theme. Interviewee S-2 clarified that whenever the school's management plans to participate in a cluster of schools, they formally inform the teachers during a staff meeting, and Interviewee S-19 explained that all newly appointed teachers are informed about the operation and significance of monthly meeting through their employment contract. She specifically said:

“There are two other formal processes ... one is monthly staff meeting. Every school must provide 70 minutes on a staff meeting to their staff and that staff meetings must include professional learning.”

- **Sub-theme: Required Qualifications**

Some benchmarking options are found to require a basic qualification. In relation to this sub-theme, Interviewee S-4 described that only teachers holding a degree in teaching are considered for Montessori training and:

“You can't be a Montessori teacher if you don't have that training.”

Theme: Partner Selection Criteria

The partner selection criteria describe the reasons for selecting a benchmarking partner. It is important to carefully select a partner based on the purpose of benchmarking.

The following sub-themes explain the criteria for selecting a benchmarking partner.

- **Sub-theme: Geographical Proximity**

Benchmarking is known to be initiated based on partner's location. In relation to this sub-theme, Interviewees S-3, S-6, S-7, S-10, S-12 and S-18 considered selecting a partner located close by, whereas Interviewee S-11 preferred an international partner. Interviewee S-11 declared that "sometimes when we participate in international education projects we learn from other schools".

In the course of the conversion, Interviewee S-6 described the selection of local benchmarking partner as:

"Singapore has a very good collaborative culture among schools ... we do create clusters or networks of learning communities... we have multiple clusters based on geographical proximity."

- **Sub-theme: Shared Interests**

Benchmarking is primarily planned between schools and teachers having a common interest. In relation to this sub-theme, the criteria supporting partner selection for schools included: exchange programs based on shared interest (Interviewees S-9 and S-11), clustering with schools having a shared agenda (Interviewee S-2), visit to other Montessori schools (Interviewee S-4) and learning networks between schools with shared learning focus (Interviewee S-19). In addition, the criteria for partner selection for learning between teachers included: visits to schools sharing a common agenda (Interviewee S-16), Professional Development programs involving best practice sharing based on teachers' learning interest (Interviewees S-6 and S-19) and subject meetings for sharing best practices between teachers teaching the same subject (Interviewee S-12).

While explaining the selection of a benchmarking partner for visit, Interviewee S-4, who was a Montessori Principal, stated that:

"Pre-school and primary get together with other Montessori pre-schools and primary to look at what we are doing."

- **Sub-theme: Performance Level of Partner**

Certain benchmarking techniques are initiated between schools and teachers based on their performance level. This sub-theme was supported by Interviewees S-2 and S-18, as they selected partner schools based on performance level. Specifically, Interviewee S-2 described planning tours to schools that were in the same development stage. In

relation to this sub-theme, the criteria used for performance based partner selection between teachers included: year level (Interviewees S-1, S-2 and S-7), subject (Interviewees S-11 and S-17), across-sector teachers (different year level) (Interviewee S-4) and senior teachers (Interviewees S-2, S-12, S-4 and S-17). Of these interviewees, Interviewee S-4 described that the school's management selected experienced teachers as facilitators to carry out the Professional Development of teachers for improvement of teaching practices.

- **Sub-theme: Best Practice School**

With regard to this sub-theme, Interviewee S-7 described the selection of a partner school with best practices in the areas of interest and stated that:

“Teachers often visit other schools so they can see programs that are in place. If they have an area they are learning in or they want some support in, the opportunity to go and visit other schools is always there.”

- **Sub-theme: Ministry Selected Partners**

Benchmarking techniques initiated by the Ministry of Education/School Board for learning between schools primarily include Ministry/School Board selected schools. This sub-theme was supported by Interviewees S-8, S-9, S-13, S-14 and S-19. Interviewee S-13 explained that he was part of a Ministry promoted teacher exchange program in which principals were exchanged with the Ministry selected school systems to enrich them with diverse educational experience. In addition, Interviewee S-8 described exchanging students with school systems chosen by the Ministry.

- **Sub-theme: Absence of Criteria**

Some benchmarking techniques have no criteria for partner selection and are usually meant for the entire staff. Interviewees S-1 and S-12 supported this sub-theme. In relation to this sub-theme, Interviewee S-12 described the organisation of subject-based meetings for the whole teaching staff for sharing of effective teaching strategies.

- **Sub-theme: Voluntary Participation**

Learning of best practices from other schools or teachers could also be done voluntarily. In relation to this sub-theme, Interviewee S-13 explained voluntary participation in an association of principals as:

“Locally, we have local principals’ association, so we meet monthly to discuss issues that may be common to all of us ... have professional learning workshops. We share what’s happening in our own school but sometimes we get outside providers to do workshops for us. They come from other parts of the country and sometimes from other countries.”

- **Sub-theme: Earlier Ties**

Existing relationships and connections facilitate schools in selecting a benchmarking partner. In relation to this sub-theme, the mechanism for partner selection included: organising exchange programs with schools having connections with (Interviewees S-11 and S-15).

Theme: Resources

Resources describe the finance, time and people required for implementing benchmarking.

The following sub-themes describe the resources required for the implementation of benchmarking techniques.

- **Sub-theme: People Involved in Benchmarking**

This sub-theme is supported by all interviewees, as a benchmarking technique requires people to carry out benchmarking activities. Specifically, Interviewee S-18 described that in a cluster setup, 5 to 10 teachers from each partner school participate, whereas Interviewee S-6 explained that 10 schools are part of each cluster setup created for the sharing of pedagogical practices between teachers and schools in order to improve student learning.

- **Sub-theme: Time Required for Benchmarking**

All interviewees supported this sub-theme. Regarding this sub-theme, Interviewee S-5 described that observation of teacher’s lesson by expert teachers takes 1.5 hours; this includes time for observation and reflection. On the other hand, Interviewee S-10 described that 2 full days/year and 4 half days/year are allocated for Professional Development with options for benchmarking.

- **Sub-theme: Finance Required for Benchmarking**

All interviewees favoured this sub-theme. In relation to this sub-theme, Interviewee S-4 stated that the development of a Montessori teacher is a phenomenally expensive

approach as more than \$50,000 is required for training a Montessori teacher and Interviewee S-5 explained that formation of an interest based group of schools for the improvement of literacy practices costs \$30,000/year, which was divided between member schools on the basis of their roll-size. On the other hand, Interviewee S-19 described that staff meetings incur no costs as meetings are held after school time.

Theme: Benchmarking Approach

The benchmarking approach refers to the benchmarking process followed by schools for undertaking benchmarking. A formal benchmarking process follows a benchmarking methodology, whereas an informal benchmarking process does not follow a benchmarking methodology.

The following sub-theme describes the benchmarking approach adopted by schools for the implementation of benchmarking techniques.

- **Sub-theme: Informal Benchmarking Process**

Regarding this sub-theme, Interviewee S-7 described that the school develops teachers through rigorous observations by appointing an expert teacher. During an observation, the expert teacher and the teacher being observed decide on the purpose and success indicators of the lesson. After an observation, the expert teacher provides feedback on the lesson and suggests ways to improve on it. The feedback of the lesson is kept in Google Docs and is shared between the expert and observed teacher. Later, the observed teacher updates the Google Docs with actions taken to address the suggestions.

In relation to this sub-theme, Interviewee S-1 described that:

“Teachers from quite a few schools, about 20, are going from a variety of Lutheran schools and they are looking at agile learning practices. So, someone from up in the office found schools ... and they are going around and looking at the best practices.”

Theme: Barriers

Barriers refer to the obstacles hindering benchmarking implementation.

The following sub-themes explain the barriers hindering implementation of benchmarking.

- **Sub-theme: Associated Cost and Time**

Cost and time required for benchmarking are identified as barriers to the implementation of benchmarking by several interviewees. In relation to this sub-theme,

cost was identified as a barrier by Interviewees S-1, S-2, S-3, S-4, S-5, S-7, S-8, S-10, S-11, S-12, S-15, S-16 and S-19. While explaining this barrier, Interviewee S-1 stated that:

“The only barrier is cost because when the teachers are away we have to put a release teacher... so it gets quite expensive.”

Regarding this sub-theme, time required for benchmarking was recognised as a barrier by Interviewees S-7, S-13 and S-16.

- **Sub theme: Variation in Perception of Partners**

In supporting this sub-theme, Interviewee S-5 described that when the school became part of an interest-based group of schools for improving teaching practices, the participating teachers differed in their view of best practices and their expectations to learn from those best practices.

- **Sub-theme: Access to Resources and Updates**

Interviewee S-2 supported this sub-theme by acknowledging that a school interested in learning latest developments in education should be cognizant of/have access to advancements in the field.

- **Sub-theme: Restricted Participation**

Another obstacle hindering benchmarking implementation is limited participation. In relation to this sub-theme, the obstacles included: absentees and late arrivals (Interviewees S-11 and S-19), lack of willingness to participate (Interviewees S-1, S-3, S-6, S-11, S-18 and S-19) and inability to participate (Interviewees S-1, S-4, S-9, S-12, S-13, S-15 and S-18). Specifically, Interviewee S-6 acknowledged that the Ministry promoted cluster of schools faces resistance regarding sharing of best practices.

- **Sub-theme: Lack of Formalised Program**

In relation to this sub-theme, Interviewee S-8 described that one of the barriers hindering the development of novice teachers is the absence of a formal induction program.

- **Sub-theme: Demonstrating Sustained Focus**

Regarding this sub-theme, Interviewee S-2 recognised that in a cluster setup it is challenging for participants to stay aligned to the cluster agenda.

- **Sub-theme: Relationship and Communication between Partners**

In relation to this sub-theme, Interviewees S-4, S-6, S-10 and S-12 described that failing to develop a relationship with the benchmarking partner is a barrier hindering the sharing of best practices. Interviewees S-6 and S-12 acknowledged that lack of openness between novice and expert teachers is the greatest challenge impacting the effectiveness of Professional Development for sharing of best practices. In addition, Interviewee S-4 indicated that the level of agreement on the feedback of observations influences their effectiveness, and Interviewee S-10 explained that teachers' ability to perform efficiently is affected while being observed by the Principal.

- **Sub-theme: Lack of Structured Feedback**

In supporting this sub-theme, Interviewee S-1 indicated that absence of a follow-up on the feedback of observations is an obstacle and stated that:

“You are picking up my flaws ... because I don't know that we do. So we just presume that it's improving us ... but I think anecdotally we see it ... but I think we probably need to see it by looking at some more rigorous methods to see if it is a good use of time and resources.”

- **Sub-theme: Lack of Equipment**

In relation to this sub-theme, Interviewee S-10 stated that a lack of proper equipment was a challenge when best practices were shared between partner schools through online sources.

Theme: Benefits

Benefits describe the advantages gained from benchmarking.

The following sub-themes describe the benefits obtained from the use of benchmarking.

- **Sub-theme: Acquisition of Best Practices**

Benchmarking promotes identification and acquisition of best practices. This sub-theme was supported by Interviewees S-6, S-7 and S-11, and the benefits included: learned best practices and programs existing at other schools (Interviewee S-7), learned effective ways of dealing with students' learning challenges (Interviewee S-11) and attained diversity in dealing with all kinds of issues ranging from pedagogy to student learning and improvement (Interviewees S-6 and S-7).

- **Sub-theme: Promotion of Reciprocity**

Benchmarking is recognised to encourage the sharing and exchange of best practices. In support of this sub-theme, the benefits included: sharing of expertise among teachers (Interviewees S-1, S-2, S-9, S-12 and S-19), team-based learning and sharing of experience (Interviewee S-6), reflection on lesson goals and outcomes between teachers (Interviewee S-3), and the sharing of best practices (Interviewee S-1) and achievement data (Interviewee S-3) between schools. In particular, Interviewee S-1 stated that participation in a network of schools assisted all the schools to learn and share best practices through collaboration between network participants.

- **Sub-Theme: Promotion of Cultural Awareness**

Participation in benchmarking creates understanding of new cultures. Regarding this sub-theme, benchmarking was used in the form of: exchange programs to learn new cultures and languages (Interviewees S-8, S-9 and S-11) and an induction program to enable teachers to learn and embed the culture of the school (Interviewees S-2 and S-12).

- **Sub-theme: Promotion of Professional Development**

Benchmarking results in the Professional Development of teachers. With regard to this sub-theme, benchmarking significantly contributed to the development of teaching skills (Interviewees S-9 and S-19), sharing and exchange of pedagogy (Interviewees S-9 and S-19) and the development of teachers (Interviewees S-2, S-4, S-6, S-12, S-13 and S-14). Notably, Interviewee S-2 highlighted that a formal induction program acquainted novice teachers with the working environment of the school, expectations of them and deliverables. Adding to this, Interviewee S-12 indicated that the induction program led to the learning of new pedagogy and Interviewee S-4 stressed that appointing an expert teacher as facilitator supported teachers in learning effective teaching methodologies.

- **Sub-Theme: Leveraging Off Relationships/Networks**

Benchmarking also leads to the development of new relationships and contacts. In relation to this sub-theme, benchmarking supported development of contacts between local and foreign schools (Interviewees S-2, S-9, S-10, S-13, S-15 and S-16), with tertiary institutes (Interviewees S-9 and S-12) and with industry (Interviewees S-4 and S-17). In addition, the use of benchmarking contributed towards improved communication between Principal and teachers (Interviewees S-12 and S-19) and also

between teachers (Interviewees S-1, S-2 and S-5). In particular, Interviewee S-10 claimed that collaboration between partner schools supported the sharing of lessons and development of contacts between Principals and Interviewee S-17 described that the development of contacts with industry representatives enabled the school to prepare graduates according to industry requirements.

- **Sub-Theme: Enhancement of Student Learning and Achievement**

A prime benefit of benchmarking is associated with student learning and improvement. This sub-theme was supported by Interviewees S-1, S-2, S-6, S-9, S-10 and S-19. The benefits included: learning of new content and languages by students (Interviewee S-9), enhanced students' learning through improved teaching (Interviewees S-1, S-2, S-6 and S-19) and improved student achievement (Interviewee S-18). According to Interviewee S-2, collaborative co-teaching promoted students' learning by putting them in mixed ability groups. It also led to the development of soft skills, such as persistence and resilience. In addition, Interviewee S-1 stated that collaborative lesson planning improved teachers' lesson plans which eventually resulted in improved student learning, and Interviewee S-18 highlighted that participation in a cluster of schools enabled the school to improve student achievement.

- **Sub-Theme: Promotion of Transparency**

Benchmarking promotes transparency and communication between schools and also between teachers. In relation to this sub-theme, Interviewee S-10 stated that observation of teachers' lessons by the Principal enabled the Principal to know what teachers were learning and how students were responding to those learnings. Interviewee S-10, who was the Principal, actually said:

“I am going in to observe how the students' are learning based on what the teachers are doing ... but I go in frequently through the week ... sometimes I can participate in a maths question to see what they are doing.”

- **Sub-Theme: Creation of Awareness of Strengths and Weaknesses**

Benchmarking creates awareness of strengths and weaknesses in teaching. In relation to this sub-theme, collaborative lesson planning (Interviewee S-10) and observations (Interviewee S-3, S-5 and S-11) enabled teachers to become cognizant of their own strengths and weaknesses.

Interviewee S-3 described how the awareness of strengths and weaknesses was created from observation as:

“We ask the teacher what is that you actually want me to report back on. So then we take the observations. We do a sort of a running record throughout the observation on what the observer notices and then we have the post conversation with the teacher. And then we ask them what they thought went well ... a bit of self-evaluation thing first of all. How they felt they went towards meeting their goals ... what went well for them and what they would do differently. And then would have that conversation around what the observer noticed and then at the end of it there would be consent on what needed to be worked on.”

Theme: Factors Leading to Effectiveness

These are the factors that have helped schools in achieving effective performance from the use of benchmarking.

The following sub-themes describe the factors contributing to successful benchmarking.

- **Sub-theme: Culture of Trust and Collaboration**

A culture of trust and collaboration is considered as important for successful implementation of benchmarking. In relation to this sub-theme, Interviewee S-5 described that collaboration between partner schools and teachers is important for learning best practices to fulfil the purpose of a cluster; Interviewee S-8 highlighted that successful teacher development depends upon a culture of support and collaboration; Interviewee S-4 determined that teachers’ trust in the effectiveness of observations is important for their success; and Interviewee S-1 claimed that collaboration between teachers is integral for the success of meetings.

- **Sub-theme: Teachers’ Commitment to Excellence**

In relation to this sub-theme, Interviewee S-10 highlighted that teacher’ commitment and openness to try new things is integral for the success of collaborative lesson planning. While explaining across-sector (primary, secondary and high school) collaboration between teachers, Interviewee S-4 stated that:

“Teachers need to believe that whatever they are doing is going to be worthwhile for themselves as well as for the students.”

- **Sub-theme: Teachers' Competency**

Regarding this sub-theme, Interviewee S-11 described that the success of a seminar in which an expert teacher is invited to share teaching experience depends upon the competency of the expert teacher.

- **Sub-theme: Positive Work Environment**

This sub-theme is supported by Interviewees S-5 and S-7. Interviewee S-5 described that the development of an open and positive work environment between teachers is important for attaining improved performance so that they can openly discuss challenges and ask for solutions. He further described that due to the existence of a positive work environment, observations are considered as an opportunity for improvement. Interviewee S-7 discerned that the success of mentoring programs depends upon the development of relationship between the expert teacher and their mentees.

- **Sub-theme: Use of Innovative Practices**

In relation to this sub-theme, Interviewee S-5 expressed that the use of a unique and effective matrix for teacher development enabled teachers to successfully charter a path to sustained improvement and Interviewee S-11 highlighted that participation in a unique international exchange program promoted students' learning.

- **Sub-theme: Willingness to Change**

Regarding this sub-theme, Interviewees S-5 and S-10 described that the keenness of teachers to improve their teaching practice is essential for the successful operation of observations.

- **Sub-theme: Relationship between Benchmarking Partners**

In supporting this sub-theme, Interviewees S-3 and S-5 stressed that building a positive relationship between teachers is essential for successful operation of observations.

- **Sub-theme: Learning from a School System/School that has had Similar Issues**

In relation to this sub-theme, Interviewees S-1 and S-2 explained that choosing a partner school based on the learning needs and/or interests of the school is integral for successful learning of best practices.

- **Sub-theme: Knowing Your Learners**

In relation to this sub-theme, Interviewees S-3 and S-13 regarded the awareness of learning needs of students important for effective benchmarking. Specifically, Interviewee S-3 stressed the importance of knowing the learning needs of students before embarking on benchmarking initiated for improving students' learning, and Interviewee S-13 considered developing curriculum according to students' learning needs.

- **Sub-theme: Consistent Use of Benchmarking**

While supporting this sub-theme, Interviewees S-2, S-3 and S-5 acknowledged that consistent participation in observations is crucial for improving teaching practices.

- **Sub-theme: Resources**

Resources include time, finance and people. In relation to this sub-theme, time was considered crucial for benchmarking and the subsequent internalisation of best practices by Interviewees S-4 and S-6; finance was considered vital by Interviewees S-1, S-4 and S-5; and Interviewees S-1 and S-5 explained that the number of people participating in benchmarking and their roles largely depend upon the scope of benchmarking and the chosen benchmarking techniques.

- **Sub-theme: A Structured Approach to Learning**

A structured approach to learning implies the use of a systematic learning process, that is, a benchmarking process. Nevertheless, all the schools obtaining effective performance have used benchmarking informally, mainly by following three steps: planning, execution and/or evaluation (refer to Table 5.2), which are the core steps of a benchmarking process (refer to Figure 2.2, Chapter 2).

In relation to this sub-theme, it is implied from the response of Interviewee S-7 that observations were successful because they had followed a thorough process by beginning with planning and ending at reflection. In addition, Interviewee S-11 stated that ending an observation with reflection enables the identification of weaknesses in teaching and ways for improving on them; Interviewee S-15 described that an international teacher exchange program ended with a self-evaluation so that learnings could be used for future projects; and Interviewees S-6 and S-19 highlighted that the use

of a methodical process for learning of best practices is important for the successful operation of clusters and learning networks.

5.4.4 Results of Structured Interviews with Schools

The structured interviews with purposively selected schools showed that benchmarking, in the form of benchmarking techniques, is used by schools for performance measurement and for the learning and implementation of best practices.

5.4.4.1 Results Related to Benchmarking Techniques Producing Improved Performance

The implementation detail of effective learning approaches contributed by schools enabled the researcher to identify the underlying benchmarking techniques. Figure 5.3 presents the benchmarking techniques resulting in improved performance of schools. In Figure 5.3, the term *best practices* is used to indicate that exchange programs and visits etc., involve learning and sharing of best practices to be regarded as benchmarking techniques. The benchmarking techniques presented in Figure 5.3 are used for performance measurement of teachers and students and to learn best practices from other schools, sectors and organisations and also for the sharing of best practices between teachers (refer to Table 5.8 and Section 5.4.3).

The implementation detail of the assimilated benchmarking techniques encouraged the researcher to deduce that schools use benchmarking informally as none of the schools were found to follow a benchmarking process. In order to study the structure of these informal benchmarking techniques, their implementation detail was categorised into the themes presented in Table 5.1 (refer to Table 5.8 and Section 5.4.3). This categorisation showed that these benchmarking techniques have possibly produced improved performance by following the steps on planning, execution and/or evaluation (refer to Table 5.2), which are the core steps of a benchmarking process. Hence, it can be suggested that the schools achieved improved performance by informally following the main steps of a benchmarking process.

The significance of a benchmarking process is manifested from the responses of several interviewees. For example, when questioned about the mechanism adopted to measure the effectiveness of observations, Interviewee S-1, who was the Head of Early and Junior Years at an Australian school, stated that the school does not have a formalised method for measuring the effectiveness of observations to ascertain whether it is a good

investment of time and resources. She acknowledged that by talking to the researcher she has realised the importance of formal evaluation and would suggest its use to her team for the future.

The explanation and examples of assimilated benchmarking techniques are presented in Table 5.9. The implementation details of these benchmarking techniques (refer to Section 5.4.3) show that benchmarking could be used for multiple purposes and could produce several benefits. Benchmarking is likely to result in improved performance when prerequisites and partner selection criteria are recognised and resources are provided for undertaking benchmarking to learn best practices and to adapt them before implementation.

Another important finding emerging from the examples presented in Table 5.9 is that a benchmarking technique could be used independently and in combination with others, for performance measurement and for the learning and implementation of best practices. It is implied from these examples that a number of benchmarking techniques could be used in combination as part of a single benchmarking project.

5.4.4.2 Results Related to the Factors Contributing to Improved Performance

While investigating benchmarking techniques resulting in improved performance, the researcher also conceptualised the factors which helped schools achieve that performance (refer to Table 5.8 and Section 5.4.3). The interviewees highlighted twelve factors which have contributed towards the achievement of improved performance through the informal use of benchmarking. These factors are presented in Table 5.10 along with the number of schools supporting the factors. These factors are discussed in Section 5.5.

Table 5.9 Factor Leading to Effectiveness of Benchmarking for Schools

Serial Number	Factors Leading to Effectiveness	Number of Schools Contributing Each Factor
1	Culture of trust and collaboration	4
2	Teachers' commitment to excellence	2
3	Teachers' competency	1
4	Positive work environment	2
5	Use of innovative practices	2
6	Willingness to change	2
7	Relationship between benchmarking partners	2

8	Learning from a school system/school that has had similar issues	2
9	Knowing your learners	2
10	Consistent use of benchmarking	3
11	Resources	3
12	A structured approach to learning	7

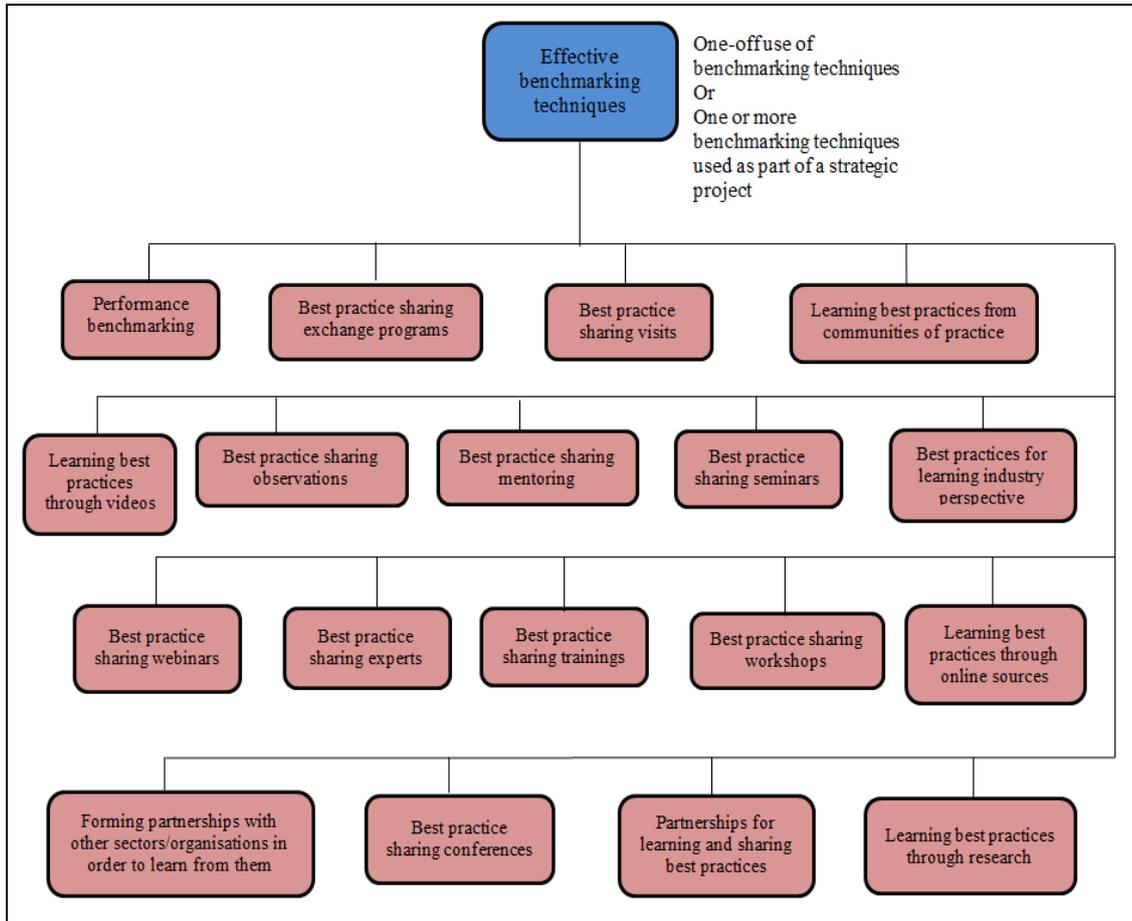


Figure 5.3 Benchmarking Techniques Resulting in Improved Performance of Schools

* The term *best practices* represents the learning and sharing of best practices

Table 5.10 Benchmarking Techniques Resulting in Improved Performance of Schools, their Explanation and Examples

Serial Number	Benchmarking Technique	Explanation	Example of How the Technique is Used by a School	Strengths of the Example	Shortcomings of the Example
1	Performance benchmarking	An informal approach used by a school in which performance benchmarks are collected and compared and improvement gaps identified. Typically, a process of brainstorming solutions and implementation follows.	Interviewee S-18 described that the school is part of a Ministry initiated cluster. The cluster setting enables member schools to develop smart assessment procedures. Therefore, the schools meet and compare their assessment data and schools with good results share the reasons for those results and also the result-bearing practices (best practices). (Interviewee S-18)	Although this is an example of informal benchmarking, it follows a systematic process for identification of high performers.	This example of performance benchmarking identifies high performers; however, adhering to a benchmarking process could have resulted in a meticulous process for this exploration.
2	Best practice exchange programs	An informal learning approach in which representatives of a school learn best practices during an exchange of teachers and/or students with another school.	Interviewee S-9 described that teachers of her school went on an exchange to Ireland to collaboratively learn with English teachers from other European countries. This exchange program was planned and funded by the European Union. During the exchange, all the teachers were taught together by an expert teacher with a focus on English pronunciation.	It was a powerful exchange program that had been carefully planned to improve the language proficiency of English teachers. This program provided teachers with an opportunity to learn from fellow teachers in addition to learning from the expert.	This exchange program could have been more successful if implemented through a benchmarking process.

3	Best practice sharing visits	An informal learning approach in which representatives of a school learn best practices while visiting another school.	Sometimes teachers visit other schools to see their programs in place. During the visit, teachers observe teachers of the visited school in class and hold discussions with them to gain a better understanding of their teaching practices. It is a great way to bring in a new and fresh perspective to school practices and leads towards an improvement in student learning. (Interviewee S-7)	A well-planned process is followed to learn the teaching practices followed at the visited school.	Although this example presents a well-planned visit, there is an absence of the evaluation of outcomes that can lead to continuous improvement.
4	Learning best practices from communities of practice	An informal learning approach in which a school supports teachers in strengthening their pedagogy by enabling them to learn best practices by engaging in a process of collective learning.	Teachers have shared lesson preparation time in which they discuss their difficulties with colleagues and are supported through solutions. Teachers also observe teachers with best practices in class to see the practical use of best practices. (Interviewee S-14)	A meticulous process is used for identifying problem areas and learning best practices for improving performance in those areas.	An informal collaboration that lacks the evaluation of implemented best practices.
5	Learning best practices from videos	An informal learning approach in which teachers within a school learn best practices by sharing videos of practice. These videos are typically based on certain components of teaching and learning.	As part of performance appraisal, teachers are expected to record their teaching practice and share it with colleagues. This sharing is followed by discussion and recommendations; these have to be formally reported to the team leader. (Interviewee S-3)	This example follows a logical process for identifying the weaknesses in teaching and improving on them.	This example enables the learning of best practices but does not report on the implementation of best practices. The use of a benchmarking process could have addressed this issue.

6	Best practice sharing observations	An informal learning approach used within a school in which teachers improve their teaching methodologies through observations of a lesson by an expert, a senior teacher or a member of senior management team. Typically, observations are followed on by feedback. Sometimes observations are supported with demonstration by the observer.	Observations of teachers' lessons are taken every six months either by the Principal or a member of the senior leadership team to identify areas for improvement. The purpose of observations is to provide feedback but often it provides targeted feedback. (Interviewee S-4)	In this example, observations are conducted to bring clarity around areas needing improvement.	The example shows that observations are planned and executed; however, they lack follow-up on the feedback.
7	Learning best practices from research	An informal learning approach in which representatives of a school learn new knowledge from research in education.	The Principal has studied and learned from a number of researchers, such as John Hattie on visible learning and Andy Hargreaves on uplifting leadership. The learnings from these researchers have been embedded into the school improvement plan. (Interviewee S-2)	This is a great example of how best practices can be learned from research.	The benefits of this example could be sustained if adaption of learned best practices is supported by a benchmarking process.
8	Best practice sharing mentoring	An informal learning approach in which teachers within a school learn best practices from a senior staff member. A significant feature of mentoring is demonstration lessons by a senior teacher to present their best	When a new teacher joins the school, they are attached to a senior teacher who can provide them with support and guidance. The senior teacher demonstrates a lesson and shows how a good class is supposed to be. The senior teacher helps with lesson planning, observes teachers in class and	A strong example of mentoring that focuses on the development of new teacher.	The outcomes of mentoring could be long-lasting if it is conducted in a systematic way.

		practices.	provides feedback on the basis of observations. (Interviewee S-9)		
9	Best practice for learning industry perspective	An informal learning approach in which representatives of a school develop links with industry representatives to learn industry perspectives to better prepare their students for future challenges.	In order to facilitate high school students with major in business studies, the school has developed a distinctive relationship with entrepreneur business round tables. The aim of this relationship is to help students learn skills needed to start a business. (Interviewee S-4)	A unique way to prepare students for professional life by providing them an opportunity to learn industry expectations from industry experts.	The benefits of this approach could be amplified with the help of a benchmarking process.
10	Best practice sharing seminars	An informal learning approach through which a school provides an opportunity to its staff members to improve their skills by learning best practices while attending seminars.	At least once a year, the school organises teacher development seminar in which an expert teacher is invited to share their teaching experience in a particular aspect of teaching. The expert teacher could be a retired teacher or a teacher from another school. (Interviewee S-11)	This is a great example of using benchmarking for Professional Development of teachers.	Seminars could be more beneficial if feedback is obtained from teachers at the end of each seminar. The use of a benchmarking process would ensure more systematic seminars in future.
11	Best practice sharing experts	An informal learning approach through which a school enables its teachers to develop and strengthen their teaching skills under the guidance of an expert teacher. A significant component of learning from expert is demonstration lessons through	The school provides an opportunity to its teachers to learn new strategies and teaching methodologies from a facilitator. A facilitator is someone who has an extensive teaching experience and facilitates teaching. The facilitator helps teachers learn effective strategies related to student engagement, student learning and	This example describes the use of benchmarking for Professional Development of teachers.	The benefits of this example could be increased considerably by following a benchmarking process.

		which the expert shares their best practices.	pedagogy. The facilitator facilitates in two forms: by conducting a workshop and by supporting through observation. (Interviewee S-4)		
12	Learning best practices from webinars	An informal learning approach in which a school learns new knowledge by participating in educational webinars.	The Principal participates in international webinars hosted by educational experts to learn new content through discussion with experts. (Interviewee S-2)	A great approach to learn best practices.	This approach could result in much better outcomes if it followed a benchmarking process.
13	Best practice sharing trainings	An informal learning approach in which a school organises training sessions to promote best practice learning of its teachers.	In Warsaw, training of headmasters of the region takes place every month. Usually, there is one training each month lasting for a whole day (8 hours). About 100 headmasters participate in these trainings with the intent to facilitate cooperation between schools, to learn new things, to plan joint events and to compare student statistics. (Interviewee S-12)	A unique approach to get headmasters on-board for promoting collaboration and communication between schools.	The results of these training could be amplified by following a benchmarking process.
14	Learning best practices from online sources	An informal learning approach in which a school learns or shares best practices related to the learning agenda through the use of online sources. The use of online sources ranges from web searches to connecting with another school through the use of internet.	The school organised collaborative online lesson with its sister school to share a rare but useful lesson with equivalent grade students. (Interviewee S-10)	This example represents great use of online sources for the sharing of best practices.	This approach could be refined by adhering to a benchmarking process.

15	Best practice sharing workshops	An informal learning approach in which a school provides an opportunity to its staff members to improve their teaching skills by participating in workshops.	All teachers participate in workshops organised by various educational bodies at regional and national level. Teachers from different schools join in to learn new ideas and techniques. (Interviewee S-9)	This example shows that best practices are learned through interaction with workshop participants in addition to learning from the area specialist conducting the workshop.	The benefits obtained from a workshop could be enhanced through systemic planning, execution and evaluation.
16	Best practice sharing conferences	An informal learning approach in which a school provides an opportunity to its staff members to improve their teaching skills by participating in conferences.	The Principal actively participates in conferences organised by the local principals' association. These conferences are intended to find solutions to the common learning issues of member schools. Sometimes conferences are organised by the school itself to focus on particular needs of the school community. (Interviewee S-13)	This example describes how learning issues of member schools are resolved through discussion and sharing among participating principals.	The conferences could become more useful by following a benchmarking process.
17	Partnerships for learning and sharing of best practices	An informal learning approach in which associations are established between schools to fulfil a shared purpose. The partnerships are loosely structured and last until the purpose and objectives of partnership are achieved.	The school is part of a network with 10 other schools from South East Queensland. The purpose of this network is to improve pedagogy through sharing and collaboration. On the basis of pedagogical needs, the school selects another school from the network to collaborate with for the learning of best practices. (Interviewee S-1)	This example enables the school to learn best practices from several other schools.	The use of a benchmarking process could give the partnership a holistic focus.

18	Forming partnerships with other sectors and/or organisations in order to learn from them	An informal learning approach in which a school establishes relations with relevant organisations (i.e. industry) and/or sectors (i.e. tertiary institutes) to assess the efficacy of their education system for meeting future needs.	The school being a food and catering school has developed partnerships with local food and catering authorities and companies in the related business, such as bakeries, restaurants and hotels. The aim of this partnership is to learn industry expectations for producing graduates according to industry requirements by involving industry representatives in the curriculum development process. As a result, the school produces graduates according to industry expectations. (Interviewee S-17)	This is a unique example in which a holistic focus is laid on student preparation.	A benchmarking process could make this partnership more successful.
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5.5 Inferences Made from the Results of Structured Interviews with School Systems and Schools

This section presents the conclusions drawn from the results of qualitative structured interviews with school systems and schools. The structured interviews represent the third phase of the research (refer to Figure 3.1, Chapter 3). The prime purpose of the structured interviews was to fulfil the third research objective (refer to Figure 1.2, Chapter 1) and answer the fifth, sixth and seventh research questions (refer to Table 3.1, Chapter 3). The results of structured interviews corroborate the findings of the literature review (refer to Section 2.7.1, Chapter 2) and the survey (refer to Section 4.5, Chapter 4).

Firstly, the structured interviews with purposively selected school systems and schools confirmed the use of benchmarking by school systems and schools (refer to Sections 5.4.2 and 5.4.4). The interview results showed that benchmarking is used by school systems for performance measurement and for the learning and implementation of best practices from other school systems and to support the best practice learning of schools (refer to Section 5.4.1), and by schools for performance measurement and for the learning and implementation of best practices from other schools, sectors and organisations and to support the best practice learning of teachers (refer to Section 5.4.3). Such an application of benchmarking represents performance and best-practice benchmarking (refer to Section 2.5, Chapter 2). These findings were first arrived at by the literature review in the first phase of the research (refer to Section 2.7.1, Chapter 2) and later through the survey in the second phase (refer to Section 4.5, Chapter 4).

In addition, the results of the structured interviews guided the researcher to conceptualise the process followed by school systems and schools while undertaking benchmarking. According to the interview results, the Ministry of Education/School Board initiates benchmarking initiatives with other school systems (Interviewees SS-1, SS-2 and SS-4), and also between schools (Interviewees SS-1, S-3, S-6, S-13, S-14, S-15, S-18 and S-19) and teachers (Interviewees SS-1 and SS-2). Moreover, benchmarking initiatives between schools may also be initiated by a school's management (Interviewees S-2, S-4, S-5, S-11, S-16 and S-18). These initiatives may be introduced for performance measurement (Interviewees S-5, S-7, S-13 and S-18) and/or for learning best practices from other schools (Interviewees S-1, S-2, S-5 and S-13),

sectors (Interviewee S-12) and organisations (Interviewees S-4 and S-17), and also for the sharing of best practices between teachers (Interviewees S-1, S-2, S-3, S-4, S-5, S-6, S-8, S-9, S-10, S-11, S-12, S-13, S-14, S-15, S-17, S-18 and S-19).

Moreover, benchmarking initiatives introduced by the Ministry of Education/School Board may be aligned with the strategic focus of the school system (Interviewees SS-1, SS-2, S-3, S-5, S-6, S-9, S-14, S-18 and S-19), and school initiated benchmarking initiatives may be aligned with the strategic goals of the school (Interviewees S-1, S-2, S-5, S-11, S-12, S-16 and S-17); these initiatives may be supervised by an expert (Interviewees S-6 and S-19). Sometimes, benchmarking initiatives may also be introduced on the basis of need (Interviewees S-2 and S-10). In the first and second phases of the research, similar findings emerged from the literature review (refer to Section 2.7.1, Chapter 2) and the survey (refer to Section 4.5, Chapter 4).

In order to fulfil the third research objective and answer the fifth research question (refer to Table 3.1, Chapter 3), the researcher identified benchmarking techniques resulting in improved performance of school systems and schools. These benchmarking techniques were identified from the implementation detail of effective learning approaches contributed by school systems and schools and are illustrated in Figures 5.2 and 5.3. The effectiveness of benchmarking techniques illustrated in Figures 5.2 and 5.3 is self-reported by the interviewees and has not been triangulated with empirical evidence. It is important to mention that these benchmarking techniques belong to the list of benchmarking techniques assimilated from the survey (refer to Appendices 12 and 13), some of which were initially identified through the examples of use of benchmarking identified from the literature review (refer to Appendix 2).

For supporting objective 3 and answering the sixth research question (refer to Table 3.1, Chapter 3), the researcher assimilated benchmarking techniques resulting in the improved performance of school systems and schools (refer to Figures 5.2 and 5.3). The researcher conceptualised implementation detail of these benchmarking techniques based on the themes derived from the literature (refer to Table 5.1). These themes represent the core steps of a benchmarking process (refer to Table 5.2) and were identified to understand the process followed by school systems and schools for the learning and implementation of best practices. They further enabled the determining of the level of rigour involved in implementing benchmarking. The implementation detail

of effective benchmarking techniques enabled the researcher to conclude that school systems and schools have obtained improved performance through the informal use of benchmarking by following steps on planning, execution and/or evaluation (refer to Table 5.2). Thus, it can be deduced that informally following the core steps of a benchmarking process helped school systems and schools achieve improved performance.

Through the assimilation of effective benchmarking techniques, the results of the structured interviews support the relationship between benchmarking and performance improvement. This relationship was initially highlighted in the literature (Mourshed *et al.*, 2010; Tucker, 2016; Voss *et al.*, 1997; Ulusoy & Ikiz, 2001; Fong *et al.*, 1998; Searles *et al.*, 2013) and was later validated through the findings of the literature review (refer to Section 2.7.1, Chapter 2) and the survey (refer to Section 4.5, Chapter 4). Also, the relationship between benchmarking and performance improvement is the theoretical underpinning of the preliminary conceptual model of effective benchmarking (refer to Figure 2.3, Chapter 2).

As the implementation detail of benchmarking techniques was investigated based on the themes to answer the “‘what’, ‘why’ and ‘how’ questions” (Kvale, 2007, p. 38), the researcher found that each benchmarking technique could be adopted for several purposes and could produce numerous benefits. The school systems and schools shared the following purposes for undertaking benchmarking:

- Sharing and acquisition of best practices
- Teacher development
- Performance measurement
- Enhancement of learning and collaboration

The school systems and schools obtained the following common benefits from benchmarking:

- Acquisition and implementation of best practices
- Promotion of reciprocity
- Promotion of Professional Development
- Leveraging off relationships/networks
- Enhanced student learning and development

In addition, the implementation detail of benchmarking techniques showed that school systems and schools participating in a benchmarking initiative focus on the achievement of shared interest (refer to Sections 5.4.1 and 5.4.3); however, they have to manage a number of barriers to fulfil the purpose of the initiative. Previously, in Section 2.4.3 (Chapter 2), collaboration between school systems and schools for the achievement of shared interest has been recognised to lead to effective benchmarking.

More importantly, the implementation details of benchmarking techniques demonstrated that school systems and schools have initiated benchmarking for the improvement of academic performance (refer to Sections 5.4.1 and 5.4.3). Earlier, the findings of the literature review (refer to Section 2.7.1, Chapter 2) and the survey (refer to Section 4.5, Chapter 4) arrived at the same conclusion.

Further, the implementation detail of benchmarking techniques encouraged the researcher to propose that benchmarking techniques can be used both independently and in combination with others. In the previous phase, the survey findings presented some ‘hybrid’ techniques inspiring the researcher to propose the independent and cooperative use of benchmarking techniques (refer to Appendix 13 and Section 4.5, Chapter 4). Moreover, the examples of benchmarking techniques presented in Tables 5.6 and 5.9 also establish that a number of benchmarking techniques can be used together as part of a benchmarking project. Therefore, to represent this conclusion, the researcher integrated the classifications presented in Figures 5.2 and 5.3 to develop a classification scheme that could equally be used by school systems and schools (Figure 5.4). In this classification, the term *best practices* is used to represent the learning and sharing of best practices. The classification presented in Figure 5.4 depicts that all benchmarking techniques can be used both independently and in combination. It is left to the discretion of a school system or school to choose a suitable benchmarking technique or a combination of benchmarking techniques for a benchmarking project initiated between school systems or schools, or by a school system or school.

In order to support the third research objective and answer the seventh research question (refer to Table 3.1, Chapter 3), the structured interviews were instrumental in presenting twelve factors that have been known to promote benchmarking outcomes, called ‘factors leading to effectiveness’. These factors enabled school systems and schools to achieve improved performance from benchmarking (refer to the sub-themes for ‘factors

leading to effectiveness' in Tables 5.5 and 5.8). The significance of these factors was self-reported by the interviewees; however, some of these factors have been validated through the earlier phases of the research. Amongst the factors contributed by school systems (refer to Table 5.5), 'availability of finance' and 'description of roles of people involved' align with the theme 'resources' in Table 5.8. As resources include people, time and finance, both these factors – 'availability of finance' and 'description of roles of people involved' – fall under the factor 'resources'. The significance of resources for undertaking benchmarking has also been highlighted by Wohlstetter *et al.* (2003), Armstrong (2015), McGee (2004) and Barber and Mourshed (2007) in Section 2.4.3 (Chapter 2).

Apart from the factors presented in Tables 5.5 and 5.8, there are certain other factors whose significance was recognised over the course of the research. Firstly, the researcher recognised that the 'involvement of senior leadership' is essential for achieving improved performance from benchmarking. To this end, Leithwood *et al.* (2004) found that effective leadership serves as a catalyst for achieving school improvement, and a number of literature sources (Tucker, 2016; Achieve, 2007; Shannon & Bylsma, 2007; Killion, 2016) have suggested that the development of a principal is a powerful mechanism for teacher development. In addition, it is concluded from Section 2.4.3 (Chapter 2) that benchmarking is successful when it is initiated with the support of leadership. Moreover, the survey findings indicated that a benchmarking initiative may be introduced by a Ministry of Education (refer to Tables 4.6, 4.7, 4.10 and 4.25, Chapter 4) and the results of structured interviews established that benchmarking may be initiated and promoted by a Ministry of Education/School Board for a school system and/or school and by the senior management of a school (refer to Sections 5.4.2 and 5.4.4). In these examples, a principal, Ministry of Education, School Board and senior management may perform the role of leader. Therefore, the researcher is convinced to add the *involvement of senior leadership* among the list of 'factors leading to effectiveness'.

Next, the results of the structured interviews show that school systems and schools included options for benchmarking in their strategic goals. For example, Interviewee SS-1 described that a benchmarking partner is selected based on the alignment of partner's best practices to the strategic goals, and Interviewee S-2 described selecting a partner school based on its strategic focus. These are two of several examples

demonstrating the alignment of benchmarking options with the strategic goals of a school system or school (refer to Sections 5.4.1 and 5.4.3). In addition, the literature review presented that school systems (IEA, 2015; NCES, 2012; OECD, 2011a; Ministry of Education, 2015; Mourshed *et al.*, 2010) and schools (CSNS, 2017) include opportunities for benchmarking in their strategic focus (refer to Section 2.7.1, Chapter 2), and the survey findings established that benchmarking options are linked to the strategic plans of a school system (refer to Tables 4.11 and 4.12, Chapter 4) and school (refer to Table 4.35, Chapter 4). The above presented explanation suggests that in order to be successful at benchmarking, school systems and schools should include options for benchmarking in their strategic focus, thus encouraging the researcher to add *making benchmarking an integral element of school system's or school's strategy* to the list of 'factors leading to effectiveness'.

It is worthwhile mentioning that the significance of the factor – 'consistent use of benchmarking' has been validated by all three data collection methods. The consistent use of benchmarking was recognised among the 'factors leading to effectiveness' during structured interviews with schools and is presented in Table 5.10. As mentioned earlier, the consistent use of benchmarking is recognised as an underpinning of effective benchmarking (refer to Figure 2.3, Chapter 2) and has also emerged through the survey findings (refer to Section 4.5, Chapter 4), as the *frequency* of use of benchmarking determines consistency in using benchmarking. Hence, the results of the structured interviews have corroborated the earlier findings and encouraged the researcher to include *consistent use of benchmarking* to the list of 'factors leading to effectiveness'.

The factor – 'learning from a school system/school that has had similar issues' recognised from the structured interviews and presented in Table 5.10 has also been supported by the literature review, as Mourshed *et al.* (2010) reported that in order to be successful at benchmarking a school system or school should learn from a school system or school that is at a similar stage of growth and development.

It is conceptualised from the literature review (Mourshed *et al.*, 2010; OECD, 2011a; Jerald, 2008) that policy makers and school system leaders improve their schools by constantly reviewing reforms and traits of well performing school systems; and schools provide continuous and focused Professional Development (PD) for improving the quality of teaching (Mourshed *et al.*, 2010; Barber & Mourshed, 2007; Tucker, 2016).

In Section 2.4.3, continuous improvement has also emerged as a cultural characteristic of the school sector optimising benchmarking outcomes. In addition, a large number of the surveyed school systems review the educational reforms and policies of other school systems and encourage schools to discuss and share new policies and reforms and their implementation process (refer to Figures 4.8 and 4.9, Chapter 4) to promote improvement, thus inspiring the researcher to include *commitment to continuous improvement* as the ultimate factor to the list of ‘factors leading to effectiveness’.

In total, the results of the structured interviews, survey and literature review have enabled the researcher to come up with a list of fifteen factors which are likely to contribute towards effective benchmarking (Table 5.11). The significance of these factors has been evaluated by the sending of a survey to the participants of the structured interviews (refer to Appendix 17). The significance was measured on a 5-point Likert Scale (Table 5.12). The relative importance of the factors leading to effective benchmarking recognised through the validation survey is illustrated in Figure 5.5. The result of the validation survey (Figure 5.5) confirms that all the factors identified in Table 5.11 are integral for the achievement of improved performance and should therefore be considered when implementing benchmarking. Previously, the literature review recognised some of these factors, such as willingness to change, trust and collaboration and continuous improvement as cultural characteristics impacting the implementation and optimisation of benchmarking within school systems and schools (refer to Section 2.4.3, Chapter 2).

Another important finding relating to benchmarking techniques is that they produce improved performance for some school systems and schools, as only a limited number school systems and schools using these benchmarking techniques (refer to Appendices 12 and 13) considered them to be effective. A number of reference sources (Elmuti & Kathawala, 1997; Mourshed *et al.*, 2010; OECD, 2011a; Searles *et al.*, 2013) have suggested that the difference between successful and unsuccessful benchmarking is the process employed for its implementation. It is foreseen that the process adopted for the implementation of benchmarking techniques resulted in the achievement of improved performance. It is obvious that these school systems and schools obtained improved performance by using benchmarking informally, without following a benchmarking process. However, it is seen that their benchmarking approaches followed the steps for planning, execution and/or evaluation - which are the core components of a

benchmarking process (refer to Section 2.2.4, Chapter 2). Presumably, the presence of these steps, along with the ‘factors leading to effectiveness’ enabled school systems and schools to achieve improved performance from benchmarking. It is envisaged that their performance could be improved greatly by adhering to a benchmarking process – following the steps prescribed for undertaking benchmarking. The researcher discerns that the obvious reason for not following a benchmarking process (or benchmarking methodology) was their unfamiliarity with *benchmarking*. It is therefore important to introduce school systems and schools to benchmarking and its systematic planning and application through developing a Benchmarking Framework. Moreover, guidelines could be provided to facilitate benchmarking implementation. The proposed Benchmarking Framework and guidelines have been developed by the research to guide school systems and schools in the planning and application of benchmarking for the identification and implementation of best practices to increase the likelihood of improved performance.

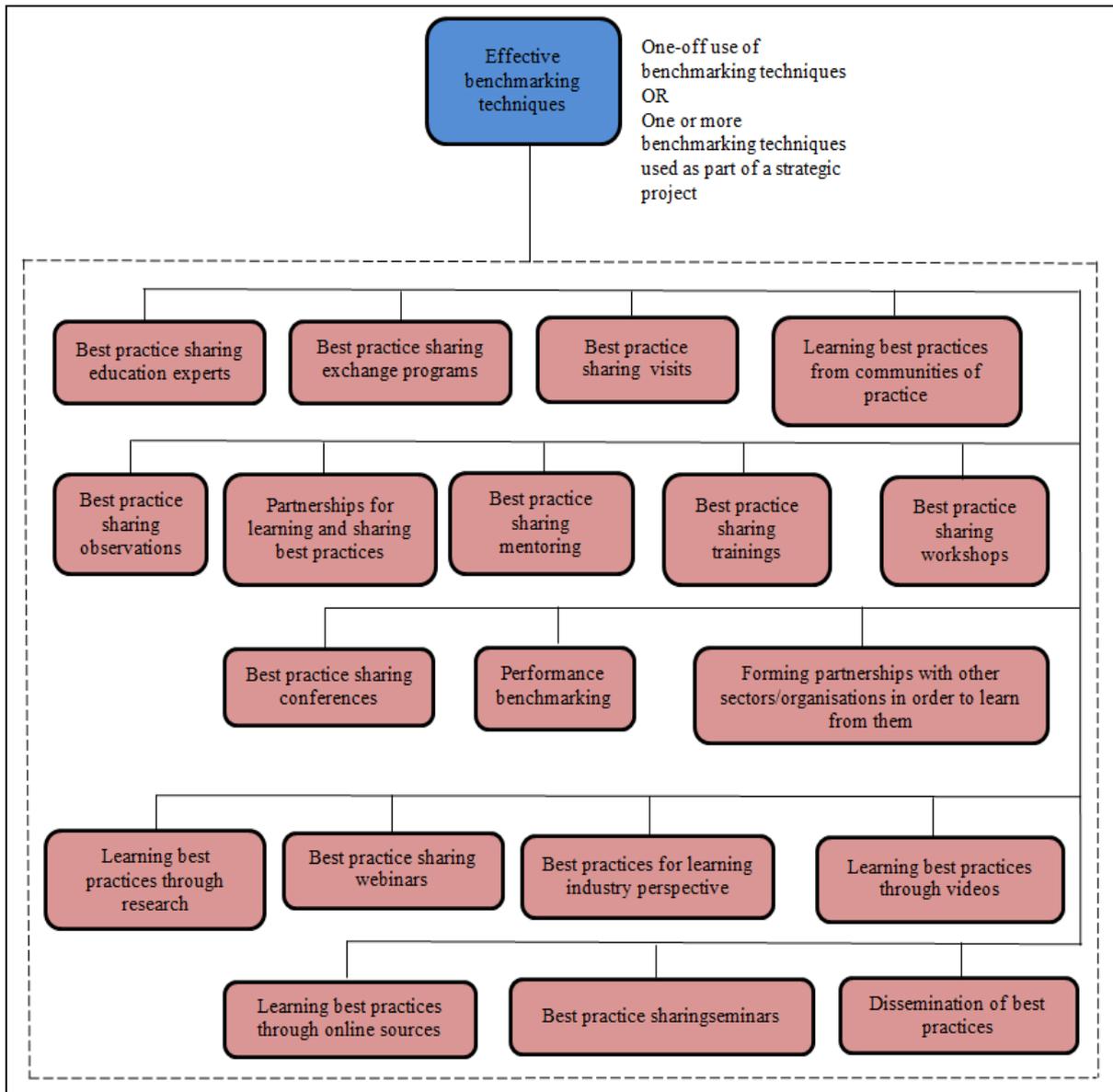


Figure 5.4 Classification of Benchmarking Techniques for Use by School Systems and Schools

* The term *best practices* represents the learning and sharing of best practices

Table 5.11 Factors Leading to the Effectiveness of Benchmarking for School Systems and Schools

Serial Number	Factors Leading to Effectiveness
1	Involvement of senior leadership
2	Culture of trust and collaboration
3	Teachers' commitment to excellence
4	Teachers' competency
5	Positive work environment
6	Commitment to continuous improvement
7	Use of innovative practices
8	Willingness to change
9	Relationship between benchmarking partners
10	Learning from a school system/school that has had similar issues
11	Making benchmarking an integral element of school's/school system's strategy
12	Knowing your learners
13	A structured approach to learning
14	Consistent use of benchmarking
15	Resources

Table 5.12 Likert Scale Options to Validate the Significance of Factors Leading to Effectiveness

Serial Number	Likert Scale Options
1	Critical
2	Very important
3	Important
4	Of little importance
5	Not important

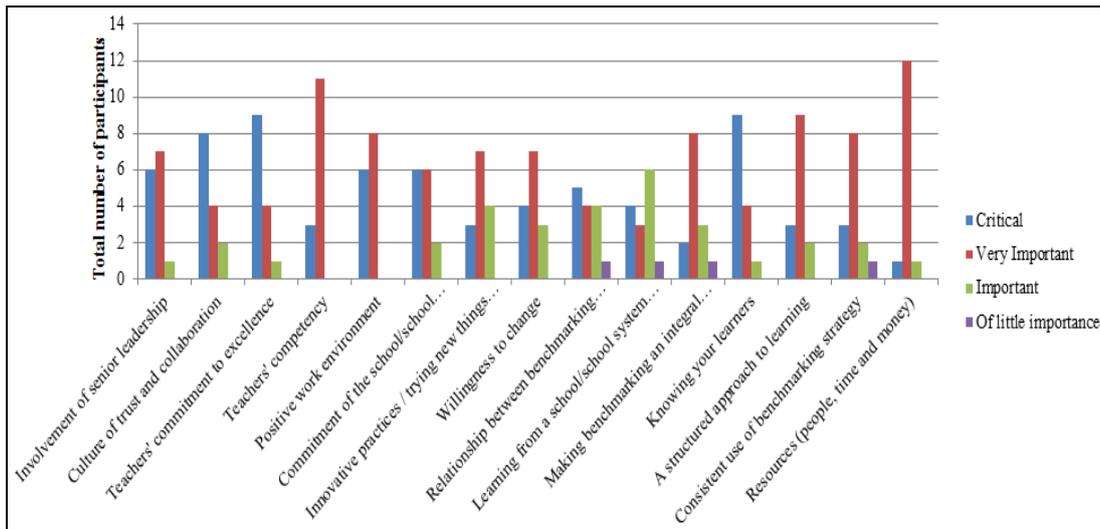


Figure 5.5 Relative Importance of Factors Leading to Effectiveness Recognised by Participants of Structured Interviews (n=14)

5.6 Chapter Summary

This chapter outlined the plan for structured interviews with school systems and schools. The findings supported the fulfilment of the third research objective and answered the fifth, sixth and seventh research questions. The structured interviews served two purposes. Firstly, they supported research objective 1 by empirically demonstrating the application of benchmarking by school systems and schools. In supporting objective 3, the interviews assimilated the implementation detail of benchmarking techniques producing improved performance for school systems and schools, and conceptualised the reasons for that performance. It was concluded that school systems and schools obtained improved performance from the informal use of benchmarking, thus motivating the researcher to make a proposition that adhering to a benchmarking process would greatly improve performance. Therefore, in the next phase (Chapter 6), a Benchmarking Framework is developed to guide school systems and schools in the planning and implementation of benchmarking.

CHAPTER 6: BENCHMARKING FRAMEWORK AND GUIDELINES FOR IMPLEMENTATION

6.1 Introduction to the Chapter

This chapter describes Phase 4 of the multiphase mixed methods research design which integrates the findings from the three earlier phases of the research (refer to Figure 3.1, Chapter 3) to fulfil the fourth research objective and answer the eighth and ninth research questions (refer to Table 3.1, Chapter 3).

The chapter describes the achievement of the fourth research objective, which is to develop a Benchmarking Framework for school systems and schools with guidelines for implementation. The achievement of this objective leads to the accomplishment of the prime aim of the research, which is to develop a Benchmarking Framework to assist school systems and schools in the application of benchmarking approaches and guide them in the identification and implementation of best practices. The chapter contains the Benchmarking Framework developed to assist its users in tailoring their benchmarking approach to the particular requirements of their school system or school. The Framework is designed so that it can be taken from the body of the thesis and used as a standalone document.

As shown in Figure 1.2 (Chapter 1), the findings from Chapter 2 (Literature Review), Chapter 4 (An Investigation of the Frequency of Benchmarking Used by School Systems and Schools and its Contribution to their Performance) and Chapter 5 (An Exploration of Benchmarking Techniques Contributing to Improved Performance of School Systems and Schools) are integrated to develop the Benchmarking Framework and the guidelines for its use.

This chapter has four sections: Section 6.2 summarises the findings from the first three phases of the research, presents inferences that serve as a basis for the development of Benchmarking Framework and explains the need for a Benchmarking Framework; Section 6.3 describes how the Benchmarking Framework and guidelines for its use were developed; Section 6.4 presents the Benchmarking Framework and guidelines for its effective use and Section 6.5 presents the chapter summary.

6.2 Integration of the Research Findings on the Basis of Research Aim and Objectives

This section summarises the main findings from the first three phases of the research and draws inferences from those findings to develop the Benchmarking Framework (refer to Figure 3.1, Chapter 3). The first three phases of the research were related to the achievement of the first three objectives, which are addressed in Chapters 2, 4 and 5 (refer to Figure 1.2, Chapter 1).

6.2.1 Findings of Phase 1

The literature review (Chapter 2) presented the first phase of the research (ref. to Figure 3.1) and served two purposes: to identify the knowledge gaps and to fulfil the first research objective. The literature review was conducted to assess the overall state of research on the research topic (Punch, 2014) and to determine the use of benchmarking by school systems and schools.

The chapter outlined the knowledge gaps pertaining to the recognition of use benchmarking by school systems and schools as *benchmarking*, and for assessing its association with performance improvement. At a practical level, it was observed that school systems and schools are using informal benchmarking for performance comparison and for learning best practices from high achievers in order to gain improvement in performance; therefore they should be introduced to benchmarking and its systematic use for obtaining optimal improvements (refer to Sections 2.4.2 and 2.5, Chapter 2). In addition, the presence of a number of cultural characteristics was expected to contribute to optimal results from benchmarking (refer to Section 2.4.3, Chapter 2). Therefore, an opportunity for a research was identified to introduce school system and schools to benchmarking by developing a Benchmarking Framework to assist school systems and schools in the planning and application of benchmarking. A preliminary conceptual model of effective benchmarking was derived from the reviewed literature and is illustrated in Figure 2.3.

The literature review (Chapter 2) fulfilled the first research objective and answered the first and second research questions (refer to Table 3.1, Chapter 3).

Objective 1: To understand benchmarking and determine if it is used by school systems and schools.

RQ1: What is benchmarking?

RQ2: Do school systems and schools practice benchmarking?

The chapter described benchmarking as it was the research topic, and presented prior relevant research and case studies on school systems and schools to determine the use of benchmarking by school systems and schools. The literature review demonstrated that benchmarking is used by school systems and schools for performance comparison and best practice learning; where best practices were learned from other school systems, schools, sectors and organisations. In addition, school systems and schools also used benchmarking for supporting the learning and development of teachers. Finally, examples describing the use of benchmarking by school systems and schools were assimilated from the literature review and presented in Appendix 2.

6.2.2 Findings of Phase 2

Chapter 4 presented the second phase of the research (ref. to Figure 3.1) to fulfil the second research objective and answer the third and fourth research questions (refer to Table 3.1, Chapter 3).

Objective 2: Investigate the extent to which benchmarking is used by school systems and schools and its contribution to their performance. Also identify the benchmarking techniques used therein.

RQ3: To what extent is benchmarking used by school systems and schools and how effective is it reported to be?

RQ4: Which benchmarking techniques are used by school systems and schools?

This chapter (Chapter 4) described the findings of the survey, which included 20 school systems and 183 schools. The survey findings empirically confirmed the use of benchmarking by school systems and schools for performance comparison and best practice learning. In addition, the findings determined the *frequency*⁵³ of benchmarking used by school systems and schools and its *effectiveness* for performance improvement, and found that, on average, benchmarking is used between ‘once a year’ to ‘more than once a year’ by school systems and schools and is producing ‘moderately effective’ to ‘reasonably effective’ performance improvement (refer to Tables 4.17 and 4.36 and Section 4.5, Chapter 4).

⁵³ Frequency = Extent of use

Subsequently, the researcher examined the relationship between the *frequency* of use of benchmarking and its *effectiveness* for performance improvement. A relationship was confirmed between the two variables and the *frequency* of use of benchmarking was demonstrated to be a contributor to the *effectiveness* of benchmarking for performance improvement (refer to Section 4.5, Chapter 5) for both school systems and schools. At the start of the research, a relationship between benchmarking and performance improvement was predicted in the literature review (refer to Sections 2.2.3 and 2.5, Figure 2.3, Chapter 2).

The benchmarking techniques used by school systems and schools were recognised and presented in Appendices 12 and 13. Notably, it was found that a benchmarking technique can be used independently and in combination with others. Finally, the survey results enabled the researcher to recognise school systems and schools that were obtaining effective performance from the use of benchmarking.

6.2.3 Findings of Phase 3

Chapter 5 presented the third phase of the research (ref. to Figure 3.1) to fulfil the third research objective and answer the fifth, sixth and seventh research questions (refer to Table 3.1, Chapter 3).

Objective 3: Determine those benchmarking techniques that have been effective contributors to the performance of school systems and schools and explore their implementation detail and reasons for effectiveness

RQ5: Which benchmarking techniques are considered to be effective for school systems and schools?

RQ6: How have these benchmarking techniques been implemented?

RQ7: What are the success factors for using benchmarking effectively?

This chapter (Chapter 5) presented the results of the structured interviews with representatives of four school systems and 19 schools that were demonstrated to have improved performance through the use of benchmarking. These school systems and schools were selected from the survey respondents. The structured interviews enabled the identification of benchmarking techniques resulting in improved performance of school systems and schools (refer to Figures 5.2 and 5.3, Chapter 5). These benchmarking techniques were used for performance measurement and for the learning

and implementation of best practices from other school systems, schools, sectors and organisations, in addition to supporting best practice learning of teachers. The benchmarking techniques were explored on the basis of predetermined themes to reveal their structural detail in the context of a benchmarking process (refer to Tables 5.1 and 5.2, Chapter 5). It was found that these benchmarking techniques resulted in improved performance as they followed the steps on planning, execution and/or evaluation, which are the main steps of a benchmarking process (or benchmarking methodology). It was further recognised that a benchmarking technique could be used independently and in combination with others, and could be applied for a variety of purposes and can produce several benefits (refer to Sections 5.4 and 5.5, Chapter 5).

More importantly, the interview participants contributed factors which enabled them to achieve improved performance from the use of benchmarking (refer to Table 5.11, Chapter 5). Some of these factors were contributed and validated by the findings of the literature and survey and agreed with the previously explored cultural characteristics of the school sector likely to impact optimisation of benchmarking (refer to Sections 2.4.3 and 5.5). Altogether, fifteen factors were found to contribute to the effectiveness of benchmarking.

Therefore, the qualitative interview data gave meaning to the quantitative-qualitative multiphase mixed methods research (Creswell & Clark, 2011). The interpretations were made by utilising the most appropriate method(s) for each research question (Teddlie & Tashakkori, 2003; Newman *et al.*, 2003) and reflected the combined strength of both types of data (Saunders *et al.*, 2012; Creswell, 2014a, 2014b).

6.2.4 Integration of the Research Findings from the First Three Phases of the Research

The findings from each phase of the research were supported by subsequent phases and enabled to gain triangulation or internal validity (Zohrabi, 2013; Johnson *et al.*, 2007). The cumulative findings are related to the purposively selected sample and are now presented.

Firstly, the literature review, survey and structured interviews confirmed that benchmarking is used by school systems and schools for performance measurement and/or comparison and for the learning and implementation of best practices. Benchmarking is demonstrated as being used by school systems and schools to learn

best practices from other school systems and schools, and also from other sectors and organisations. In addition, benchmarking is demonstrated to be used for the learning and sharing of best practices between teachers. However, the use of benchmarking is not often labelled as *benchmarking* due to unfamiliarity with benchmarking and benchmarking methodologies.

Secondly, the literature review anticipated an association between benchmarking and performance improvement (refer to Sections 2.2.3 and 2.5, Figure 2.3, Chapter 2). This association was confirmed through the literature-based cases studies (refer to Section 2.7.1, Chapter 2) and empirically validated through the findings of the survey (refer to Section 4.5, Chapter 4) and the results of the structured interviews (refer to Section 5.5, Chapter 5). The findings from all three phases established that benchmarking is primarily used by school systems and schools for the improvement of academic performance (refer to Sections 2.7.1, 4.5 and 5.5). In addition, the findings of the literature review, survey and structured interviews cooperatively presented fifteen factors which are likely to contribute towards obtaining improved performance from benchmarking (refer to Table 5.11, Chapter 5).

Thirdly, benchmarking is recognised as being used in the form of benchmarking techniques for performance measurement and/or comparison and for the learning and implementation of best practices. Initially, the literature review enabled the researcher to identify examples describing the use of benchmarking by school systems and schools (refer to Appendix 2). Subsequently, the survey findings determined benchmarking techniques used by school systems and schools (refer to Appendices 12 and 13), from which the structured interviews explored the techniques that were demonstrated to produce improved performance (refer to Figures 5.2 and 5.3, Chapter 5).

As the next step, the implementation detail of effective benchmarking techniques was explored and revealed that they resulted in improved performance by following the steps representing the core steps of a benchmarking process. Such an implementation of benchmarking techniques represents the informal use of benchmarking. Arguably, the presence of these steps enabled school systems and schools to achieve improved performance. It is therefore suggested that performance could be improved greatly by actually following a benchmarking process. Therefore, an opportunity for a research was identified to introduce school systems and schools to benchmarking and to guide

them on how to plan and implement benchmarking by developing a Benchmarking Framework.

6.2.5 Inferences Made about How Benchmarking is Implemented within School Systems and Schools

In a mixed methods research, inferences drawn from each phase of the research are integrated to draw meta-inferences (Creswell & Clark, 2011); therefore, the findings from all the three phases are integrated to present the following inferences.

The findings from the first three phases indicated towards the structure of benchmarking implementation followed by the researched school systems and schools (refer to Sections 2.7.1, 4.5 and 5.5). In these school systems and schools:

- A benchmarking initiative for/within a school system(s) is initiated by the Ministry of Education/School Board; while a benchmarking initiative for/within a school(s) is initiated by the Ministry of Education/School Board or the senior management of the school(s).
- A benchmarking initiative may be aligned with the strategic goals of a school system or school, and may also be initiated for the needs emerging over time.
- These initiatives may be introduced for performance measurement and/or comparison and for the learning and implementation of best practices. The best practices could be learned from other school systems/schools and also from other sectors and organisations. In addition, benchmarking initiatives may also be introduced for the learning and sharing of best practices between teachers.
- A benchmarking initiative may be supervised by an official with experience in undertaking benchmarking.
- A benchmarking initiative is undertaken informally.
- A benchmarking initiative is implemented to learn best practices from high/better performers.

6.2.6 Inferences Made about How Benchmarking Should be Implemented within School Systems and Schools

The inferences drawn about the benchmarking implementation within the researched school systems and schools in Section 6.2.5 enabled the researcher to make the

following propositions about how benchmarking should be implemented within school systems and schools:

- Benchmarking initiatives should be supported by the senior leaders of a school system and/or school. A benchmarking initiative between school systems should be initiated by the Ministry of Education/School Board. A benchmarking initiative between schools could either be initiated by the Ministry of Education/School Board or the senior management of a school. Examples supporting such initiation were found in the findings from the literature review (refer to Section 2.7.1, Chapter 2), survey (refer to Section 4.5, Chapter 4) and structured interviews (refer to Section 5.5, Chapter 5).
- Benchmarking projects should be linked to the strategic goals of a school system and/or school. The development of link between benchmarking and strategic goals has been proposed in the preliminary conceptual model (refer to Figure 2.3, Chapter 2). Examples supporting this link were found from all the three phases (refer to Sections 2.7.1, 4.5 and 5.5).
- Benchmarking projects may also be introduced for the needs arising over time. Examples of this were found from the structured interviews (refer to Section 5.5, Chapter 5).
- Expertise in benchmarking contributes to better outcomes of benchmarking. Examples demonstrating implementation of benchmarking initiatives by an expert have been found from the findings of the literature (refer to Section 2.7.1) and the structure interviews (refer to Section 5.5).
- Formal and informal benchmarking should be encouraged by following a benchmarking process both formally and informally. Examples of informal benchmarking are to be found from the findings of the literature review (refer to Section 2.7.1) and the results of the structured interviews (refer to Section 5.5). None of the researched (interviewed) school systems and schools has implemented benchmarking formally - by adhering to a benchmarking process (or benchmarking methodology). The research shows that school systems and schools achieved improved performance from the informal use of benchmarking, that is, by following the main steps of a benchmarking process (refer to Table 5.2 and Section 5.5, Chapter 5).

The comparison of inferences drawn on how benchmarking should be used (Section 6.2.6) and how it is used by the researched school systems and schools (Section 6.2.5) enabled the researcher to recognise major gaps in the benchmarking process of many school systems and schools. These included:

- Lack of a system to describe how benchmarking should be planned and implemented
- Lack of a formal benchmarking process (or benchmarking methodology)
- Lack of consistency in the use of a benchmarking process leading to the likelihood of inconsistent results
- Very little learning from other sectors and organisations
- Few people trained in benchmarking
- Too much emphasis on benchmarks and not on benchmarking

The inferences drawn about how benchmarking should be used and the gaps in the benchmarking process of school systems and schools enabled the researcher to develop a Benchmarking Framework and the guidelines for its use. This Benchmarking Framework is designed to describe how benchmarking should be planned and implemented, and the guidelines named, Benchmarking Guidelines, are meant to safeguard improved performance from benchmarking implementation. The Benchmarking Guidelines include:

- Factors Leading to Effective Benchmarking⁵⁴
- A benchmarking process⁵⁵ to guide the implementation of benchmarking both formally and informally, and
- A Portfolio of Benchmarking Techniques presenting descriptions of benchmarking techniques that have produced improved performance with examples

The rationale for the development of a Benchmarking Framework and the guidelines for its use enabled the refinement of the conceptual model of effective benchmarking, which is presented in Figure 6.1. The conceptual model is comprised of the following

⁵⁴ Factors Leading to Effective Benchmarking have been described as ‘Factors Leading to Effectiveness’ in Table 5.11 in Chapter 5.

⁵⁵ The use of a benchmarking process, also known as benchmarking methodology, safeguards the systematic implementation of benchmarking.

elements: Benchmarking Framework, Portfolio of Benchmarking Techniques, Benchmarking Implementation Approach and Factors Leading to Effective Benchmarking. Figure 6.1 shows that a Benchmarking Implementation Approach initiated through appropriate planning from the Benchmarking Framework is more likely to result in improved performance, when both formal and informal implementation of benchmarking is supported by Portfolio of Benchmarking Techniques and Factors Leading to Effective Benchmarking.

6.2.7 The Need for a Benchmarking Framework

A benchmarking framework is envisioned to be a self-improving model to guide the school sector in regard to the planning and implementation of benchmarking. The literature describes several benchmarking processes (or benchmarking methodologies), some of which are presented by Xerox (Camp, 1989), IBM (Eyrich, 1991), Filer *et al.* (1988), Spendolini (1992), and Alcoa and AT&T (Bemowski, 1991). The purpose of these methodologies is to guide the implementation of benchmarking. However, no framework has been provided to overarch these methodologies for supporting the planning of benchmarking. In the literature (Spendolini, 1992; Deros *et al.*, 2006; Dorsch & Yasin, 1998; Davies & Kochhar, 2000; Anand & Kodali, 2008; Cuttance, 1996; Mathaisel, Cathcart & Comm, 2004), a benchmarking methodology is generally referred to as a benchmarking framework.

The researcher observed a scarcity of generic frameworks for providing guidance to the school sector on the undertaking of benchmarking and therefore developed a Benchmarking Framework to guide school systems and schools in the planning and implementation of benchmarking. The Benchmarking Framework supports the planning of benchmarking and the Benchmarking Implementation Approach is the recommended benchmarking process which has been tailored for the implementation of benchmarking by the school sector.

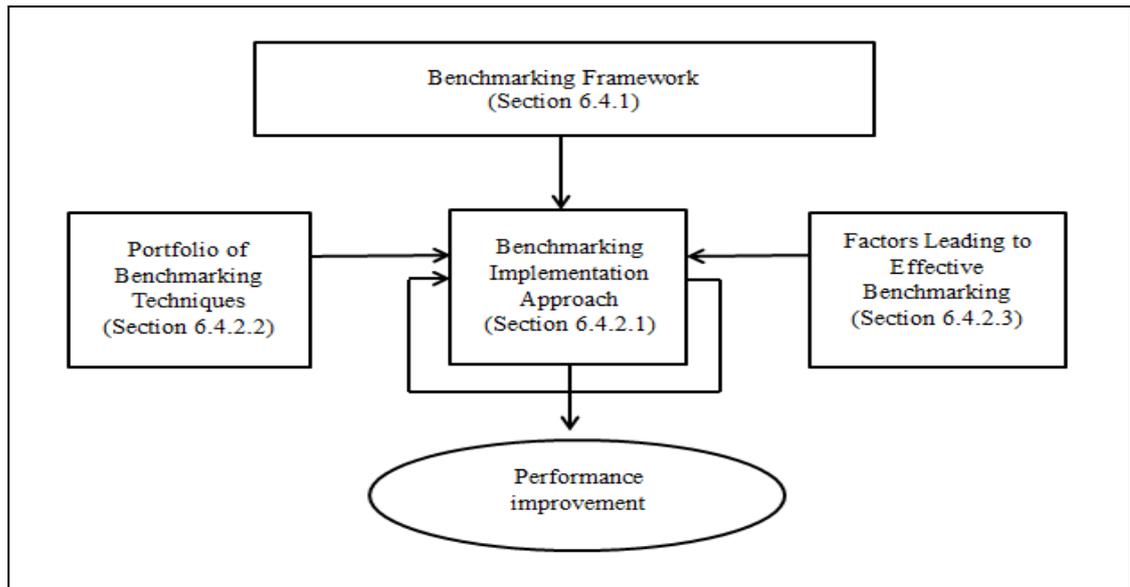


Figure 6.1 Refined Conceptual Model of Effective Benchmarking

6.3 Description of How the Components of the Benchmarking Framework and Benchmarking Guidelines Emerged

This section shows how the components of the Benchmarking Framework were developed. The Benchmarking Framework is illustrated in Figure 6.2. The components of the Benchmarking Framework and the Benchmarking Guidelines were recognised through the knowledge gained about benchmarking over the course of the research, including the research findings and inferences presented in Sections 6.2.4, 6.2.5 and 6.2.6. The Benchmarking Framework and its components (boxes) will be described in more detail in Section 6.4.

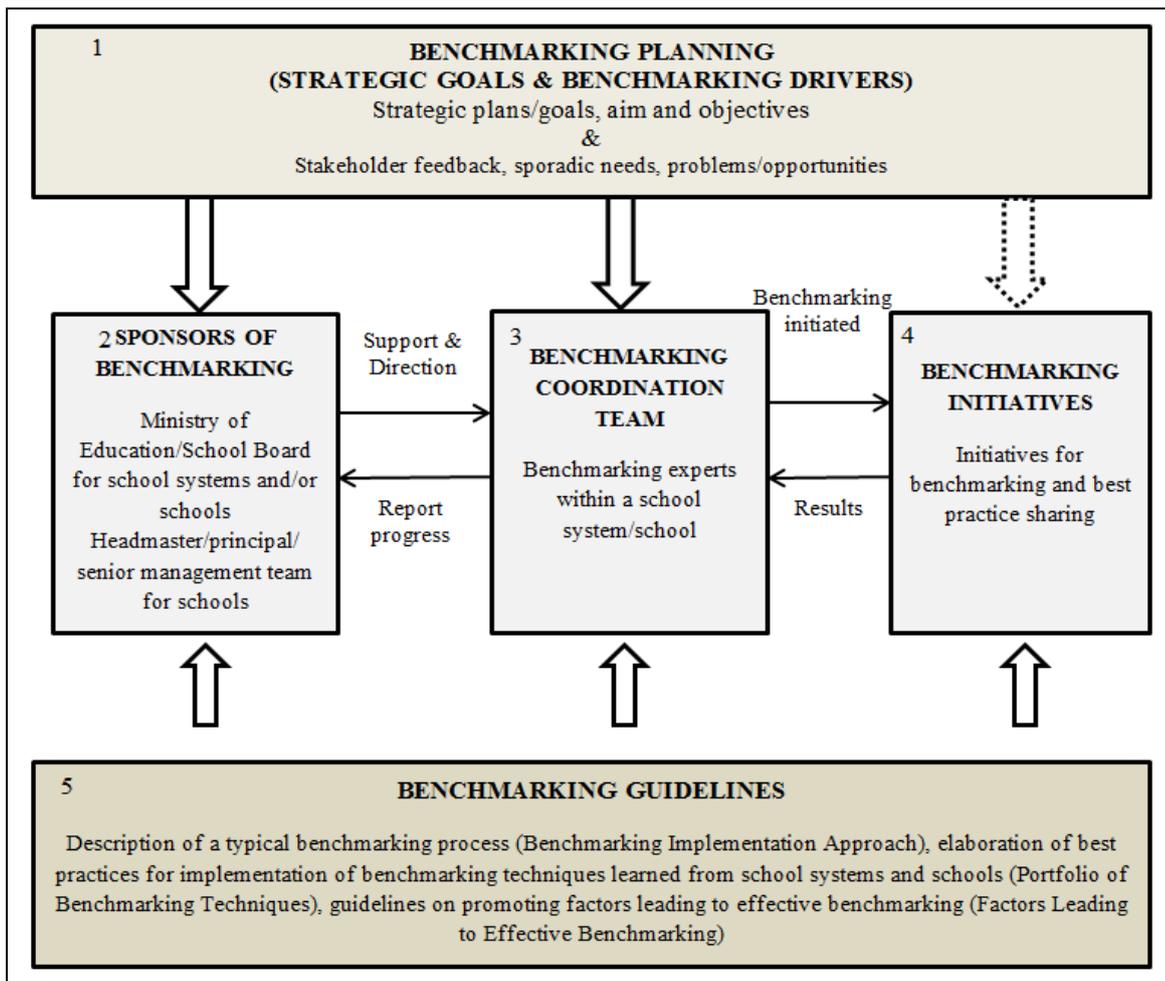


Figure 6.2 The Benchmarking Framework for School Systems and Schools

6.3.1 The Development of ‘Benchmarking Planning’

For successful benchmarking it is recommended that there is Benchmarking Planning. Benchmarking Planning formulates the most critical component of the Benchmarking Framework and should describe the plans for benchmarking, encompassing the strategic goals of a school system or school within the scope of benchmarking, along with any related problems and needs identified over time. The researcher found that school systems and schools did not use the term ‘Benchmarking Planning’ but referred to it as strategic goals and/or plans and/or sporadic needs. Benchmarking Planning is undertaken by some school systems and schools; however more school systems and schools are recommended to undertake it. The researcher describes the best practice for Benchmarking Planning in Section 6.4.1.1.

The existence of Benchmarking Planning has been substantiated from the literature review, and from the findings of the survey and the structured interviews. The literature review has exhibited that benchmarking leads to improved outcomes when

benchmarking implementation is aligned with the objectives (Bhutta & Huq, 1999) and strategic plans (Davies & Kochhar, 1999). In addition, the literature review has presented that successful school systems (Cheong Cheng, 2009; Battelle for Kids, 2015) and schools (McGee, 2004) link Professional Development (PD) options to their strategic plan. This is certainly true in the case of Montgomery County Public Schools (MCPS), a school district in the USA, which aligns the PD plans with the schools' improvement plans (refer to Section 2.6.1, Chapter 2). Other related examples pertain to Hong Kong, Japan and to College Street Normal School (refer to Section 2.6, Chapter 2). A number of reference sources (Ministry of Education, 2015; CSNS, 2017) have recognised benchmarking as an essential component of the strategic plans of school systems and schools. In the foregoing examples, Benchmarking Planning is referred to as objectives, strategic plans/goals and improvement plans.

Moreover, the survey findings have also indicated the inclusion of benchmarking options in the strategic plans of school systems (refer to Tables 4.11, 4.12 and 4.13, Chapter 4) and schools (refer to Table 4.35, Chapter 4). It is exhibited that the strategic plan of a school has a holistic focus and guides the use of benchmarking for the improvement of academic and non-academic work practices (refer to Table 4.36, Chapter 4). In these examples, Benchmarking Planning is referred to as strategic plans.

In addition to the above, Interviewees S-5 and S-13 explained the development of an annual strategic plan, and Interviewee SS-2 described the selection of benchmarking opportunities aligned to the strategic plan and the needs emerging over time. An example is the development of a cluster of schools initiated between geographically proximal schools based on shared strategic focus (Interviewee S-5). Interviewees S-2 and S-10 presented examples of benchmarking initiatives introduced for needs emerging over time (refer to Section 5.4.3, Chapter 5). In these examples, Benchmarking Planning is referred to as strategic plan and sporadic needs.

The findings of the literature review, survey and structured interviews clearly show that options for benchmarking should be linked to the strategic plans/goals of a school system and school and the needs identified over time. Thus, the existence of Benchmarking Planning (Box 1, Figure 6.2) is validated through the three data collection methods.

6.3.2 The Development of ‘Sponsors of Benchmarking’

For successful benchmarking, it is recommended to have the support of senior management called Sponsors of Benchmarking. The Sponsors of Benchmarking are the individuals responsible for a school system or school and their support is essential for the success of a benchmarking initiative. The Sponsors include the representative(s) of the Ministry of Education/School Board for a school system and the Ministry of Education/School Board or the senior management team/principal/headmaster for a school. The researcher found that school systems and schools did not use the term ‘Sponsors of Benchmarking’ but referred to them as the Ministry of Education, School Board, senior management or the education authorities. The Sponsors of Benchmarking support the benchmarking initiatives of some school systems and schools; however more school systems and schools are recommended to initiate benchmarking with the support of Sponsors. The researcher describes the best practice for the Sponsors of Benchmarking in Section 6.4.1.1.

The existence of Sponsors of Benchmarking is recognised from the findings of the literature review, survey and structured interviews. The literature abounds with examples exhibiting the inception of benchmarking with the support of Sponsors. An early example is the 1986 benchmarking visit planned by the Singapore Ministry of Education, in which twelve school principals were invited by the Education Minister to accompany him on a study visit to 25 successful schools in the UK and the USA (Tan & Gopinathan, 2000). Another pertinent example belongs to Shanghai, in which agreements were signed between the education authorities of various districts to collaboratively focus on school improvement (OECD, 2011a; OECD, 2011b). Yet another example described that the Japanese Ministry of Education introduced a benchmarking initiative to develop their administrative system by learning lessons from the administrative system in France (Saito, 2009). In regard to schools, Killion (2016) described that in the world’s best schools, principals lead the strategic planning and align professional learning to school improvement plans, and Leithwood *et al.* (2004) believed that principals serve as a catalyst in performance improvement of schools. In addition, it has been concluded from Section 2.4.3 that benchmarking is successful when it is initiated by the leadership of a school system/school. In the above examples, the Ministry of Education, education authorities and principals performed the role of Sponsors of Benchmarking.

The survey findings have presented examples of benchmarking initiatives promoted by the Ministry of Education for partnering with another school system (refer to Table 4.6, Chapter 4), clustering of schools (refer to Tables 4.7 and 4.10, Chapter 4) and appointment of consultants to support the learning and sharing of best practices (refer to Tables 4.6 and 4.25, Chapter 4). Among the interviewees, Interviewees S-6, S-13 and S-14 described participating in Ministry supported collaborations, and Interviewee S-5 postulated that the Principal established a partnership with geographically proximal schools based on shared learning focus. In these examples, the Ministry officials and the school Principal have undertaken the role of the Sponsors of Benchmarking.

It is apparent from the above presented description that a benchmarking initiative is typically promoted by the officials of the Ministry of Education or School Board in case of a school system, and by the officials of Ministry of Education/School Board or senior management team/principal/headmaster in case of a school. Thus the existence of Sponsors of Benchmarking (Box 2, Figure 6.2) is validated through the research.

6.3.3 The Development of ‘Benchmarking Coordination Team’

For successful benchmarking it is recommended that there is a Benchmarking Coordination Team. The Benchmarking Coordination Team comprises individuals or group of individuals within a school system or school having knowledge and experience of handling benchmarking projects. The researcher found that school systems and schools did not use the term ‘Benchmarking Coordination Team’ but referred to them as superintendents, program coordinators or the chairman. The Benchmarking Coordination Team is delegated the responsibility of coordinating benchmarking initiatives in some school systems and schools; however more school systems and schools are recommended to include such teams to ensure the successful implementation of benchmarking. The researcher describes the best practice for a Benchmarking Coordination Team in Section 6.4.1.1.

The existence of a Benchmarking Coordination Team is recognised from the findings of the literature review, survey and structured interviews. An example of benchmarking initiatives belonging to Singapore is described in the literature in which schools are organised in clusters and administered by cluster superintendents who are successful former principals (OECD, 2011a; Poon *et al.*, 2017; Asia Society, 2017c) and performed the role of Benchmarking Coordination Team.

A survey respondent acknowledged the appointment of a program coordinator for facilitating international benchmarking exchange programs (refer to Table 4.34, Chapter 4). Moreover, Interviewee S-6 explained that the school participated in a cluster of schools operated by a cluster chairman and Interviewee S-19 described the execution of a network of schools under the supervision of a superintendent (refer to Section 5.4.3, Chapter 5). In the aforementioned examples, the program coordinator, cluster chairman and superintendent performed the role of the Benchmarking Coordination Team (Box 3, Figure 6.2).

The foregoing examples show that a benchmarking initiative is coordinated and supervised by a cluster superintendent, program coordinator, and cluster chairman. Thus, the existence of a Benchmarking Coordination Team (Box 3, Figure 6.2) is confirmed through the research.

6.3.4 The Development of ‘Benchmarking Initiatives’

For the successful use of benchmarking, it is recommended that a Benchmarking Initiative(s) is selected and implemented to learn and implement best practices in areas aligned to Benchmarking Planning. A *Benchmarking Initiative* refers to a benchmarking project that could employ a single benchmarking technique or a combination of benchmarking techniques to fulfil the purpose of the initiative. The researcher found that school systems and schools did not use the term ‘Benchmarking Initiative’ but referred to it as an endeavour for the learning of best practices. Benchmarking is undertaken through the implementation of Benchmarking Initiatives by some school systems and schools; however more school systems and schools are suggested to undertake benchmarking for optimal improvement. The researcher describes the best practice for selecting Benchmarking Initiatives in Section 6.4.1.1.

The use of a Benchmarking Initiative was initially recognised through the survey findings (refer to Appendices 12 and 13) as the independent and collective use of benchmarking techniques, and was later confirmed through the structured interviews (refer to Section 5.5, Chapter 5). To facilitate a Benchmarking Initiative(s) (Box 4, Figure 6.2), the benchmarking techniques that have been recognised and explored through the research are illustrated in Figure 5.4 (Chapter 5).

6.3.5 The Development of ‘Benchmarking Guidelines’

The Benchmarking Guidelines (Box 5, Figure 6.2) are developed to facilitate the successful implementation of a Benchmarking Initiative(s). The Benchmarking Guidelines comprise the following components: the Benchmarking Implementation Approach, the Portfolio of Benchmarking Techniques and the Factors Leading to Effective Benchmarking. The Benchmarking Guidelines are described in Section 6.4.2.

6.3.5.1 The Development of ‘Benchmarking Implementation Approach’

The ‘Benchmarking Implementation Approach’ has been developed to assist in the effective implementation of benchmarking. As explained in Section 2.2 (Chapter 2), a benchmarking process (or benchmarking methodology) is essential for successful benchmarking. A benchmarking process represents formal benchmarking and is important as it gives structure to benchmarking and describes the steps that should be taken while learning from another school system or school. However, the researcher found that the interviewed school systems and schools obtained improved performance by the informal following of a benchmarking process. It is therefore an expectation that much greater improvements could be achieved by adhering to a benchmarking process, that is, through formal benchmarking. The researcher describes a benchmarking process, called the Benchmarking Implementation Approach, in Section 6.4.2.1. This benchmarking process has been tailored for the school sector.

The significance of a benchmarking process is realised from the literature and the results of the structured interviews. The literature review has demonstrated that a formal benchmarking process ascertains substantial benefits from benchmarking (Searles *et al.*, 2013). Several benchmarking processes could be referred to in the literature and have a degree of variation in them (Anand & Kodali, 2008); nevertheless, a benchmarking process provides a basic framework for action, with flexibility of modification to meet individual needs (Anand & Kodali, 2008). In addition, the significance of a benchmarking process is evident from the fact that it is the implementation approach rather than the benchmarking technique that leads to success (Mourshed *et al.*, 2010; OECD, 2011a; Searles *et al.*, 2013; Elmuti & Kathawala, 1997; Section 5.5, Chapter 5).

In addition, the results of the structured interviews recognised ‘a structured approach to learning’ as one of the factors leading to effective benchmarking (refer to Tables 5.10 and 5.11, and the sub-themes for the theme ‘Factors Leading to Effectiveness’ in

Section 5.4.3, Chapter 5). Thus the importance of a formal benchmarking process, called the Benchmarking Implementation Approach (Box 5, Figure 6.2, Figure 6.3 and Section 6.4.2.1), is justified by the research.

6.3.5.2 The Development of ‘Portfolio of Benchmarking Techniques’

The ‘Portfolio of Benchmarking Techniques’ has been developed through the learnings acquired from the literature review, survey and structured interviews. The Portfolio is developed to assist school systems and schools in the application of benchmarking for the achievement of improved performance. As it is established from the research that the school sector achieved improved performance from the informal use of benchmarking, the Portfolio presented in Section 6.4.2.2 describes both formal and informal use of benchmarking techniques illustrated in Figure 5.4 (Chapter 5) with examples. These benchmarking techniques can be implemented independently and in combination for performance measurement and/or comparison and for the learning and implementation of best practices. Several reference sources (Mourshed *et al.*, 2010; OECD, 2011a; Searles *et al.*, 2013; Elmuti & Kathawala, 1997) have supported the significance of Portfolio of Benchmarking Techniques by describing that it is the benchmarking implementation approach that contributes to successful benchmarking. Thus, the importance of Portfolio of Benchmarking Techniques (Box 5, Figure 6.2 and Section 6.4.2.2) is justified by the research.

6.3.5.3 The Development of ‘Factors Leading to Effective Benchmarking’

The ‘Factors Leading to Effective Benchmarking’ describes the factors contributing towards the achievement of improved performance through benchmarking. These factors have been determined from the findings of the literature review, survey and structured interviews (refer to Table 5.11 and Figure 5.5, Chapter 5). The recommendations for promoting these factors are presented in Section 6.4.2.3, while the significance and emergence of these factors is described below.

1. Involvement of Senior Leadership

The involvement of senior leadership is important for successful benchmarking as they are the key stakeholders in the introduction of a Benchmarking Initiative. Examples of the importance of involvement of senior leadership have been found from the literature review and the findings of the survey and structured interviews. The literature review has described that high performing school systems develop principals (leaders) as

instructional coaches to lead the Professional Development (PD) of teachers (Achieve, 2007; Bergeson & Heuschel, 2004; Tucker, 2016; Shannon & Bylsma, 2007; Killion, 2016); leadership has an extremely important role to play in bringing about performance improvement (Leithwood *et al.*, 2004). In addition, leadership support has been found to optimise benchmarking outcomes (refer to Section 2.4.3, Chapter 2). Further, the survey findings have recognised that benchmarking options are introduced by the Ministry of Education (refer to Tables 4.6, 4.7, 4.10 and 4.25, Chapter 4), and the results of the structured interviews described that benchmarking is initiated and promoted by the Ministry of Education/School Board for a school system and/or school and the senior management team for a school (refer to Sections 5.4.1 and 5.4.3, Chapter 5). In the examples presented, the principal, Ministry of Education and School Board perform the role of senior leaders. Furthermore, the importance of the involvement of senior leadership is evident from the role of Sponsors of Benchmarking in the Benchmarking Framework (Box 2, Figure 6.2).

2. Culture of Trust and Collaboration

A culture of trust and collaboration is important for successful benchmarking as it aligns people with a common purpose and enables them to work collectively and efficiently to achieve that purpose. Examples of the importance of a culture of trust and collaboration have been found in the literature review and the results of the structured interviews. Prior research has described that benchmarking helps school systems promote a culture of trust, commitment and collaboration within their school system and with other school systems (Bergeson & Heuschel, 2004). Specifically, benchmarking promotes cooperation and collaboration between schools by clustering them into communities (Sahlberg, 2006). In a similar manner, well performing schools use benchmarking for promoting collaboration among teachers (McGee, 2004) and recognise peer collaboration as an integral constituent of teacher development (Schleicher, 2017). An example from Singapore highlighted that the school system facilitates development of teachers by promoting a culture of teacher-led PD (OECD, 2011a; Low, 2012; Ng, 2012, as cited in Poon *et al.*, 2017). More importantly, a culture of trust and collaboration is found to optimise benchmarking outcomes (refer to Section 2.4.3, Chapter 3). Furthermore, Interviewees S-1, S-4, S-5 and S-8 described that collaboration between partner schools and/or teachers is imperative for successful benchmarking (refer to Section 5.4.3, Chapter 5).

3. Teachers' Commitment to Excellence

Teacher's commitment to excellence is important as it enables teachers to continuously improve their teaching practices for attaining desired improvements in student learning. Examples of the importance of teacher's commitment to excellence have been found in the literature review and in the results of the structured interviews. Earlier researches (Battelle for Kids, 2012; Tucker, 2016; Barber & Mourshed, 2007) have demonstrated that a focus on teachers' continuous development through structured Professional Development (PD) programs keeps them committed to excellence. This factor is also supported by Interviewees S-4 and S-10 (refer to Section 5.4.3, Chapter 5). Interviewee S-4 described that benchmarking initiated for teacher development is successful when teachers are committed and motivated and Interviewee S-10 explained that teacher's commitment and openness to try new things is essential for the successful learning of best practices. Interviewee SS-4 highlighted that teachers' commitment to continuous learning and improvement contributed to the success of exchange program (refer to Section 5.4.1, Chapter 5).

4. Teachers' Competency

Teacher competency is integral for successful benchmarking as it plays a critical role in student learning and achievement. Examples of the importance of teacher's competency have been found in the literature review and in the results of the structured interviews. McGee (2004) highlighted that thriving schools use benchmarking for teacher development by encouraging them to learn and share best practices, as it is proven that students placed with high-performing teachers progress three times faster than those placed with low-performing teachers (Barber & Mourshed, 2007). To this end, high-performing school systems appoint teachers from within the high rank of each cohort graduating from their school system (Barber & Mourshed, 2007; Tucker, 2016; Battelle for Kids, 2012, 2015). Later, Interviewee S-11 explained that the success of a seminar in which an expert teacher shares their teaching experience with a number of other teachers depends upon the competency of the expert teacher (refer to Section 5.4.3, Chapter 5).

5. Positive Work Environment

A positive work environment is important as it enables teachers and other staff members to perform to their fullest. Examples of the importance of a positive work environment have been found in the results of the structured interviews. According to Interviewee S-

5, a positive work environment keeps teachers motivated and committed. Such an environment is potentially created by a positive and collaborative culture. Interviewee S-7, on the other hand, stated that the success of a mentoring program depends upon the working environment between the expert teacher and their mentees.

6. Commitment to Continuous Improvement

A commitment to continuous improvement is important as it helps school systems and schools to grow by adapting to the changing needs. Examples of the importance of commitment to continuous improvement have been found in the literature review and in the findings of the survey. It is identified from the literature review that policy makers and school system leaders improve their school system by constantly reviewing the improvement trails and reforms of other school systems (Mourshed *et al.*, 2010; OECD, 2011a). In particular, high-performing school systems focus on the professional improvement of teachers through continuous Professional Development (PD) (Mourshed *et al.*, 2010; Tucker, 2016). Continuous improvement has also been found to optimise benchmarking outcomes (refer to Section 2.4.3, Chapter 2). Understanding the significance of continuous improvement, a large number of the surveyed school systems reviewed the education reforms and policies of other school systems and also encouraged their schools to discuss and share new policies and reforms and their implementation approaches (refer to Figures 4.8 and 4.9, Chapter 4).

7. Use of Innovative Practices

The use of innovative and unique practices for the learning of best practices is important for successful benchmarking. Examples of the importance of innovative practices have been found in the literature review and in the results of the structured interviews. Schools in Singapore are organised in geographical clusters to promote collaboration and innovation (OECD, 2011a; Poon *et al.*, 2017; Asia Society, 2017c; Section 2.6.1, Chapter 2). Among the interviewees, Interviewee S-5 expressed the use of a unique and effective matrix for teacher development. This matrix charts a path from a novice to an expert teacher and describes the skills required at each performance stage. In addition, Interviewee S-11 described how the school had participated in a unique international exchange program.

8. Willingness to Change

Willingness to change is essential for growth and improvement. Examples of the importance of willingness to change have been found in the literature review and in the results of the structured interviews. Willingness to change has been recognised as a cultural characteristic of the school sector promoting and optimising benchmarking outcomes (Section 2.4.3, Chapter 2). As the success of PD programs depends hugely on teachers' willingness to learn and improve, Interviewee S-5 develops willingness by providing the necessary professional and financial support. Further, Interviewee S-10 emphasised that the success of PD programs including options for best practice learning depends upon teachers' willingness to change their teaching practices.

9. Relationship between Benchmarking Partners

The development of a relationship between benchmarking partners is important for successful benchmarking as healthy and friendly relations facilitate the swift sharing of information. Examples demonstrating the importance of the relationship between benchmarking partners have been contributed by the results of the structured interviews. Interviewees S-3 and S-5 have focused on building a positive relationship between teachers for achieving improved results from observations (refer to Section 5.4.3, Chapter 5).

10. Learning from a School System/School that has had Similar Issues

Learning from a school system/school that has had similar issues enables to learn lessons from their experience. Examples of the importance of learning from a school system/school that has had similar issues have been found in the literature and in the results of the structured interviews. The reviewed literature (Mourshed *et al.*, 2010) has described that to be successful at benchmarking a school system or school should learn from a similar school system or school. In addition, Interviewees S-1 and S-2 stressed that the selection of a partner school based on the learning needs and/or interests of the school is integral for the successful learning of best practices (refer to Section 5.4.3, Chapter 5).

11. Making Benchmarking an Integral Element of School System's/School's Strategy

It is important to make benchmarking an integral element of a school system's/school's strategy in order to reflect their commitment to benchmarking. Examples of making

benchmarking an integral element of a school system's/school's strategy have been found in the literature. Bhutta and Huq (1999), Davies and Kochhar (1999), Elmuti and Kathawala (1997) and Killion (2016) have stressed that sustained improvements could be gained by linking benchmarking to strategy and/or improvement plans. A number of reference sources (OECD, 2017c; IEA, 2015; NCES, 2012; OECD, 2011a; CSNS, 2017) have shown that the school sector uses benchmarking, and include benchmarking options in their strategy (CSNS, 2017; Ministry of Education, 2015; Mourshed *et al.*, 2010). The inclusion of benchmarking in a school system's/school's strategy has also been explained in the form of the Benchmarking Planning in Section 6.3.1.

12. Knowing Your Learners

It is essential to be aware of the learning needs of students before embarking on a benchmarking initiative intended to promote student learning. Examples demonstrating the importance of knowing the learning needs of students have been contributed by the literature and the results of the structured interviews. Prior research (Barber & Mourshed, 2007) has recommended focusing on student learning by establishing that high performing school systems align Professional Development (PD) practices to the learning needs of students. In addition, Interviewee S-3 stressed the importance of knowing the learning needs of students before embarking on a benchmarking initiative intended to improve student learning, and Interviewee S-13 considered developing the curriculum according to students' learning needs.

13. A Structured Approach to Learning

A structured approach to learning means the use of a benchmarking process. It is important as it guides benchmarking implementation from start to finish. Examples of the importance of structured approach to learning were found in the literature and in the results of the structured interviews and have been described in Section 6.3.5.1.

14. Consistent Use of Benchmarking

It is important to use benchmarking consistently to gain improved performance. Examples of the importance of consistent use of benchmarking have been found in the literature and in the results of the survey and structured interviews. The literature review identified that successful benchmarking depends upon the rigorous and consistent implementation of a benchmarking process (Mourshed *et al.*, 2010; Asian Society, 2017c). The consistent use of benchmarking has also been identified as an underpinning

of successful benchmarking (refer to Figure 2.3, Chapter 2). Likewise, the survey findings validated the significance of the consistent use of benchmarking by demonstrating a relationship between the *frequency* of use of benchmarking and its *effectiveness* for performance improvement (refer to Section 4.5, Chapter 4). In addition, Interviewees S-2, S-3 and S-5 acknowledged that consistent participation in benchmarking for learning and sharing of best practices is crucial for achieving improved performance (refer to Section 5.4.3, Chapter 5).

15. Resources

The availability of resources is crucial for successful benchmarking as benchmarking implementation requires people, time and finance. Examples of the importance of resources have been found in the literature and in the results of the structured interviews. The significance of resources has been highlighted by Wohlstetter *et al.* (2003), Armstrong (2015), McGee (2004) and Barber and Mourshed (2007) in Section 2.4.3 (Chapter 2). Time was considered to be crucial for the implementation of benchmarking by Interviewees S-4 and S-6; whereas finance was considered important by Interviewees SS-2, S-1, S-4 and S-5. Moreover, Interviewees SS-2, S-1 and S-5 described that the number of people participating in a benchmarking initiative and their roles largely depend upon the scope of benchmarking and the benchmarking techniques adopted.

Therefore, the significance of ‘Factors Leading to Effective Benchmarking’ (Box, 5, Figure 6.2) is justified by the research.

Section 6.3 clarifies how the components of the Benchmarking Framework and the Benchmarking Guidelines have been developed and validates them through examples from the literature, survey and structured interviews.

6.4 The Benchmarking Framework

The Benchmarking Framework in Figure 6.2 has been developed to provide significant practical assistance to school systems and schools planning or involved in the implementation of benchmarking. Note that the Benchmarking Framework has not been designed to persuade school systems and schools of the value of benchmarking. Rather, it has been designed to assist school systems and schools in tailoring the Benchmarking Implementation Approach according to the requirements of their school system or school.

As the research has shown that school systems and schools obtained improved performance from informal benchmarking, the researcher suggests that both formal and informal benchmarking can be used to improve performance. Formal benchmarking follows a benchmarking process, whereas, informal benchmarking follows the steps prescribed by a benchmarking process without adhering to a benchmarking process.

Users of the Benchmarking Framework

The Benchmarking Framework has been designed primarily for three types of users.

- 1 Individuals responsible for initiating and planning improvements within a school system or school. For these individuals, the Framework provides practical advice and a reliable method for performing benchmarking.
- 2 Individuals wishing to gain a greater understanding of benchmarking. For these individuals, each component of the Framework is described to create a deeper understanding.
- 3 Educationalists and benchmarking experts interested to understand how benchmarking is used in school systems and schools. For these individuals, the Framework describes how benchmarking should be applied in school systems and schools.

It is envisaged that the Framework will be of most interest to school systems, schools, educationists and benchmarking experts.

Validity of the Benchmarking Framework

The Framework brings together the experience of over 200 representatives from school systems and schools globally. The representatives of school systems and schools included Ministry of Education/School Board officials and members of senior management team respectively.

The information was primarily acquired through the following three methods.

1. A review of benchmarking in general and views of benchmarking and educational experts, together with a literature review on the use of benchmarking by school systems and schools, leading to the recognition of examples describing the application of benchmarking.
2. A survey administered to 20 school systems and 183 schools to determine the frequency to which benchmarking is used by school systems and schools and its

contribution to their performance, along with an identification of used benchmarking techniques.

3. Structured interviews conducted with 23 school systems and schools obtaining improved performance from benchmarking for assimilating their benchmarking techniques and success factors.

Guide to Using the Benchmarking Framework

It is recommended that the users of the Benchmarking Framework read each section in its presented order. Section 6.4.1 describes all the elements of the Benchmarking Framework and shows how they relate to each other. Section 6.4.2 presents the Benchmarking Guidelines encompassing the recommended Benchmarking Implementation Approach, the Portfolio of Benchmarking Techniques, and the Factors Leading to Effective Benchmarking.

6.4.1 The Benchmarking Framework; its Components and their Integration

The Benchmarking Framework is developed to assist school systems and schools that are interested in planning and/or implementing benchmarking. The Benchmarking Framework describes how benchmarking should be initiated within a school system or school to ensure its successful implementation. The Benchmarking Framework is supported by Benchmarking Guidelines to safeguard successful implementation of benchmarking for the achievement of improved performance.

The Benchmarking Framework is represented diagrammatically in Figure 6.2. The numbered boxes show each component of the Benchmarking Framework. The arrows between the boxes and the accompanying labels describe the flow of information and the relationship between the components of the Benchmarking Framework.

All components of the Benchmarking Framework and their interrelationship are now described. The components of the Benchmarking Framework are described in Section 6.4.1.1 and the relationship between these components is described in Section 6.4.1.2.

6.4.1.1 The Components of the Benchmarking Framework

Each component (Box) of the Benchmarking Framework is described below.

Box 1: Benchmarking Planning

Benchmarking Planning describes the selection of area(s) for which benchmarking is required. Benchmarking Planning is undertaken on the basis of Strategic Goals and the

Benchmarking Drivers identified by the Sponsors of Benchmarking and/or the Benchmarking Coordination Team.

Strategic Goals are the long-term goals of a school system or school. They are important for the current and future performance of a school system or school. These goals are developed through a thorough analysis of the existing performance and practices of a school system or school. Strategic Goals enable a school system or school to undertake benchmarking for identifying best practices in areas aligned with the strategic focus.

Besides the Strategies Goals, there are certain auxiliary drivers encouraging the use of benchmarking for the identification of best practices. These drivers, called the Benchmarking Drivers, primarily emerge on the basis of input from stakeholders, needs and problems/opportunities, and are communicated to the Benchmarking Coordination Team. There are three categories of Benchmarking Drivers which are explained below.

- **Stakeholder driven benchmarking:** The stakeholders include people working within a school system or school that are directly related to/involved with the area needing improvement. These stakeholders identify the need for improvement in their specific area and communicate it to the Benchmarking Coordination Team.
- **Sporadic need-driven benchmarking:** These include those targets and objectives that are formed on an ad hoc basis and are communicated to the Benchmarking Coordination Team.
- **Problem/opportunity driven benchmarking:** The problems/opportunities within the scope of benchmarking encountered by a school system or school are assessed and addressed by the Benchmarking Coordination Team.

Box 2: Sponsors of Benchmarking

These are the individuals or group of individuals responsible for a school system or school. Ideally, they include Ministry of Education or School Board officials for a school system, and Ministry of Education/School Board officials or members of senior management team, such as the principal/headmaster for a school. Their main role is to provide support and direction to the Benchmarking Coordination Team on the basis of the Benchmarking Planning of a school system or school and the Benchmarking Guidelines.

Box 3: Benchmarking Coordination Team

The Benchmarking Coordination Team describes the individuals or the group of individuals within a school system or school involved in coordinating a benchmarking activity. They are the benchmarking experts that have knowledge and experience in handling benchmarking projects. On the basis of the Strategic Goals and/or the Benchmarking Drivers, the Benchmarking Coordination Team decides on the Benchmarking Initiatives to be implemented and monitors their implementation. The Benchmarking Guidelines assist the Benchmarking Coordination Team in selecting an appropriate Benchmarking Initiative(s). The Benchmarking Coordination Team is responsible for ensuring that appropriate individuals and teams are selected to organise and participate in the Benchmarking Initiative(s) and are appropriately trained. There are different Benchmarking Coordination Teams for a school system and a school.

The Benchmarking Coordination Team for a school system and school are described below.

- The Benchmarking Coordination Team for a school system primarily comprises Ministry officials or members of a School Board who are dedicated to the schools' performance and strategy and are thus likely to make up the team.
- The Benchmarking Coordination Team for a school primarily comprises members of the senior management team and/or enthusiastic teachers/staff members who have knowledge and experience in handling benchmarking projects and want to make a difference.

Box 4: Benchmarking Initiatives

There is a range of benchmarking techniques that could be used to undertake a Benchmarking Initiative. These benchmarking techniques could be used for structured benchmarking projects, provision of best practice material through an internet portal and for best practice sharing days. Once an initiative has been decided on, a person or persons is given the responsibility of organising and implementing the Benchmarking Initiative(s) by forming a Benchmarking Implementation Team. The implementation of Benchmarking Initiative(s) is strongly supported by the Benchmarking Guidelines (refer to Section 6.4.2). The Benchmarking Initiative(s) is selected from the Portfolio of Benchmarking Techniques (refer to Section 6.4.2.2) and implemented by following the Benchmarking Implementation Approach (refer to Section 6.4.2.1).

Box 5: Benchmarking Guidelines

The Benchmarking Guidelines have been developed to assist in the effective implementation of benchmarking within a school system or school. The Benchmarking Guidelines include:

- The standard steps involved in a structured/formal benchmarking process, called the Benchmarking Implementation Approach (Section 6.4.2.1)
- A description of how to implement benchmarking projects (between school systems/schools and by a school system/school) and benchmarking techniques with examples, called the Portfolio of Benchmarking Techniques (Section 6.4.2.2)
- Recommendations for maximising benchmarking outcomes, called the Factors Leading to Effective Benchmarking (Section 6.4.2.3)

6.4.1.2 Relationship between the Components of the Benchmarking Framework

It is recommended that the Sponsors of Benchmarking (Box 2, Figure 6.2) undertake the necessary planning by studying the Strategic Goals (Box 1, Figure 6.2) of the school system or school and the proposed Benchmarking Guidelines (Box 5, Figure 6.2). In case of Benchmarking Drivers (Box 1, Figure 6.2), planning is undertaken by the Benchmarking Coordination Team (Box 3, Figure 6.2). The Sponsors of Benchmarking (Box 2, Figure 6.2) provide the necessary support and guidance to the Benchmarking Coordination Team (Box 3, Figure 6.2) for initiating benchmarking. It is important that the Benchmarking Coordination Team (Box 3, Figure 6.2) consults the Benchmarking Guidelines (Box 5, Figure 6.2) and the Benchmarking Planning (Box 1, Figure 6.2) to select an appropriate Benchmarking Initiative(s) for implementation (Box 4, Figure 6.2). The Benchmarking Coordination Team determines the purpose and scope of benchmarking, trains the Benchmarking Implementation Team and initiates benchmarking by handing over the Benchmarking Initiative(s) to the Benchmarking Implementation Team. The Benchmarking Implementation Team has access to the component(s) of the Benchmarking Planning (Box 1, Figure 6.2) related to the chosen Benchmarking Initiative(s), and the benchmarking implementation is guided by the Benchmarking Guidelines (Box 5, Figure 6.2). The Benchmarking Implementation Team implements benchmarking by tailoring the Benchmarking Implementation Approach (presented in Section 6.4.2.1) according to the needs of their school system or

school and reports results of the Benchmarking Initiative(s) (Box 4, Figure 6.2) to the Benchmarking Coordination Team (Box 3, Figure 6.2), who later reports progress to the Sponsors of Benchmarking (Box 2, Figure 6.2).

6.4.2 The Benchmarking Guidelines

This section contains the Benchmarking Guidelines (Box 5, Figure 6.2) developed to assist school systems and schools in the implementation of benchmarking to ensure achievement of improved performance.

The Benchmarking Guidelines are divided into three parts which are explained below.

6.4.2.1 Benchmarking Implementation Approach

This part presents the proposed benchmarking process to implement a Benchmarking Initiative(s) (Box 4, Figure 6.2). This benchmarking process known as the Benchmarking Implementation Approach encompasses the steps involved in a structured (formal) benchmarking process and is diagrammatically presented in Figure 6.3. The Benchmarking Implementation Approach is a benchmarking process tailored for being used as part of the Benchmarking Framework. The Benchmarking Implementation Approach has five steps: planning, research current state, determine and implement benchmarking techniques and identify best practices, deploy best practices, and monitor performance and review progress, and is now explained.

Box 1: Planning (Step 1)

The Benchmarking Implementation Approach starts with planning that is conducted jointly by the Benchmarking Coordination Team (Box 3, Figure 6.2) and the Benchmarking Implementation Team.

After selecting a Benchmarking Initiative(s) (Box 4, Figure 6.2), the Benchmarking Coordination Team develops a project brief that describes the project sponsor, the aim and scope of the project, the size of the Benchmarking Implementation Team and the identification of the members of the Benchmarking Implementation Team. The Benchmarking Coordination Team selects and trains the Benchmarking Implementation Team and communicates the purpose and scope of benchmarking. The Benchmarking Implementation Team develops the Terms of Reference, which provides the foundation for the successful implementation of benchmarking. The Terms of Reference include: a

clear aim, the scope and background, the expected benefits, the resources required (time, finance, number of people), the identification of stakeholders and a clear communication plan to ensure that relevant stakeholders are engaged in the project from start to finish. The stakeholders include the Benchmarking Coordination Team and the individuals related to the area of learning (area in which best practices are required). At the end of this step, the Terms of Reference are signed-off by the Benchmarking Coordination Team and the Benchmarking Implementation Team proceeds with the next step of the Benchmarking Implementation Approach.

Box 2: Research Current State (Step 2)

After planning, the Benchmarking Implementation Team researches the current state of the school system or school to develop a thorough understanding of its own school system's/school's processes and performance before selecting a partner or best practices to learn from. The research on the current state may involve self-assessment, brainstorming, focus groups, SWOT analysis, process flowcharts etc., to identify precisely the problems and areas for which best practices are sought (called area of learning). The research of the current state ends with the identification of the area of learning.

Box 3: Determine and Implement Benchmarking Techniques and Identify Best Practices (Step 3)

The purpose of this step is to acquire best practices in the area of learning. Best practices may be acquired through brainstorming, desktop research, process flowcharts, Fishbone diagrams, surveys, site visits, structured interviews etc., or by selecting a school system(s) or school(s) having best practices in the area of learning as a benchmarking partner. A partner can be selected through brainstorming, word of mouth, desktop search, annual reports, surveys, literature reviews etc., and is invited to participate. The best practices of the chosen partner are learned by selecting and implementing a suitable benchmarking project (a description of benchmarking projects is provided in Section 6.4.2.2) and/or benchmarking technique(s) from the Portfolio of Benchmarking Techniques (Appendix 18). Based on the learned best practices, recommendations are formulated on how to adapt those best practices to improve performance in the area of learning. All the recommendations developed should be agreed in consensus with the whole of the Benchmarking Implementation Team and a sufficient amount of analysis must have been undertaken to present the

recommendations to the Benchmarking Coordination Team. The output from this step is the agreed actions and recommendations ready for presentation to the Benchmarking Coordination Team.

Box 4: Deploy Best Practices (Step 4)

The purpose of this step is to communicate the findings from the benchmarking project and/or benchmarking technique(s) to the stakeholders, develop an action plan and implement the actions. A report on the benchmarking findings is prepared to synthesise and clarify the team's thoughts and findings and to communicate them. The findings may be communicated by means of giving presentations to project stakeholders. The stakeholders may include the Benchmarking Coordination Team, representatives of participating school system(s) or school(s) and their senior management etc. An action plan is developed to describe how the best practices can be implemented and approval for their implementation is obtained from the Benchmarking Coordination Team. The best practices are implemented or disseminated as described in the action plan.

Box 5: Monitor Performance and Review the Process (Step 5)

In this phase, the performance of the benchmarking project and/or the benchmarking technique(s) is monitored and the best practices may be reviewed and refined based on the outcomes. The Benchmarking Implementation Team communicates the result of the Benchmarking Implementation Approach to the Benchmarking Coordination Team (Box 3, Figure 6.2). If needed, the whole process may be repeated.

Box 6: Portfolio of Benchmarking Techniques

The selection and implementation of a benchmarking project and/or benchmarking technique(s) for the identification of best practices is supported by the Portfolio of Benchmarking Techniques, which is part of the Benchmarking Guidelines. The Portfolio of Benchmarking Techniques provides a description of benchmarking projects and benchmarking techniques with examples.

Box 7: Factors Leading to Effective Benchmarking

The Benchmarking Implementation Approach is overarched by the Factors Leading to Effective Benchmarking. These factors support the Benchmarking Implementation Team to successfully complete each step of the Benchmarking Implementation Approach.

Relationship between the Components of the Benchmarking Implementation

Approach

The Benchmarking Implementation Approach is adopted for the implementation of Benchmarking Initiative(s) (Box 4, Figure 6.2) selected by the Benchmarking Coordination Team (Box 3, Figure 6.2). The Benchmarking Coordination Team (Box 3, Figure 6.2) communicates the selected Benchmarking Initiative(s) (Box 4, Figure 6.2) to the Benchmarking Implementation Team. It is recommended that the Benchmarking Coordination Team and the Benchmarking Implementation Team conduct the initial Planning cooperatively (Box 1, Figure 6.3) in order to identify the current challenges and to develop the Terms of Reference. Planning facilitates the Benchmarking Implementation Team's understanding of the focus of Benchmarking Initiative(s) and the ability to develop the Terms of Reference. After Planning, the Benchmarking Implementation Team researches the current performance and practices of their own school system or school to develop an understanding of the area of learning (Box 2, Figure 6.3). Then, best practices in the area of learning are identified (Box 3, Figure 6.3) by utilising the benchmarking techniques presented in the Portfolio of Benchmarking Techniques, or by selecting a partner school system or school having best practices in the area of learning (Box 6, Figure 6.3). The Portfolio of Benchmarking Techniques (Box 6, Figure 6.3) assists in the implementation of benchmarking technique(s), either independently or as part of a benchmarking project for learning a partner's best practices. After learning the best practices, they are adapted and implemented by the Benchmarking Implementation Team (Box 4, Figure 6.3). After a reasonable time of implementation, the performance of the adapted best practices is monitored (Box 5, Figure 6.3) and the results of the Benchmarking Initiative(s) (Box 4, Figure 6.2) are communicated to the Benchmarking Coordination Team (Box 3, Figure 6.2). The Benchmarking Implementation Approach is overarched by the Factors Leading to Effective Benchmarking (Box 7, Figure 6.3).

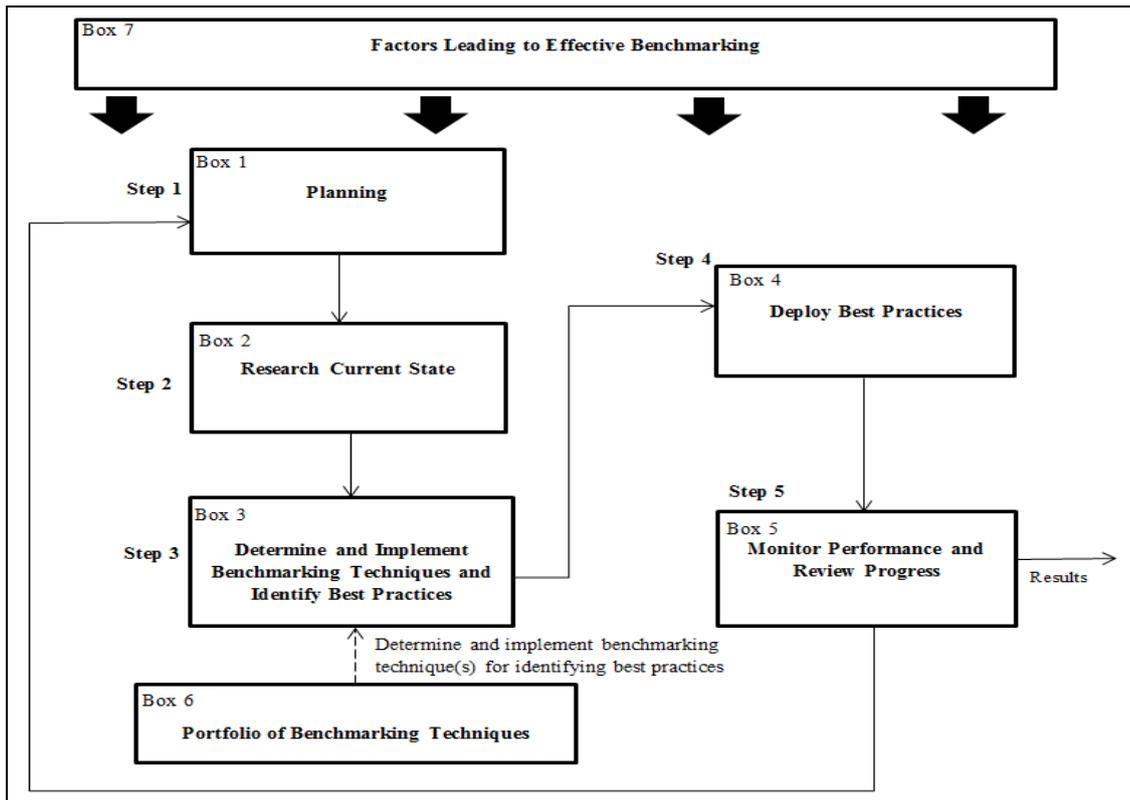


Figure 6.3 The Benchmarking Implementation Approach

6.4.2.2 Portfolio of Benchmarking Techniques

This section presents the Portfolio of Benchmarking Techniques which describes the benchmarking projects and benchmarking techniques that can be employed for the effective implementation of Benchmarking Initiative(s). The Portfolio is based on the benchmarking classification depicted in Figure 6.4 and can be used in an equally beneficial way by school systems and schools. This classification illustrates the implementation of benchmarking techniques as part of a formal and an informal benchmarking project. However, these benchmarking techniques can also be used independently without becoming part of a benchmarking project.

Note, the implementation of benchmarking projects and benchmarking techniques is described in relation to the Benchmarking Implementation Approach presented in Figure 6.3, which is the recommended benchmarking process. The benchmarking projects, Best Practice Benchmarking (Consortium) and Best Practice Benchmarking (Self-managed) (Figure 6.4) are described as follows, while the benchmarking techniques are presented in Appendix 18. These include benchmarking techniques that

BEST PRACTICE BENCHMARKING PROJECT (CONSORTIUM)

Purpose:

The purpose of this approach is for school systems or schools to work together, from start to finish, on a benchmarking project of common interest for the identification and implementation of best practices. This approach normally encourages the sharing and learning between consortium members, in addition to learning best practices from non-consortium members on the selected topic.

Explanation:

A Best Practice Benchmarking Project (Consortium) can be undertaken either formally or informally between school systems or schools sharing a thematic focus. A formal consortium project is described in relation to the Benchmarking Framework illustrated in Figure 6.2 and adjusts the steps of the Benchmarking Implementation Approach illustrated in Figure 6.3 to fit the consortium. The use of the Benchmarking Implementation Approach ensures that the Benchmarking Implementation Team⁵⁶ is better positioned to concentrate on the learning and improvement from the project rather than worrying about how to manage it. All consortium activities are managed by a facilitator, who is a benchmarking expert having knowledge and experience of handling benchmarking projects. The facilitator could be an external benchmarking specialist or a benchmarking expert from one of the consortium school systems or schools. The Benchmarking Implementation Team (BIT) includes the facilitator and representatives of the consortium school systems or schools belonging to the area of learning.

Ideally, the following steps should be followed for a formal consortium best practice benchmarking project.

Planning

Planning for a consortium benchmarking project begins with developing the project brief. The initial project brief is prepared by the project sponsor (called Benchmarking Coordination Team in Figure 6.2) and given to the BIT. The project brief describes the project sponsor, the aim and scope of the project and the size and members of the BIT. The team members include people capable of undertaking four roles: team leader (an expert in the area of learning), project team members, a project administrator and a

⁵⁶ The Benchmarking Implementation Team is also referred to as BIT.

facilitator. The sponsor trains the BIT team to ensure that all team members have at least a basic understanding of benchmarking and know how to undertake a benchmarking project. The facilitator guides the team through the steps of the Benchmarking Implementation Approach. The rest of the team members belong to the area of learning.

The BIT develops the Terms of Reference, which are built on the initial project brief and include the project's aim, scope and background, the expected benefits and cost, the project stakeholders, details of task management, the training required, a risk management plan and a communication plan. The size and complexity of the project impacts the level of detail included in the Terms of Reference. The Terms of Reference are used to gain the commitment of project sponsor at the start of the project and are maintained throughout the entire project.

Once complete, the Terms of Reference are reviewed by the BIT. The review is led by the project team leader unless there is a dedicated benchmarking team that supports benchmarking projects. The review is undertaken so that any potential issues are addressed before the official start of the Benchmarking Implementation Approach. The Terms of Reference are signed-off by the project sponsor in order to gain approval to start the project. The following steps of the Benchmarking Implementation Approach are performed solely by the Benchmarking Implementation Team.

Research Current State

The purpose of this step is to gain an understanding of the area of learning. It is essential to gain a good understanding of the area of learning to re-assess and confirm or review the objectives and assumptions set in the Terms of Reference. The current state of the consortium school systems or schools is researched to ensure that the project team have a thorough understanding of their own school systems'/schools' processes, systems and performance before learning from others.

An understanding of the area of learning can be gained through a number of techniques, such as a review of school systems' or schools' documentation, process flowcharts, structured interviews, brainstorming, focus groups and expert presentations. This understanding enables to define or set a performance measure to effectively measure the area of learning. Then, the team measures the current performance in the area of

learning to clarify problems related to the objectives of the project, and prioritises and finalises the practices to be benchmarked. At the end of this step, a clear understanding of priorities for improvement is gained, and what needs to be benchmarked and learned from other school systems or schools is understood.

Determine and Implement Benchmarking Techniques and Identify Best Practices

The purpose of this step in the benchmarking process is to select a benchmarking partner(s) for the learning of best practices related to the area of learning. Initially, criteria are established for the selection of potential benchmarking partners. The criteria should be brainstormed by the BIT. The scope of the project and the research undertaken in the previous step should be considered when brainstorming the criteria.

Based on the criteria, a number of school systems, schools, sectors or organisations are identified that would be useful for benchmarking against. In addition, partner school systems or schools can also be selected from within the consortium. Potential benchmarking partners can be identified through brainstorming, web searches, a review of documents, through experts/consultants and published material etc. The selected partner(s) are invited to participate and their agreement for participation is obtained.

This step is the most valuable and resource intensive part of the project. The benchmarking techniques presented in the Portfolio of Benchmarking Techniques can be utilised to learn best practices from the partner. These benchmarking techniques can be used either independently or in combination, formally or informally. The Terms of Reference are reviewed to help team members stay focused on the objectives of the project. The implementation of the selected benchmarking techniques is administered by the facilitator due to his/her expertise in benchmarking. A data collection plan is developed describing the benchmarking techniques used and their purpose, for example, a visit may be organised to a high performing school system to learn how the newly developed reforms were implemented. The data collection plan is implemented and the best practices learned. The details of the data collection are recorded and stored.

After the data collection, the team may develop a report(s) to describe the findings. It would be worthwhile to send this report(s) to the benchmarking partner(s) to ensure that the recorded details are correct. The obtained data are analysed and the performance gaps identified.

Deploy Best Practices

This step involves communicating the best practice findings to the consortium members. The adaption and implementation of best practices is left to the discretion of consortium members, who may pilot the change before full deployment.

Monitor Performance and review Progress

This step is designed to make sure that the project has delivered the benefits that were outlined in the Terms of Reference. This step is performed independently by each consortium member and involves undertaking a cost/benefits analysis and a general review on how well the best practices are performing.

An informal consortium benchmarking project, on the other hand, follows all the above mentioned steps without adhering to a benchmarking process. Therefore, the team is not trained in benchmarking and might not be able to obtain the expected benefits as they may get confused about what should be done next.

Benefits of a Formal Consortium Best Practice Benchmarking Project:

- In-depth learning of best practices related to the area of learning
- Rigorous application of the Benchmarking Implementation Approach
- Benchmarking Implementation Approach guided by a facilitator
- Greater understanding of the Benchmarking Implementation Approach through guidance provided by the facilitator
- Learning through collaboration with fellow participants
- Relationship development between consortium participants
- Participants get trained in benchmarking and are in a better position to undertake benchmarking systematically in the future
- The costs of the project are shared between consortium participants

Benefits of an Informal Consortium Best Practice Benchmarking Project:

- Faster learning of best practices related to the learning area
- Learning from fellow participants
- Relationship development between consortium participants
- The costs of the project are shared between consortium participants

Example of a Formal Consortium Best Practice Benchmarking Project:

An example of a Formal Consortium Best Practice Benchmarking Project belongs to the New Zealand Benchmarking Club. The club organised a consortium benchmarking project for organisations interested in learning best practices for identifying, growing and realising leadership potential (New Zealand Benchmarking Club, 2004). The project scope, benefits and timeline were developed and disseminated among club members during the project's promotion. The timeline detailed a nine-stage benchmarking process for 12 organisations spanning over 36 weeks and explained how the project would safeguard the learning of relevant best practices. A benchmarking process was utilised for the learning of best practices through surveys, visits and meetings. The use of a benchmarking process ensured that the project is undertaken in a rigorous manner and that the participating organisations can measure the benefits that could be obtained from the project.

Benefits of the Project:

- In-depth learning of best practices for developing leadership potential
- Rigorous application of a benchmarking process
- Benchmarking process guided by a benchmarking expert
- Greater understanding of benchmarking developed through guidance provided by the benchmarking expert
- Learnings acquired through collaboration with fellow participants
- Participants received training in benchmarking and are thus in a better position to systematically undertake benchmarking in future
- Relationship development between consortium participants
- The costs of the project shared between consortium organisations

Example of an Informal Consortium Best Practice Benchmarking Project:

An example of an Informal Consortium Best Practice Benchmarking Project belongs to a primary school from New Zealand. The school had been in collaboration with seven other schools with a focus on the teaching of writing (Interviewee S-5, personal communication, August 9, 2016). The Principal of the school initiated this project and it involved six other schools. The representatives of the schools planned the project collaboratively and appointed and shared a high-powered consultant who worked with each of the seven schools' literacy leaders. Sometimes, teachers from all seven schools

would come together at one of the partner schools to discuss and share teaching techniques. This collaboration stayed in place for 2 years and the consultant visited each of the 7 schools once a term. The collaboration between schools took place through presentations and workshops. The consultant gave presentations related to the area of learning during Teacher Only Days. Later, workshops were conducted by lead teachers from each of the schools to share the learnings with the rest of the teachers. The consultant also visited each of the schools and held meeting with teachers for the identification of best practices. The idea was that, after 2 years, the literacy leaders would be sufficiently skilled and knowledgeable enough to drive the writing enhancement programs within their schools. After the project, the literacy leaders from each of the 7 schools took the lead and began driving the literacy programs of their own schools.

Benefits of the Project:

- Faster learning of best practices for upgrading the literacy program
- Learning from fellow participants
- Relationship development between participants of consortium schools
- The costs of the project shared between consortium schools

Another Example of an Informal Consortium Best Practice Benchmarking Project:

Another example of an Informal Consortium Best Practice Benchmarking Project related to a primary school from Singapore is now described. The Singapore school system organises schools into clusters on the basis of zones (Interviewee S-6, personal communication, March 16, 2016). The purpose of these clusters is collaboration among schools to impact student learning, where learning targets are tailored to the needs of the schools. Each cluster consists of approximately 10 schools and is led by a Cluster Chairman. The Cluster Chairman is a member of the senior management team of one of the schools. The learning agenda for each cluster is collaboratively planned at the beginning of each school year. All cluster activities, such as meetings and visits, are guided by the Chairman and are designed to improve student learning either directly or indirectly. Student learning is directly impacted through student focused programs, whereas, it is indirectly improved by developing teachers' competency. The frequency of cluster meetings varies; however, there are at least 4 meetings each year. During a

cluster meeting, the best practices of the member schools are shared across the cluster. These meetings take place in the afternoon and thus do not interfere with the regular teaching and learning. Besides meetings, there is an ongoing process of communication and discussion between cluster participants. The cluster setup enables schools to work together and learn each other's best practices, thus providing diversity in the approaching of issues. The usefulness of a cluster varies from cluster to cluster and the outcomes of cluster activities are shared and reviewed during cluster meetings. Most importantly, a cluster enables schools to become open to helping each other, collaborate and leverage each other's strengths to reach to the next performance level.

Benefits of the Project:

- Faster learning of best practices for improving teachers' competency
- Learning from fellow participants
- Relationship development between cluster participants
- Project funded by the Ministry of Education

BEST PRACTICE BENCHMARKING PROJECT (SELF-MANAGED)

Purpose:

The purpose of this approach is for a school system or school to work on a benchmarking project from start to finish for the identification and implementation of best practices. This approach normally encourages identification, learning and implementation of best practices specific to an issue.

Explanation:

A Best Practice Benchmarking Project (Self-managed) can be implemented either formally or informally. A formal project is described in relation to the Benchmarking Framework illustrated in Figure 6.2 and follows the Benchmarking Implementation Approach illustrated in Figure 6.3 that provides step by step guidance from start to finish. The use of the Benchmarking Implementation Approach ensures that the Benchmarking Implementation Team is better positioned to concentrate on the learnings and improvements from the project rather than worrying about how to manage the project. All project activities are managed by a facilitator, who is a benchmarking expert having knowledge and experience of handling benchmarking projects. The facilitator

could be an external benchmarking specialist or a benchmarking expert from the school system or school initiating the project. The BIT includes the facilitator and representatives of the school system or school belonging to the area of learning.

Ideally, the following steps should be followed for a formal self-managed best practice benchmarking project.

Planning

Planning for a self-managed benchmarking project begins with developing the project brief. The initial project brief is prepared by the project sponsor (called the Benchmarking Coordination Team in Figure 6.2) and given to the BIT. The project brief describes the project sponsor, the aim and scope of the project, the size of the BIT and the composition of its membership. The team members should include people who are capable of undertaking four roles: the team leader (expert in the area of learning), project team members, a project administrator and a benchmarking facilitator. The sponsor trains the BIT to ensure that all team members have at least a basic understanding of benchmarking and know how to undertake a benchmarking project. The facilitator guides the team through the steps of the Benchmarking Implementation Approach. The rest of the team members belong to the area of learning.

The team develops the Terms of Reference that provide the foundation for a successful benchmarking project and are built on the initial project brief. It includes a clear aim, scope and background, the expected benefits and cost, the identification of stakeholders with a clear communication plan to ensure that the stakeholders are engaged in the project from start to finish. The size and complexity of the project impacts the level of detail included in the Terms of Reference. The Terms of Reference are used to gain the commitment of the project sponsor at the start of the project and are maintained throughout the entire project.

Once completed, the Terms of Reference are reviewed by the BIT. The review is led by the project team leader unless there is a dedicated benchmarking team that supports benchmarking projects. The review is undertaken so that any potential issues are addressed before the official start of the Benchmarking Implementation Approach. The Terms of Reference are signed-off by the project sponsor to gain approval for starting

the project. The following steps of the Benchmarking Implementation Approach are performed solely by the BIT.

Research Current State

The purpose of this step is to gain an understanding of the area of learning. It is essential to gain a good understanding of the area of learning to re-assess and confirm or review the objectives and assumptions set in the Terms of Reference. After exhaustive planning, the current state of the school system or school in the area of learning is researched to ensure the project team have a thorough understanding of their own school system's/school's processes, systems and performance before learning from other school system(s) or school(s).

Some of the tools that can be used to understand the area of learning are surveys, structured interviews, Fishbone diagram, process mapping, focus groups and brainstorming. This understanding enables to define or set a performance measure to effectively measure the area of learning to be benchmarked. Then, the team measures the current performance in the area of learning to clarify problems related to the objectives of the project, and prioritises and finalises the practices to be benchmarked. At the end of this step, a clear understanding of the priorities for improvement is gained, and what it is that needs to be benchmarked and learned from other school systems or schools is understood.

Determine and Implement Benchmarking Techniques and Identify Best Practices

The purpose of this step in the benchmarking process is to find best practices related to the area of learning. The best practices may be learned from desktop research, surveys, site visits, structured interviews etc., or by selecting and inviting a benchmarking partner(s). In the case of learning best practices from a benchmarking partner(s), criteria are established for partner selection. The criteria should be brainstormed by the project team. The scope of the project and the research undertaken in the previous step should be considered when brainstorming the criteria. A benchmarking partner(s) can be a school system, school, sector or organisation likely to have best practices in the area of learning. A partner can be selected through a desktop search, annual review reports, publications, news and word of mouth etc. The selected partner is invited to participate and their agreement to participate is obtained.

This step is the most valuable and resource intensive part of the project. A range of benchmarking technique(s) that can be used to learn best practices from the partner(s) are described in the Portfolio of Benchmarking Techniques. These benchmarking techniques can be used independently or in combination, formally or informally. The Terms of Reference are reviewed to help team members stay focused to the objectives of the project. The implementation of the selected benchmarking techniques is administered by the facilitator due to their expertise in benchmarking.

A data collection plan is developed to describe the benchmarking techniques used and their purpose, for example, a visit may be organised to a high performing school to learn how the newly developed reforms are implemented. During the visit, the benchmarking team may conduct structured interviews with relevant persons to understand the process employed for reform implementation. The data collection plan is implemented and the best practices learned. The details of data collection are recorded and stored. After data collection, the obtained data is analysed and performance gaps are identified; a report may be developed to describe the findings.

Deploy Best Practices

This step involves communicating the best practice findings from the previous step to the relevant stakeholders including the project sponsor, deciding what should be changed in the current practice(s)/process(s) and implementing the changes. This step involves developing an action plan for adapting best practices to fit the school system's/school's profile and may involve the piloting of change before full deployment.

The Implementation of the selected best practices is administered by an expert in the area of learning. The project team adapts the best practices and implements them by following an action plan.

Monitor Performance and Review Progress

This step is designed to make sure that the project has delivered the benefits that were outlined in the Terms of Reference. After a reasonable time of deployment, the Benchmarking Implementation Team undertakes an evaluation of the outcomes of the benchmarking project to ensure that the benefits outlined in the Terms of Reference are achieved. This involves undertaking a cost/benefit analysis and a general review of how

well the process is performing. If the expected benefits are not realised, an investigation is needed to find out why not and may require further learning from the benchmarking partner(s).

An informal self-managed benchmarking project, on the other hand, follows all the above mentioned steps without adhering to a benchmarking process. Therefore, the team is not trained in benchmarking and haven't mastered a benchmarking process; as a result, they may not be able to obtain the expected benefits.

Benefits of a Formal Self-managed Best Practice Benchmarking Project:

- Issues specific to the school system or school are resolved in a structured manner
- Thorough learning of best practices in a specific area
- Benchmarking Implementation Team gets trained in benchmarking and becomes a master of each step of the Benchmarking Implementation Approach
- Learning through collaboration with fellow team members
- Development of relationship with partner school system(s) or school(s) for future projects

Benefits of an Informal Self-managed Best Practice Benchmarking Project:

- Issues specific to the school system or school are resolved quickly
- Faster learning of best practices in a specific area
- Learning from fellow team members
- Development of relationship with partner school system(s) or school(s)

Example of a Formal Self-managed Best Practice Benchmarking Project:

An example of a Formal Self-managed Best Practice Benchmarking Project belongs to the Knowledge and Human Development Authority (KHDA) from Dubai (BPIR, 2017). The project aimed to identify and implement best practices to increase people's happiness, work-life balance and wellbeing. Initially, a benchmarking team was formed and trained in benchmarking, followed by the setting of project objectives and targets for enhancing people's happiness. The benchmarking team carried out extensive research to identify potential benchmarking partners. Benchmarking visits and Skype meetings were organised with selected partners for the identification and learning of

best practices. The benchmarking team developed an understanding of the area of learning by attending a happiness workshop in the United States.

The learned best practices were recorded and shared with all colleagues within the organisation. The best practices were selected by the benchmarking team and approved for implementation. The best practices were implemented by different teams across the organisation and implementation was monitored during the teams' weekly meetings. The implemented best practices included: the development of happiness toolbox, a student happiness survey and the creation of an open and status free workplace. The project resulted in increased overall happiness that was measured through a happiness survey, increased conversation between employees via intranet, the organisation of Healthy and Happy School Awards, the introduction of School Climate Survey and an increase in the number of visits to KHDA to learn about employee happiness.

Benefits of the Project:

- Thorough learning of twenty-one best practices that were implemented within a year
- Employee happiness improved and placed KHDA among the top 10% happiest organisations in Dubai
- Increase in collaboration and communication among employees via the intranet
- Increase in the number of benchmarking visits to KHDA to learn about employee happiness
- The benchmarking team was trained in benchmarking and became a master of each step of the benchmarking process
- Relationships developed with benchmarking partners

Example of an Informal Self-managed Best Practice Benchmarking Project:

This is an example of an Informal Self-managed Best Practice Benchmarking Project belonging to a primary school from New Zealand. As the school is newly established, periodic tours are organised to another local school every alternate year. According to the Principal (Interviewee S-2, personal communication, March 18, 2016), the aim of these tours is to learn from schools that are in a somewhat similar phase of growth and development, to gauge and monitor their progress and development. The school utilises its annual funds to arrange such tours spanning over a day or two. In one of the tours, all the staff members were taken to Auckland. Planning and preparation began around eight

months before the tour and the Principal and Deputy Principal began searching and researching schools that were in a similar development stage. They studied the ERO (Education Review Office) reports of schools that were seen to be working successfully on areas the Principal was interested in learning. The Principal met with the management of the other school, explained the agenda of the tour and reached agreement on expected outcomes. A significant feature of these tours is that they provide an opportunity for staff members to learn about the trials and tribulations of the other school, and to learn from their reflection.

During each tour, focus is laid on seeing teachers and students in class and seeing learning through the students' lens. A significant element of these visits is professional dialogue and discussion with teachers. During the tour to Auckland, the learning focus was on reflective practices, visible learning and mathematics practices. Learning did not take place solely through observations but mainly through professional dialogue and discussions. Learning mentors (experts) were also taken along to facilitate during the professional dialogue. After the tour, the entire staff got together to discuss and reflect on how to use the learnings. They discussed pedagogical and learning patterns that had appeared superficially and the deep thinking behind each learned approach. More importantly, they discussed ideas about how to transfer the learnings to their own system to have a deeper impact. Such tours develop and strengthen teaching practices, not by forcing them on teachers but by giving time to embed those learning into their teaching framework so that they become effective pedagogical practices.

Benefits of the Project:

- Faster learning of best practices related to reflective practices, visible learning and mathematics practices
- Issues specific to the school got resolved quickly
- Learned from fellow participants
- Learned best practices through professional dialogue
- Learned best practices for the successful operation of a new school
- Relationship development with the partner school

6.4.3 Factors Leading to Effective Benchmarking

This section presents the guidelines to safeguard successful implementation of benchmarking. These guidelines are developed to promote the ‘Factors Leading to Effective Benchmarking’ in order to obtain optimal benchmarking outcomes.

Validity of Factors Leading to Effective Benchmarking

The Factors Leading to Effective Benchmarking were primarily acquired through the following three methods.

1. A literature review on the use of benchmarking by school systems and schools
2. A survey with 20 school systems and 183 schools, and
3. Structured interviews with 23 school systems and schools

The significance of these factors was validated by the research participants. Note that these guidelines are presented in relation to the Benchmarking Implementation Approach and the components of the Benchmarking Framework to describe how these factors can support the successful planning and implementation of benchmarking.

Guideline 1: Involvement of Senior Leadership

It is recommended that the senior leadership⁵⁷ of a school system or school provides the necessary support for implementing benchmarking to the Benchmarking Implementation Team. The support and involvement of senior leadership can be displayed by identifying benchmarking opportunities effectively and providing resources for their implementation. In addition, the senior leadership is recommended to make benchmarking an integral element of the Strategic Plan and the Mission, Vision and Values of school system or school. Above all, it is recommended that the senior leadership becomes a role model and ‘practice what they preach’.

Guideline 2: Culture of Trust and Collaboration

It is advised that the senior leadership takes all staff members (for example, teachers) on-board and develops a rapport with staff members by appreciating them for their performance, considering staff members as partners in the success of school system or school and believing in their capabilities. In addition, it is vital that the senior leadership acknowledges the importance of role of staff members in the ‘big picture’ of school

⁵⁷Senior leadership is referred to as the Sponsors of Benchmarking and/or the Benchmarking Coordination Team in the Benchmarking Framework illustrated in Figure 6.2.

system's/school's improvement. More importantly, the senior leadership is recommended to develop a shared purpose in the form of Mission Vision and Values and Strategic Plan and should adhere to it for the creation of a culture of trust and collaboration. Likewise, it is worthwhile to communicate the rationale for using benchmarking and its potential benefits.

Guideline 3: Teachers' Commitment to Excellence

It is recommended that the senior leadership of a school system or school empowers teachers to unleash their full potential for achieving high levels of commitment. The senior leadership may display commitment to the engagement, development and well-being of teachers by offering flexible work practices with freedom of application and by providing extensive opportunities for learning and development, such as tailored Professional Development programs aimed at enhancing teacher competency. As commitment to excellence is an attitude, it needs to be promoted by the actions of senior leadership to embed it into the actions and thinking of teachers.

Guideline 4: Teacher Competency

It is suggested that competent teachers be appointed and to develop them into effective instructors by providing them with personalised Professional Development options. Professional Development could be promoted through the use of benchmarking, such as appointing an expert teacher as mentor, sending teachers on exchange programs and organising timely observations, conferences and trainings to improve their competency. It is an expectation that the enhancement of teachers' competency will improve their commitment to excellence.

Guideline 5: Positive Work Environment

A positive work environment could ensure the staff members are enthusiastic about coming to work and doing their job. Members of the senior leadership team can create a positive work environment by: fostering a transparent and open communication within the school system or school, promoting the development of good relations among staff members and with staff members, by providing them with their due acknowledgement in the form of rewards and recognition, showing gratitude, giving positive reinforcement and motivation, and encouraging positive thinking. All these actions can lead considerably towards the creation of a positive work environment. In addition, a culture of trust and collaboration promotes a positive work environment.

Guideline 6: Commitment to Continuous Improvement

Commitment to continuous improvement enables a school system or school to effectively identify weaknesses and fix them on an ongoing basis. It is recommended that the senior leadership promotes continuous improvement by providing small manageable improvement goals and by monitoring their implementation. Senior leadership can display commitment to continuous improvement by providing timely feedback on the performance of staff members, acknowledging their success and motivating them to perform even better in future.

Guideline 7: Use of Innovative Practices

The senior leadership of a school system or school is suggested to encourage their staff members to try new ideas, engage with them in constructive reflection and brainstorming sessions and provide access to resources to find new ways of dealing with problems. Innovation flourishes by embedding the philosophy of continuous improvement in the culture of school system or school.

Guideline 8: Willingness to Change

It is suggested that the senior leadership of a school system or school is open to new ideas and practices. This newness can be related to the improvement of the processes and practices used for learning and improvement. To remain competitive, it is important to be adaptable and try new and effective practices.

Guidelines 9: Relationship between Benchmarking Partners

For successful benchmarking, a school system or school is recommended to develop positive and healthy relationship with its partner school system(s) or school(s). As healthy relationship enables open and clear communication, it can be developed by engaging with the benchmarking partner(s) socially, showing empathy, giving value to the opinions of partner(s), listening effectively and taking the partner(s) on-board in all decisions related to the identification and learning of best practices.

Guideline 10: Learning from a School System/School that has had Similar Issue

It is recommended to select a benchmarking partner(s) that has faced similar issues in the past and dealt with them successfully. Such a selection of benchmarking partner(s) ensures exceptional outcomes from benchmarking based on the valuable learnings of the partner(s).

Guideline 11: Making Benchmarking an Integral Element of School System's/School's Strategy

In order to communicate the importance of benchmarking effectively, it is recommended to include options for benchmarking in the Strategic Plans of a school system or school. In addition, benchmarking could also be promoted through the Mission Vision and Values of a school system or school. Such actions would ensure that the senior leadership is aware of the significance of benchmarking and would contribute to the creation of a culture of trust, collaboration and communication within the school system or school.

Guideline 12: Knowing Your Learners

It is recommended to become aware of the learning goals and aspirations of students before embarking on a Benchmarking Initiative to be introduced to enhance student learning. The learning goals of students can be identified by gathering evidence about students' needs, such as collection and analysis of assessment data and listening to student voice. The purpose and scope of benchmarking have to be aligned with the learning needs of students; and the benchmarking partner(s) has to be selected accordingly.

Guideline 13: A Structured Approach to Learning

It is recommended to use a structured benchmarking approach (formal benchmarking) while learning from a school system or school. A structured approach follows the steps prescribed by a benchmarking process and is thus reliable for producing improved results. It is desirable to follow a structured benchmarking approach for both performance and best-practice benchmarking. As a structured approach is systematic, it is expected to bring effective improvements. A structured benchmarking approach called the Benchmarking Implementation Approach is provided in the Benchmarking Guidelines.

Guideline 14: Consistent Use of Benchmarking

It is recommended to use benchmarking consistently and on an ongoing basis for the reaping of improved performance. Such an application would enable benchmarking to be embedded into the thinking, attitude and behaviour of staff members and would ensure the achievement of improved results. More importantly, following the

Benchmarking Implementation Approach rigorously and consistently would provide an excellent opportunity for the attainment of improved performance.

Guidelines 15: Resources

As resources are extremely important for benchmarking, the senior management team is recommended to provide the resources required for the implementation of benchmarking. The resources include the people required to participate in benchmarking, along with the time and finance needed for benchmarking. Without the required resources, it is not possible for benchmarking to be undertaken, let alone successful benchmarking.

It is envisaged that considering these guidelines while implementing benchmarking can help a school system or school achieve improved performance.

6.5 Validation of the Benchmarking Framework

The research used a multiphase mixed methods research design to develop a deeper understanding of the concept of benchmarking within school systems and schools; this has enabled the researcher to convert the preliminary conceptual model (refer to Figure 2.3, Chapter 2) into the refined conceptual model (refer to Figure 6.1) and to develop the Benchmarking Framework (refer to Section 6.4).

During phases 2 and 3 of the research, the findings were taken back to the research participants for confirmation and validation (Zohrabi, 2013). Then, in Phase 4, the findings from the earlier phases were integrated to develop the Benchmarking Framework and the guidelines for its use (refer to Figure 3.1, Chapter 3). As validity is an essential criterion for evaluating the quality and acceptability of a research (Burns, 2003), the researcher shared the Benchmarking Framework and the guidelines for its use, called Benchmarking Guidelines (refer to Section 6.4 and Appendix 18) with the interview participants as a validity check. The Benchmarking Framework and Benchmarking Guidelines were shared with the interview participants and a survey was sent out to assess the degree to which it harmonises with the framework used at the school system or school of the interview participants and the extent to which it is expected to safeguard improved performance (Appendix 19).

The validation survey presented in Appendix 19 has 8 questions. Questions 1 and 8 are open-ended while questions 2 to 7 are closed-ended. Question 1 was included to identify the school systems and schools participating in the validation, whereas Question 8 was added to give the respondents an opportunity to express their thoughts on the Benchmarking Framework and Benchmarking Guidelines. The closed-ended questions, Questions 2 to 7, were designed on a Likert Scale. Questions 2 to 6 were designed on 3-point Likert Scale, while Question 7 was designed on 5-point Likert Scale. The Likert Scale options for Question 2 included: to a great extent, to some extent and not at all; the Likert Scale options for Questions 3 to 6 included: extremely helpful, moderately helpful and not at all helpful; and the Likert Scale options for Question 7 included: very likely, likely, neither likely nor unlikely, unlikely and very unlikely.

Five (or 21.7%) of the interview participants participated in the validation of the Benchmarking Framework and the Benchmarking Guidelines. The responses of the closed-ended questions are presented in Table 6.1, as they are important for the validation of the Benchmarking Framework and the Benchmarking Guidelines (Benchmarking Implementation Approach, Portfolio of Benchmarking Techniques and Factors Leading to Effective Benchmarking). All the school systems and schools participating in this validation recognised that they follow an approach for the learning of best practices (Question 2, Table 6.1), and considered the Benchmarking Framework extremely helpful (Question 3, Table 6.1) and the Benchmarking Guidelines moderately and/or extremely helpful in the learning and implementation of best practices and for the achievement of improved performance (Questions 4 to 6, Table 6.1). They further indicated the likelihood of using the Benchmarking Framework for the learning and implementation of best practices in future (Question 7, Table 6.1).

The feedback of school systems and schools on the Benchmarking Framework and Benchmarking Guidelines was generally positive (Question 8, Table 6.1) but this is what they said:

“It's advisable to learn from other nations as each of them is different. It's good to develop and improve teaching methods to make the lesson more interesting and motivating for the students. Both teachers and students should learn from other

countries to make the process of learning and discovering much more effective and stimulating.” (Interviewee S-9)

“We currently use provincial guidelines and ‘exemplars’ to share with students and parents how we assess but it would be so helpful if EVERYONE used them and trusted them or even better ... had their own examples.” (Interviewee S-19)

External validity in mixed methods research denotes that the results of the research apply to a larger population (Creswell & Clark, 2011). Generalisation of the research findings was not possible as the research participants were selected purposively. Nevertheless, the study has analytical generalisation, as the researcher was able to connect findings to previously established theories (Miles & Huberman, 1994) on benchmarking and its association with performance improvement.

Table 6.1 Responses of School Systems and Schools Validating the Benchmarking Framework and Benchmarking Guidelines

Closed-ended Questions Included in the Validation Survey	Participating School Systems and Schools				
	Interviewee SS-4	Interviewee S-9	Interviewee S-11	Interviewee S-16	Interviewee S-19
Is your school system’s/school’s approach to learning of best practices similar to the provided Benchmarking Framework ? (Question 2)	To a great extent	To some extent	To some extent	To some extent	To some extent
How helpful would the provided Benchmarking Framework be to achieve improved results? (Question 3)	Extremely helpful	Extremely helpful	Extremely helpful	Extremely helpful	Extremely helpful
How helpful would the provided Benchmarking Implementation Approach be to achieve improved results? (Question 4)	Moderately helpful	Extremely helpful	Extremely helpful	Extremely helpful	Extremely helpful
How helpful would the	Moderately	Extremely	Extremely	Extremely	Extremely

provided Portfolio of Benchmarking Techniques be to achieve improved results? (Question 5)	helpful	helpful	helpful	helpful	helpful
How helpful would the provided Factors Leading to Effective Benchmarking be to achieve improved results? (Question 6)	Extremely helpful	Extremely helpful	Extremely helpful	Extremely helpful	Moderately helpful
In future, would you consider using the Benchmarking Framework and the Benchmarking Guidelines for learning of best practices within your school system/school? (Question 7)	Very likely	Very likely	Likely	Likely	Likely

6.6 A Review of the Benchmarking Framework

The prime aim of the research, the development of a Benchmarking Framework for school systems and schools, has been achieved. The Framework will assist school systems and schools in the planning and implementation of benchmarking and is supported by the Benchmarking Guidelines for the optimisation of benchmarking outcomes.

The Benchmarking Framework clearly shows the steps required for conducting benchmarking, and promotes successful benchmarking through the Benchmarking Guidelines encompassing the Benchmarking Implementation Approach, the Portfolio of Benchmarking Techniques and the Factors Leading to Effective Benchmarking. It is left to the discretion of the user to tailor the benchmarking implementation according to the requirements of their school system or school.

The Framework provides a foundation for future research. More exhaustive research could be undertaken with a particular school system or school to study the applicability

of the proposed Benchmarking Framework. Proposals for future research are discussed in greater detail in Chapter 7.

6.7 Chapter Summary

This chapter integrated the findings from Chapters 2, 4 and 5 to develop the Benchmarking Framework. The need for a Benchmarking Framework was highlighted. The findings from previous chapters were discussed and inferences made. These inferences served as a foundation for the development of the Benchmarking Framework and the guidelines for its use.

Conclusively, the prime aim of the research: to develop a Benchmarking Framework has been achieved. The Benchmarking Framework will assist school systems and schools in the effective planning and/or implementation of benchmarking.

CHAPTER 7: DISCUSSION AND CONCLUSION

7.1 Introduction to the Chapter

As highlighted in the previous chapters, benchmarking is becoming an important component of improvement plans within school systems and schools, and is used for performance measurement and/or comparison and best practice learning. Due to the benefits demonstrated to be associated with the use of benchmarking, school systems and schools would benefit from a reliable method to guide the planning and implementation of benchmarking to safeguard the achievement of improved performance. The knowledge gaps identified through the literature review have led the researcher to develop nine research questions for the achievement of the research aim and the research objectives. The purpose of this chapter is to establish how each research question was answered, what emerged, and how each research objective was achieved, in addition to highlighting directions for further research.

This chapter concludes the research. Section 7.2 highlights the knowledge gaps, research questions and objectives, Section 7.3 presents the summary of the main research findings in relation to the research aim and objectives, Section 7.4 justifies the original contribution of the research, and Section 7.5 highlights future research direction in the light of the limitations of the research. Finally, Section 7.6 highlights the main findings of the research.

7.2 Knowledge Gaps and their Association with the Research

Questions and Research Objectives

The literature review indicated the use of benchmarking by school systems and schools, and identified several knowledge gaps that could be filled within a single research study (refer to Section 2.5, Chapter 2). These gaps relate to the theory and practice of benchmarking with regard to school systems and schools.

From a theoretical viewpoint, benchmarking was found to be used by school systems and schools for performance measurement and/or comparison and for the learning and implementation of best practices. However, benchmarking was used informally and there was lack of recognition of benchmarking. A number of reference sources (Voss *et al.*, 1997; Ulusoy & Ikiz, 2001; Fong *et al.*, 1998; Searles *et al.*, 2013; Mourshed *et al.*,

2010; Tucker, 2016) anticipated an association between benchmarking and performance improvement, which needed to be validated. From a practical standpoint, school systems and schools were found to obtain improved performance through the informal use of benchmarking thus recognising an opportunity to introduce them to formal benchmarking to achieve optimal results.

Having identified these knowledge gaps, the researcher proposed nine research questions that were mapped with the four research objectives (refer to Table 3.1, Chapter 3). For the convenience of the reader, the research questions and their corresponding research objectives are restated in Table 7.1 below. The overall aim of the research was to develop a Benchmarking Framework that will assist school systems and schools in the application of benchmarking approaches and guide them in the identification and implementation of best practices.

Table 7.1 Mapping of the Research Questions with Research Objectives

Research Questions	Research Objectives
RQ1: What is benchmarking?	Objective 1: To understand benchmarking and determine if it is used by school systems and schools.
RQ2: Do school systems and schools practice benchmarking?	
RQ3: To what extent is benchmarking used by school systems and schools and how effective is it reported to be?	Objective 2: Investigate the extent to which benchmarking is used by school systems and schools and its contribution to their performance. Also identify the benchmarking techniques used therein.
RQ4: Which benchmarking techniques are used by school systems and schools?	
RQ5: Which benchmarking techniques are considered to be effective for school systems and schools?	Objective 3: Determine those benchmarking techniques that have been effective contributors to the performance of school systems and schools and explore their implementation detail and reasons for effectiveness.
RQ6: How have these benchmarking techniques been implemented?	
RQ7: What are the success factors for using benchmarking effectively?	
RQ8: What is an effective way to implement each benchmarking technique?	Objective 4: Develop a benchmarking framework for school systems and schools with guidelines for its implementation.
RQ 9: Can a benchmarking framework be developed to help school systems and schools implement benchmarking effectively?	

7.3 Summary of the Main Research Findings in Relation to the Research Aim and Objectives

This section discusses the main findings in relation to the research aim and objectives and the research questions. The mapping between research questions and objectives is presented in Table 7.1. The linkages between the research problem, research aim, objectives and data collection methods are depicted in Figure 7.1. The Figure shows that a literature review, survey and structured interviews were conducted to fulfil the research aim and objectives.

7.3.1 Findings on Objective 1

Objective 1:

To understand benchmarking and determine if it is used by school systems and schools

Objective 1 was achieved by answering the first (RQ 1) and second (RQ 2) research questions (refer to Tables 7.1 and 3.1, and Figure 7.2) and was based on a review of the literature. The literature review represented the first phase of the mixed methods research approach (refer to Figure 3.1, Chapter 3).

The first research question was addressed by Section 2.2 and its corresponding sub-sections. This section described benchmarking as it was the research topic. The description included: types of benchmarking and their classification, challenges and benefits of benchmarking, and the significance of a benchmarking process.

The second research question was addressed by Sections 2.4, 2.6 and 2.7 and Appendix 2 (Chapter 2). Section 2.4 presented a review of the research studies to investigate the use of benchmarking by school systems and schools and expounded the cultural characteristics of the school sector which may impact benchmarking outcomes, Section 2.6 presented a review of case studies on school systems and schools to determine the use of benchmarking by the school sector, and Section 2.7.1 described the findings of the reviewed case studies and demonstrated the application of benchmarking by school systems and schools. The importance of benchmarking was emphasised through the number of school systems and schools participating in international performance benchmarking programs (refer to Table 2.3, Chapter 2), emerging benchmarking studies

(refer to Table 2.4, Chapter 2) and through the operation of international benchmarking consultancies (refer to Section 2.7.2, Chapter 2). Additionally, examples describing the use of benchmarking by school systems and schools were presented in Appendix 2.

In addition, objective 1 was indirectly fulfilled by the second and third research objectives. The survey conducted with school systems and schools empirically confirmed the use of benchmarking by school systems and schools for performance comparison and best practice learning (refer to Section 4.5, Chapter 4). Subsequently, the results of the structured interviews reached a similar conclusion (refer to Section 5.5, Chapter 5).

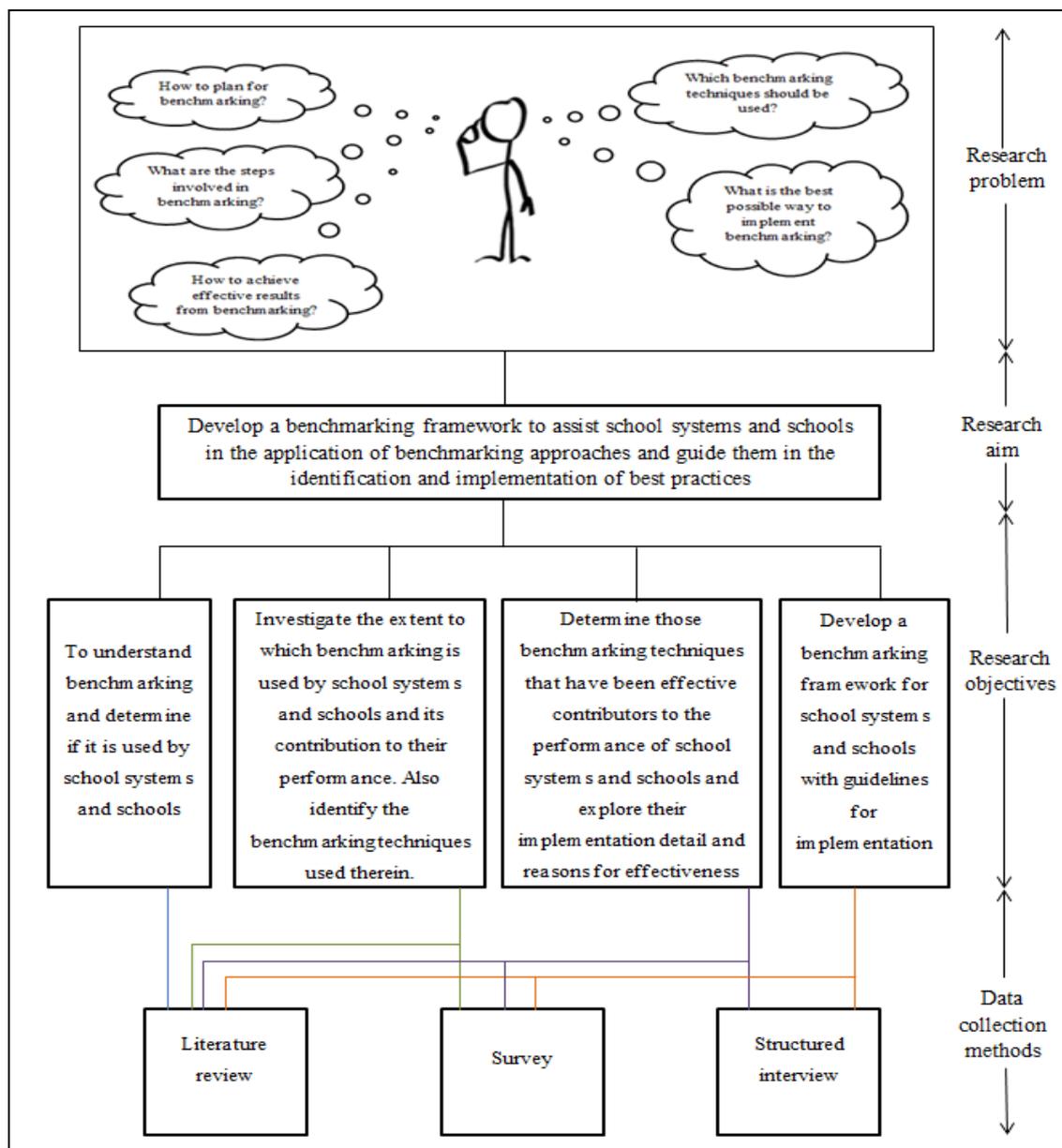


Figure 7.1 Linkages between the Research Problem, Research Aim, Objectives and Data Collection Methods

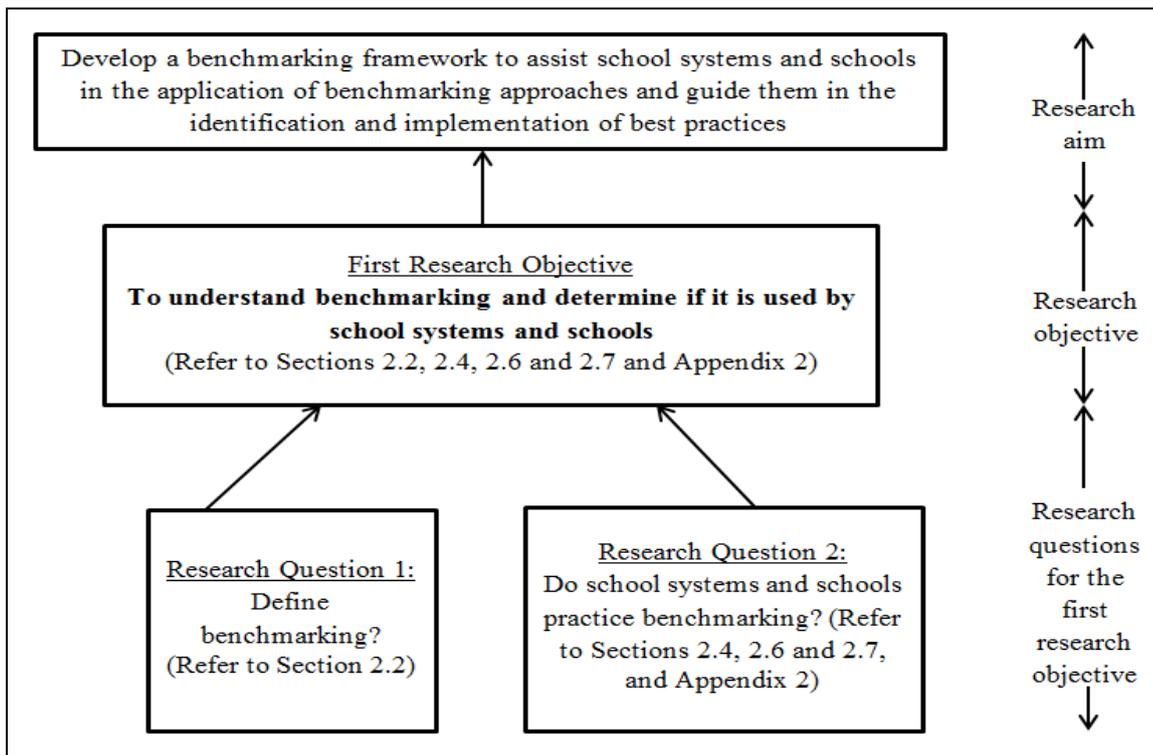


Figure 7.2 The Links between the Research Aim, First Research Objective and Research Questions Associated with the Achievement of the First Research Objective

7.3.2 Findings on Objective 2

Objective 2:

Investigate the extent to which benchmarking is used by school systems and schools and its contribution to their performance. Also identify the benchmarking techniques used therein.

Objective 2 was successfully achieved by answering the third (RQ 3) and fourth (RQ 4) research questions (refer to Tables 7.1 and 3.1, and Figure 7.3) and was based on the survey with 20 school systems and 183 schools. The survey represented the second phase of the mixed methods research approach (refer to Figure 3.1, Chapter 3).

The third research question measured the extent (or frequency) to which benchmarking was used by school systems and schools and its contribution to their performance. The survey results determined the *frequency* of benchmarking used by school systems and schools and its *effectiveness* for performance improvement. The results demonstrated that the mean *frequency* of use of benchmarking corresponded with the mean *effectiveness* of benchmarking for performance improvement (refer to Sections 4.4.2.1,

4.4.4.1 and 4.5, Chapter 4) for both school systems and schools. A significant relationship was recognised between *frequency* and *effectiveness* for schools (refer to Section 4.4.4.1, Chapter 4), and the *frequency* of use of benchmarking was found to be a contributor to the *effectiveness* of benchmarking for both school systems and schools (refer to Sections 4.4.2.1 and 4.4.4.1, Chapter 4). The purposively selected school systems and schools empirically validated the relationship between benchmarking and performance improvement in Section 4.5.

The fourth research question was answered by the recognising of benchmarking techniques used by school systems and schools (refer to Sections 4.4.2.2 and 4.4.4.2, Chapter 4). Appendix 12 presented benchmarking techniques used by school systems and Appendix 13 demonstrated benchmarking techniques applied by schools.

In addition, objective 2 was indirectly fulfilled by the third research objective (refer to Figures 5.2, 5.3 and 5.4, Chapter 5). The structured interviews assimilated the benchmarking techniques resulting in the improved performance of school systems and schools, which belonged to the list of benchmarking techniques presented in Appendices 12 and 13.

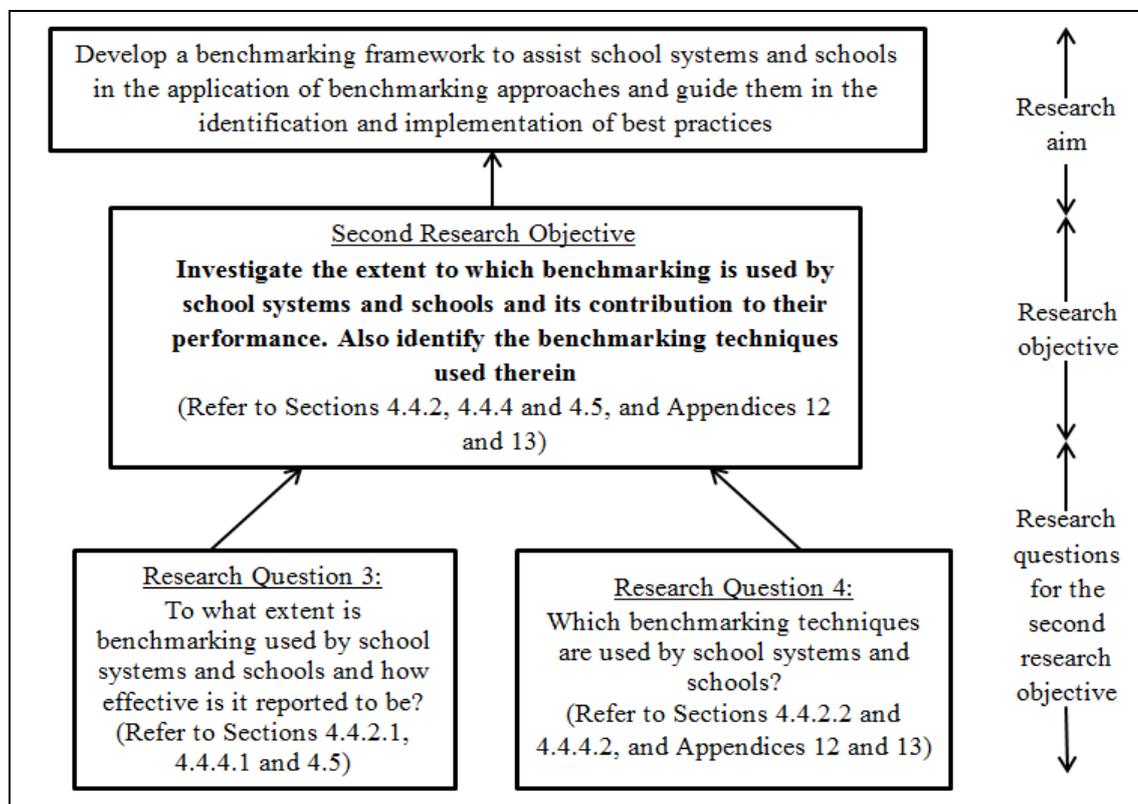


Figure 7.3 The Links between the Research Aim, Second Research Objective and Research Questions Associated with the Achievement of the Second Research Objective

7.3.3 Findings on Objective 3

Objective 3:

Determine those benchmarking techniques that have been effective contributors to the performance of school systems and schools and explore their implementation detail and reasons for effectiveness

Objective 3 was achieved by answering the fifth (RQ 5), sixth (RQ 6) and seventh (RQ 7) research questions (refer to Tables 7.1 and 3.1, and Figure 7.4) and was based on the structured interviews with 4 school systems and 19 schools. The structured interviews represented the third phase of the mixed methods research approach (refer to Figure 3.1, Chapter 3).

The fifth research question was answered by identifying benchmarking techniques resulting in the improved performance of school systems and schools (refer to Figures 5.2 and 5.3, Chapter 5) and by presenting a classification scheme of benchmarking techniques for the school sector (refer to Figure 5.4, Chapter 5).

The sixth research question was answered by exploring the implementation detail of benchmarking techniques resulting in improved performance and this exploration was based on the themes presented in Table 5.1. These themes represent the main steps of a benchmarking process (refer to Table 5.2, Chapter 5). The exploration of benchmarking techniques revealed that systems and schools achieved improved performance through the informal use of benchmarking (Sections 5.4.2.1, 5.4.4.1 and 5.5, Chapter 5).

The seventh research question was answered by recognising factors that have enabled school systems and schools to achieve improved performance through the application of benchmarking (refer to Sections 5.4.2.2 and 5.4.4.2, Chapter 5). Some of these factors were also contributed to and validated by the literature and the survey findings (refer to Section 5.5, Chapter 5). In total, fifteen factors were recognised as contributing to the effectiveness of benchmarking. The significance of these factors was validated by the school systems and schools interviewed (Table 5.11 and Figure 5.5, Chapter 5).

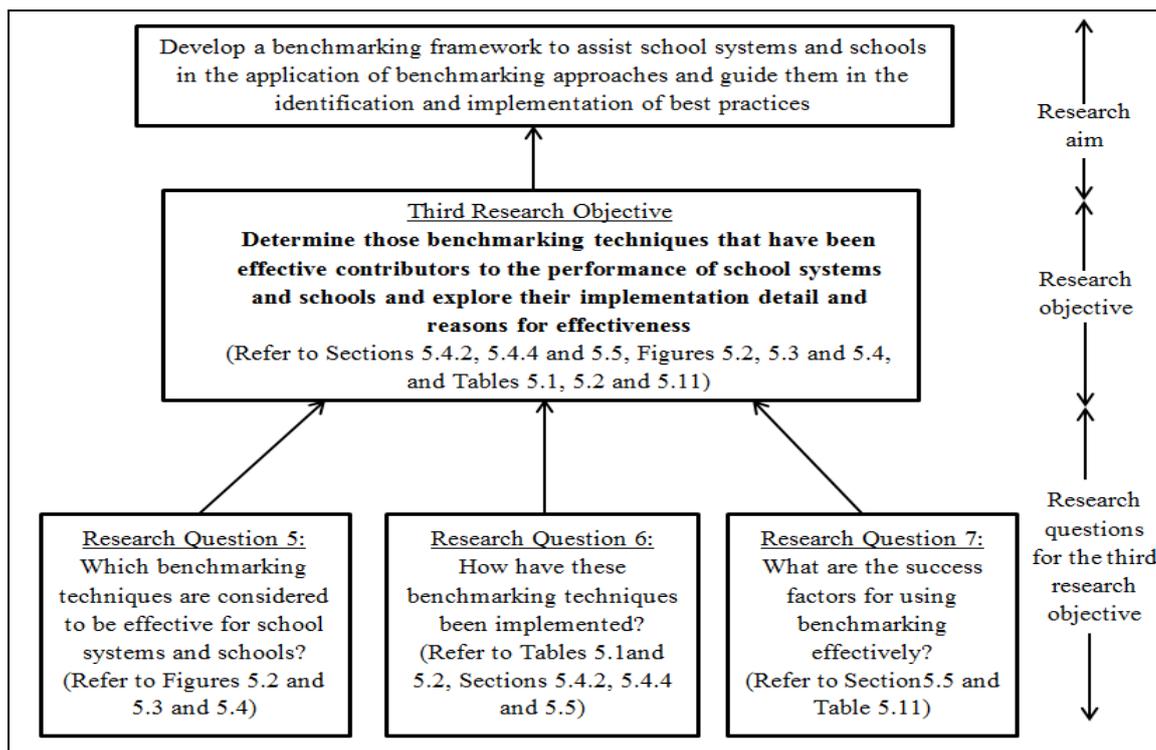


Figure 7.4 The Links between the Research Aim, Third Research Objective and Research Questions Associated with the Achievement of the Third Research Objective

7.3.4 Findings on Objective 4

Objective 4:

Develop a benchmarking framework for school systems and schools with guidelines for its implementation

Objective 4 was successfully achieved by answering the eighth (RQ 8) and ninth (RQ 9) research questions (refer to Tables 7.1 and 3.1, and Figure 7.5) and was accomplished by integrating the findings from the literature review, survey and structured interviews (refer to Figure 1.2, Chapter 1). Objective 4 was intended to develop a Benchmarking Framework for school systems and schools with the guidelines for its use, and represents the fourth phase of the mixed methods research approach (refer to Figure 3.1, Chapter 3). The achievement of objective 4 enabled the researcher to achieve the prime aim of the research (refer to Figure 7.1).

The eighth research question was answered by developing the Benchmarking Guidelines encompassing the Benchmarking Implementation Approach, the Portfolio of Benchmarking Techniques and the Factors Leading to Effective Benchmarking (refer to Section 6.4.2, Chapter 6). The Benchmarking Implementation Approach is the

benchmarking process recommended for the school sector and was developed to assist in the application of benchmarking for the identification and implementation of best practices (refer to Section 6.4.2.1, Chapter 6). This benchmarking process could be used both formally and informally and is expected to produce improved performance for school systems and schools. A school system or school can implement benchmarking formally by adhering to the Benchmarking Implementation Approach, and informally by following the steps prescribed in the Benchmarking Implementation Approach without actually following the approach.

To support benchmarking implementation, the Portfolio of Benchmarking Techniques was developed to present descriptions of benchmarking projects (refer to Section 6.4.2.2, Chapter 6) and benchmarking techniques with examples (refer to Appendix 18). In addition, the Benchmarking Implementation Approach is overarched by the Factors Leading to Effective Benchmarking (refer to Section 6.4.2.3, Chapter 6). As these factors were demonstrated as contributing towards an improvement in performance, recommendations have been presented to promote these factors within school systems and schools (refer to Section 6.4.2.3, Chapter 6).

The ninth research question was answered by developing the Benchmarking Framework and the guidelines for its implementation. The Benchmarking Framework has been developed to assist school systems or schools in the planning and implementation of benchmarking (refer to Section 6.4.1, Chapter 6). As mentioned earlier, the guidelines, called the Benchmarking Guidelines, have been developed to assist in the implementation of benchmarking. The Benchmarking Guidelines were developed because it was identified from the literature (Mourshed *et al.*, 2010; OECD, 2011a; Searles *et al.*, 2013; Elmuti & Kathawala, 1997) that it is not the benchmarking technique but its implementation approach that contributes to successful benchmarking. It is envisaged that school systems and schools will achieve improved performance when benchmarking is planned and implemented by following the Benchmarking Framework and Benchmarking Guidelines.

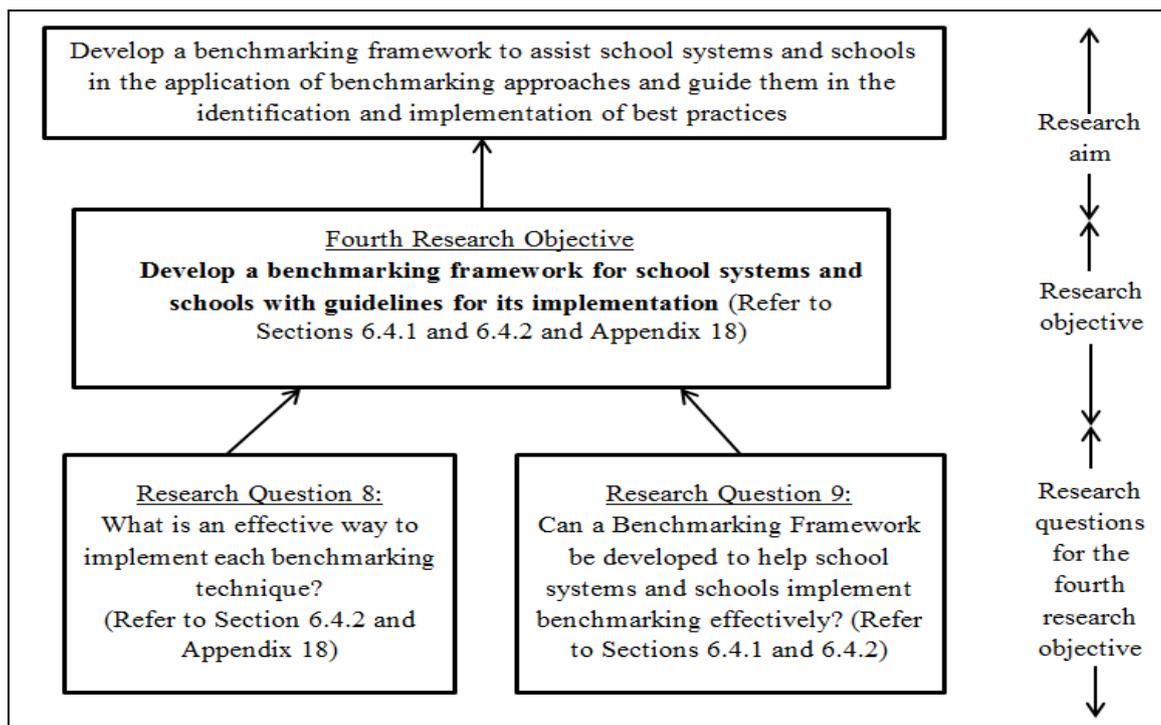


Figure 7.5 The Links between the Research Aim, Fourth Research Objective and Research Questions Associated with the Achievement of the Fourth Research Objective

7.4 Justifying the Research Contribution

The theoretical and practical contributions of this research were communicated at the beginning of the thesis (refer to Section 1.4, Chapter 1). Now, the researcher justifies how these contributions have been made.

7.4.1 The Theoretical Contribution

This research used a comprehensive mixed methods research approach to determine the use of benchmarking by school systems and schools. This approach incorporated multiphase concurrent and sequential data collection, comprising an extensive literature review, an online questionnaire survey and structured interviews (refer to Figure 3.1 and Section 3.4, Chapter 3).

As mentioned elsewhere, school systems and schools are using benchmarking but they do not recognise it by its name. During this research, the application of benchmarking was investigated through alternative terms, such as ‘How does your school system/school learn from other school systems/schools?’ and ‘How does your school system/school collaborate with other school systems/schools?’ as school systems and schools were not familiar with the methodology of *benchmarking*. The application of benchmarking by school systems and schools was recognised through the literature and

validated from the findings of the survey and structured interviews. Benchmarking was recognised to be used for performance measurement and/or comparison and for the learning and implementation of best practices (refer to Sections 2.4, 2.5, 2.7, 4.5 and 5.5). Through the publication of this thesis, the use of benchmarking by school systems and schools will be given its due recognition.

In addition, a number of reference sources (Mourshed *et al.*, 2010; Tucker, 2016; Voss *et al.*, 1997; Ulusoy & Ikiz, 2001; Fong *et al.*, 1998; Searles *et al.* 2013) predicated an association between benchmarking and performance improvement, which was the theoretical underpinning of the preliminary conceptual model (refer to Figure 2.3, Chapter 2). Through this research, the relationship between benchmarking and performance improvement was empirically validated for school systems and schools (refer to Sections 4.5 and 5.5 and Figure 6.1).

7.4.2 The Practical Contribution

Over the course of the research, the researcher spoke to Ministry officials, school heads, educationists, researchers and benchmarking experts. They all confirmed that the research was of great importance and they would like to be involved/stay updated and have access to the research outcome - the Benchmarking Framework. A similar eagerness was witnessed through discussions with educational consultants who showed their willingness to apply the Framework.

The researcher developed the Benchmarking Framework to facilitate school systems and schools in the planning and application of benchmarking. This Framework provides practical advice on conducting benchmarking and is supplemented with Benchmarking Guidelines for assisting school systems and schools in identifying and implementing best practices for the achievement of improved performance.

The value of the Benchmarking Framework can be substantiated from the opinion of the research participants. Interviewee S-1, who was the head of Early and Junior Years at an Australian college, acknowledged that participation in this research enabled her to recognise the need for a formal process of reflection to conduct a cost/benefit analysis to evaluate the outcomes of benchmarking. In addition, a member of a school's board of trustees contacted the researcher to ask for guidance for the effective operation of an existing benchmarking project. These reflections indicate that the research is practical and the Benchmarking Framework has a high possibility of being used by many school

systems and schools for the application of benchmarking. Most importantly, the research participants validated the importance of the Benchmarking Framework and indicated their likelihood of using it in future (refer to Section 6.5, Chapter 6).

7.4.3 Original Contribution to Knowledge

To maximise the contribution to knowledge, the research findings were shared with research participants in the form of reports (refer to Appendices 8 and 9). Within the duration of the study, the research findings were presented at the World Quality Day of New Zealand Organisation for Quality (NZOQ), and were published in the eQuality Edge Newsletter of the South African Quality Institute (SAQI) and the SQI Newsletter of the Singapore Quality Institute. In addition, the research was published in the proceedings of the 18th QMOD conference and NZARE conference (Table 7.2).

Table 7.2 Methods Used to Disseminate Research Findings

Serial Number	Method Adopted for the Dissemination of Research Findings	Title of Poster/ Paper/Abstract/Manuscript
1	Poster presentation (NZOQ World Quality Day 2015)	Development of a framework to assist educationists and schools on sharing strategies and application of best practices
2	Conference proceedings (Proceedings of the 18 th QMOD Conference 2015)	Benchmarking for education systems: initial findings from a global study
3	Conference proceedings (Proceedings of the NZARE Conference 2016)	Development of a framework to assist educationists and schools on sharing strategies and application of best practices
4	South African Quality Institute Newsletter (SAQI e-Quality Edge No 201, July 2016)	Benchmarking in educational systems
5	Singapore Quality Institute Newsletter (SQI 2017)	Benchmarking in educational systems
6	Research paper (in process for submission)	Benchmarking- the perspective of school systems and schools
7	Submitted for publication to the International Journal of Productivity and Performance Management	Rapid benchmarking: the case of a dairy company

7.5 Limitations and Suggestions for Future Research

The research was probably the first study of the application of benchmarking by school systems and schools and the first to develop a Benchmarking Framework to facilitate school systems and schools in the identification and implementation of best practices. However, there were several limitations that could be improved in future.

Firstly, there is limited published literature where the use of benchmarking by school systems and schools is labelled as *benchmarking*. Due to this limitation, it was challenging for the researcher to obtain the relevant literature. However, the publication of this research would significantly contribute to the literature on the use of benchmarking by the school sector.

Secondly, it was not possible to include all school systems and schools. The research has been conducted with school systems and schools using benchmarking. In future, it is recommended to either study school systems and/or schools not included in this research or to undertake a case study research on some specific school systems and/or schools, to develop a greater understanding of benchmarking application within those school systems and/or schools.

Thirdly, the selection of school systems and schools for participation in the research was done purposively and the findings are representative of the research sample. In future, it is recommended to select school systems and schools randomly to gain a better understanding of the awareness of benchmarking and to measure its relative significance.

Fourthly, triangulation is embedded in the research design at meta-analysis. The data from each phase were self-reported and were not triangulated with empirical evidence from the research participants. In future, it is recommended to validate data from each phase through triangulation.

Fifth, the survey sample included 20 school systems. It was a small sample and provided limited options for statistical analysis. In future, it is recommended to involve a larger number of school systems to conduct a detailed statistical analysis to study the relationship between benchmarking and performance improvement.

Sixth, the survey was not translated into the native language of the research participants. As a result, the non-English speaking participants designated their English teachers to participate in the research. In future, it is recommended to translate the survey into native languages of research participants for greater participation and convenience.

Seventh, only four school systems participated in the structured interviews compared to 19 schools. Interviews with such a limited number of school systems created a challenge for the researcher in pulling out sub-themes from the interview data. In future,

it is recommended to involve a greater number of school systems for easier categorisation of data.

Next, the online questionnaire development software, SurveyMonkey, was adopted to develop questionnaires for the survey. Since some specific features were required for the development of questionnaires, such as hovering over a question for a popup information box and disabling certain drop-boxes based on previous responses, the SurveyMonkey team was contacted to access these features. The team indicated an absence of such features but assured the forwarding of these suggestions to the development team to consider incorporating them in future.

Finally, the Benchmarking Framework was not validated by a school system/school due to the considerable amount of time required for undertaking benchmarking and obtaining results. However, feedback on the structure and usefulness of the Benchmarking Framework was obtained from the research participants. In future, it is recommended to validate the Benchmarking Framework and its effectiveness for a school system/school by applying it for an actual benchmarking project.

7.6 Chapter Summary

This chapter has discussed the summary of the main research findings, the contributions and limitations of the research along with suggestions for future research. Generally, this research revealed the following main findings:

Benchmarking is informally used by school systems and schools for performance measurement and/or comparison and for the learning and implementation of best practices. School systems and schools use benchmarking to learn best practices from other school systems, schools, sectors and organisations and also for the learning and sharing of best practices between teachers.

School systems and schools are interested in benchmarking as it is demonstrated to contribute towards improvement in performance. Benchmarking is used by at least 20 school systems and 183 schools with the prime purpose of performance improvement. A relationship between benchmarking and performance improvement has been validated through the research and benchmarking has been found to be used primarily for the improvement of academic performance.

Several benchmarking techniques have been demonstrated as being used by school systems and schools for performance comparison and best practice learning. It has been found that none of the benchmarking techniques is more effective than any of the others, and the effectiveness of a benchmarking technique depends upon the adopted benchmarking process. Therefore, a Benchmarking Framework has been developed to assist school systems and schools in the application of benchmarking approaches and guide them in the identification and implementation of best practices.

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APPENDICES

APPENDIX 1 GLOSSARY OF TERMS

Academic Performance

Academic performance is measured by processes dealing with the generation and dissemination of knowledge to enhance the academic learning of a school. These processes are likely to include pedagogical strategies.

Academic Work Practices

Academic work practices deal with the generation and dissemination of knowledge for processes intended to enhance the academic performance of a school system or school. For school systems, these activities are likely to include pedagogical strategies and IT (Information Technology) services provided to support teaching and learning etc. For schools, these activities are likely to include pedagogical strategies and other activities related to sharing of knowledge and information.

Holistic Learning

Holistic learning deals with all-around/comprehensive learning of students. For survey with school systems, it excludes academic learning, and focuses on learning opportunities supported and promoted by school system(s) in such areas as sports, student clubs, instrument playing, art, outdoor education (i.e. camping, scouting etc.) and community services. For survey with schools, it excludes academic learning and focuses on learning opportunities dealing with social, mental and physical aspects supported and promoted by a school in such areas as social interactions, community services, sports, student clubs, instrument playing, art, outdoor education (i.e. camping, scouting etc.).

Ministry of Education or School Board

Ministry of Education or School Board is the body governing an autonomous education system.

Non-Academic Performance

Non-academic performance is measured by processes dealing with the generation and dissemination of knowledge to support/facilitate academic learning of a school. These processes are likely to include strategic planning; developing leadership capabilities; human resources, such as recruitment, retention, managing workforce; financial support; library; IT support service etc.

Non-Academic Work Practices

Non-academic work practices deal with the generation and dissemination of knowledge for processes intended to support/facilitate academic learning of a school system or

school. These activities are likely to include strategic planning; developing leadership capabilities; human resources, such as recruitment, retention, managing workforce; financial support; library; IT support service etc.

Organisations

Organisations are companies not involved in teaching and learning, and also include industry.

Participant

A person who answers the questions, usually in an interview or group interview.

Policies

Policies are clear and simple statements about what the school system intends to achieve over a period of time and how.

Potential Respondent

Respondent is someone who participates in a quantitative study by responding to a quantitative research instrument, such as questionnaire. Potential respondents include school systems and schools using benchmarking and interested in participating in the research.

Reforms

Reforms mean intended changes to the education system in order to improve its performance. Reforms could be in the form of interventions, initiatives and improvements.

School

A school is an institution having a systematic way of teaching. They can either be state administered or independently functioning entities.

School System

A school system is a country or, state or district within a country having an autonomous education system.

Sectors

Sectors refer to institutes providing a different level of education i.e. tertiary institutes.

Stakeholder

A stakeholder is an individual who is significantly affected by the outcomes of the Benchmarking Framework and the research in general, such as users (school systems and/or schools), researchers and community of practice (educationists and benchmarking experts).

Well Performing School Systems and Schools

School systems and schools performing well in national and/or international performance assessment programs and/or displaying a sustained improvement in performance, otherwise called well performers and/or sustained improvers.

APPENDIX 2

EXAMPLES DESCRIBING THE USE OF BENCHMARKING BY SCHOOL SYSTEMS AND SCHOOLS

Serial Number	Examples Describing the Use of Benchmarking	Level of Use of Benchmarking	Benchmarking Classification (Formal/Informal)	Description of Examples Describing the Use of Benchmarking	Source of Examples
1	Performance comparison through international assessments	SS-SS* S-S**	Informal	A learning approach used by a school system or school in which performance benchmarks are collected and compared and improvement gaps identified. Typically a process of brainstorming solutions and implementation follows.	PISA (OECD, 2013); TIMSS and PIRLS (IEA, 2017b) For explanation see Section A2.1
2	Joint venture Schools; Pairing-off; Sister schools	S-S	Informal	A learning approach in which schools collaborate and learn best practices from each other through a Ministry promoted collaboration.	Shanghai (OECD, 2011a, 2011b) For explanation see Section A2.2
3	Consortium of schools; Empowered administration	S-S	Informal	A learning approach in which a cooperative agreement is signed between schools, or schools and educational institutes for sharing best practices for improving student learning.	Shanghai (OECD, 2011a, 2011b); New Zealand (Ministry of Education, 2017d) For explanation see Section A2.3
4	International exchange and cooperation; Learning from other systems and/or schools	SS-SS S-S	Informal	A learning approach in which a school system or school assists or gets assistance from another school system or school (local/international). The improvement strategies of a well performing school system or school are studied and lessons learned.	Singapore (OECD, 2011a, 2011d); Hong Kong (NCEE, 2015); For explanation see Section A2.4
5	Cluster of schools; Communities of schools	S-S	Informal	A collaborative learning approach involving two or more schools. Often, as a part of this approach experienced teachers of participating schools share their knowledge and expertise.	Shanghai (OECD, 2011a, 2011b); Portugal (OECD, 2011c); Hong Kong (OECD, 2011a); Sahlberg (2006); Ministry of Education (2017b; 2017c) For explanation see Section A2.5
6	Retreat for reform awareness	S-S	Informal	A learning approach adopted by a school system for ensuring awareness of reforms in schools by providing an opportunity to schools to discuss and exchange strategies for reform implementation. This technique serves as a means of learning between schools and Ministry representatives.	Hong Kong (OECD, 2011a) For explanation see Section A2.6

7	Collaboration and sharing	S-S T-T***	Informal	A collaborative learning approach in which in-school or between schools sharing of best practices takes place through seminars and/or school visits and/or sharing sessions. Consequently, teachers participating in the above learning activities share their learnings with counterparts through various means (e.g. lesson observation).	Hong Kong (OECD, 2011a; Education Bureau, 2013a); Shanghai (OECD, 2011a) For explanation see Section A2.7
8	Principal/Teacher transfer	S-S	Informal	An approach adopted by a school system or school in which the Principal and/or teachers are transferred between schools to ensure continuous learning and improvement of schools through learning and sharing of best practices.	Singapore (OECD, 2011a, 2011e); Shanghai (OECD, 2011a) For explanation see Section A2.8
9	Intensive teacher development; Teacher practice	T-T	Informal	A teacher development approach in which teachers studying towards the teaching profession are developed through practical teaching under the guidance of an experienced teacher.	Shanghai (OECD, 2011a, 2011b); Singapore (OECD, 2011a, 2011d, 2011e); Japan (OECD, 2011a); Barber and Mourshed (2007) For explanation see Section A2.9
10	Demonstration Lesson	T-T	Informal	A learning approach promoted by a school for teacher development. In this approach, a senior/expert teacher demonstrates lesson to another teacher(s).	Shanghai (OECD, 2011a); Japan (OECD, 2011a); Barber and Mourshed (2007); Tucker (2016) For explanation see Section A2.10
11	Visit by external teacher(s)	S-S T-T	Informal	An improvement approach in which an external teacher is invited to observe lesson(s) and provide feedback highlighting potential areas for improvement.	Japan (OECD, 2011a) For explanation see Section A2.11
12	Best practice visit	SS-SS S-S	Informal	An improvement approach in which representatives from a school system or school visit another school system or school for learning best practices specific to the area of learning.	Singapore (OECD, 2011a); Tucker (2016) For explanation see Section A2.12
13	Learning from research	SS-SS	Informal	A learning approach in which a school system or school learns best practices from latest research in the field.	Singapore (OECD, 2011a, 2011e) For explanation see Section A2.13
14	Peer coaching	T-T	Informal	A learning approach in which teachers learn best practices from each other by observing each other in class. In particular, novice teachers are supported in lesson planning by providing them an opportunity to observe senior staff members during class.	Shanghai (OECD, 2011b); McGee (2004) For explanation see Section A2.14
15	Observations (for appraisal)	T-T	Informal	An improvement approach in which lessons are observed by the Principal and/or senior teacher or another teacher for identifying strengths and weaknesses in teaching	Shanghai (OECD, 2011b); Barber and Mourshed (2007); Tucker (2016) For explanation see Section A2.15

				methodology, followed by suggestions for improvement.	
16	Collaborative lesson planning and knowledge sharing	T-T	Informal	A collaborative learning approach in which teachers cooperate for lesson planning, particularly expert and novice teachers. This strategy is very effective for development of novice and underperforming teachers.	Shanghai (OECD, 2011a, 2011b); Japan (OECD, 2011a); Mc Gee (2004) For explanation see Section A2.16
17	Teacher-led workshops (or team teaching)	T-T	Informal	An improvement strategy in which one teacher teaches and the other teachers observe. This strategy ensures professional enhancement and learning of best practices through professional dialogue.	Singapore (OECD, 2011e; Academy of Singapore Teachers, 2012b) For explanation see Section A2.17
18	Appointment of consultant	T-T	Informal	An approach in which an experienced teacher is appointed as consultant to support teachers' learning. The consultant shares effective teaching strategies through methods, such as observations and workshops.	Shanghai (OECD, 2011a, 2011b) For explanation see Section A2.18
19	Face-to-face training; Mentoring	T-T	Informal	A learning approach in which face-to-face training programs are organised for teachers. The trainings are conducted by a senior teacher(s) for Professional Development through sharing of best practices.	Singapore (OECD, 2011e); Tucker (2016); Barber and Mourshed (2007) For explanation see Section A2.19
20	Online learning platform	T-T	Informal	A learning approach in which a website is developed to facilitate teachers to share and learn best practices.	Shanghai (OECD, 2011b); Singapore (Academy of Singapore Teachers, 2012a; Ministry of Education, 2014) For explanation see Section A2.20
21	Professional Learning Communities (PLC)	T-T	Informal	A learning approach in which a platform is provided for professional enhancement of teachers, to discuss and share expertise and to learn from each other.	Singapore (OECD, 2011e) For explanation see Section A2.21
22	Best practice meetings	T-T	Informal	A learning approach through which meetings are organised for teachers to promote learning and sharing of new knowledge. Meetings may be conducted on weekly or monthly basis, or on the basis of need.	Japan (NCEE, 2017a); Tucker (2016) For explanation see Section A2.22
23	Learning from other organisations	SS-O****	Informal	A learning approach in which a school system or school develops contact with other organisations (i.e. research institutes) for improving their education system.	Singapore (Poon <i>et al.</i> , 2017); MCPS (MCPS, 2010) For explanation see Section A2.23
24	Learning from other sectors	S-Sec*****	Informal	A learning approach in which a school system or school establishes relations with relevant sectors (i.e. tertiary institutes) to assess/enhance the effectiveness of their education system for meeting future needs.	MCPS (MCPS, 2010) For explanation see Section A2.24

Key:

SS-SS*	School systems learning from other school systems
S-S**	Schools learning from other schools
T-T***	Teachers learning from other teachers
SS-O****	School systems learning from other organisations
S-Sec*****	Schools learning from other sectors

Section A2.1: Performance Comparison through International Assessments

The Program for International Student Assessment (PISA) is an international assessment program for performance comparison of school systems and schools (OECD, 2013). The PISA result enables school systems and schools to identify good performers for learning their best practices.

Section A2.2: Joint Venture Schools; Pairing-off; Sister Schools

Amongst the studied school systems, this technique is followed by Shanghai. In this technique education authorities of urban districts sign an agreement with education authorities of rural districts (OECD, 2011a, 2011b). Through this agreement the authorities discuss and exchange their educational development plans and join hands to deal with core issues.

Section A2.3: Consortium of Schools; Empowered Administration

This technique is named 'Empowered Administration' in Shanghai and is a novel approach to improve academic and administrative quality of weaker schools (OECD, 2011a, 2011b). In this technique, a stronger school or an education institute, composed of retired principals and teachers, is contracted to strengthen a weak school. The stronger school or education institute provides pedagogical and administrative guidance by signing a cooperative agreement with the less-performing school. Empowered administration involves four partners; the Shanghai municipal government, the external partner (school or education institute), the district education authority to finance this project and an external evaluation body to independently assess the results of the project. The stronger school or the education institute sends a good management team to the lesser-performing school for guiding teachers and for sharing experience with them.

Section A2.4: International Exchange and Cooperation; Learning from other Systems or Schools

This is how this technique is followed in Singapore. The principals and teachers scan the globe for relevant best practices and evaluate how those best practices could be adopted for use in their school system (OECD, 2011a, 2011d). Learning of best practices could take place in many ways, such as visits, online interactions, and video conferencing. The learning is followed on with adapting the identified best practices to local context and implementing them well.

Section A2.5: Cluster of Schools; Communities of Schools

This technique is used by Portugal, Shanghai and Hong Kong. This technique is called Consortium of schools in Shanghai (OECD, 2011a, 2011b). Through Consortium of Schools, strong and weak schools, old and new schools, public and private schools are grouped into a consortium or cluster with one strong school at the core. This arrangement enables schools to get together to learn from each other's good practices. In clusters, teachers share ideas and gain from each other's experience.

Section A2.6: Retreat for Reform Awareness

This is how this technique is followed in Hong Kong. After the introduction of new reforms, meetings are held between Curriculum Development Institute or Education Ministry and schools (OECD, 2011a). Representatives from a fixed number of schools gather for a whole day. Each delegation has 6 members: the supervisor, one school board member, the Principal, the Vice-principal and two senior teachers. The Curriculum Development Institute then outlines the curriculum reform, and each school delegation discusses their initial strategies for implementing the reform. The school groups then exchange views. Such sessions are held until all the schools have participated. Retreat enables schools to share strategies for implementing newly developed education reforms.

Section A2.7: Collaboration and Sharing

This technique is followed in Shanghai and Hong Kong. In Hong Kong this technique is known as 'Regional Network among Schools' (OECD, 2011a; Education Bureau, 2013a). Regional school networks are developed for promoting regular activities, such as thematic seminars, school visits, experience sharing gatherings and best practice sharing sessions for heads and management of schools. Later, the heads and management share the acquired learnings with teachers in their own schools through collaborative lesson planning and peer lesson observation.

Section A2.8: Principal/Teacher Transfer

This technique is followed in Singapore in which principals are transferred periodically between schools for their continuous learning and development (OECD, 2011a).

Section A2.9: Intensive Teacher Development; Teacher Practice

In Japan, novice teachers are prepared through a rigorous induction program that lasts a full year. The induction enables novice teacher to work closely with an experienced teacher for their professional growth and development (OECD, 2011a).

Section A2.10: Demonstration Lesson

This technique is followed in Shanghai and Japan. In Shanghai, a good teacher demonstrates to peers how a good class is supposed to be and prepares a lesson plan, demonstrating from the first moment of the class to the last moment, the whole process (OECD, 2011a). This technique serves as a means to elevate professional level of teachers.

Section A2.11: Visit by External Teacher

This is how this technique is followed in Japan. Teachers from other schools are invited to visit the school and observe the lesson being taught and rate the lesson (OECD, 2011a). This technique acts as a means to learn strengths and opportunities for improvement.

Section A2.12: Best Practice Visit

In Singapore, it is a common practice to visit other school systems to learn international best practices (OECD, 2011a). Such visits are organised by the Ministry, National Institute of Education, and the schools.

Section A2.13: Learning from Research

During the early development phase of Singaporean education system, the school system developed its mathematics curriculum after reviewing research and practices from around the world (OECD, 2011a, 2011e).

Section A2.14: Peer Coaching

This technique is used in Shanghai. Teachers learn from their colleagues (and seniors) by observing them during class (OECD, 2011b).

Section A2.15: Observations (for Appraisal)

This is how this technique is followed in Shanghai. A senior teacher observes another teacher(s) in class for identifying areas for improvement (OECD, 2011b). Before the observation, both the teachers together plan a lesson and identify the objectives of the lesson. The senior teacher then observes the teacher in class to ascertain the achievement of planned objectives.

Section A2.16: Collaborative Lesson Planning and Knowledge Sharing

This technique is used by Shanghai, Singapore and Japan. This is how it is followed in Shanghai. Old and young teachers work together to design a standard lesson plan that can be followed by other teachers (OECD, 2011a, 2011b). Afterwards, one teacher from the group teaches the lesson to her students while the rest observe. In the end, the group meets again to evaluate the lesson and make suggestions for improvement.

Section A2.17: Teacher-led Workshops (or Team Teaching)

This is how this technique is followed in Singapore. The experienced teachers hold workshops to guide and support novice teachers in improving their teaching methodologies and for overcoming pedagogical issues (OECD, 2011e; Academy of Singapore Teachers, 2012b).

Section A2.18: Appointment of Consultant

In Shanghai, consultants from independent educational institutes are appointed to support teachers (OECD, 2011a, 2011b). These consultants are experienced teachers and/or principals that support teachers in lesson planning and class demonstration. Later, the consultants observe teachers and indicate areas of improvement.

A2.19: Face-to-face Training; Mentoring

This technique is known as ‘Mentoring’ in Singapore (OECD, 2011e). When a new teacher enters the teaching profession, he/she is attached with a senior teacher having more than 5 years’ experience to guide them through the profession.

A2.20: Online Learning Platform

This is how this technique is used in Singapore. In order to support continuous learning and improvement, a common body in the form of a website called *Academy of Singapore Teachers* has been put in place (Academy of Singapore Teachers, 2012a; Ministry of Education, 2014). This website acts as a means of sharing best practices among teachers.

A2.21: Professional Learning Communities (PLC)

This is how this technique is followed in Singapore. In 2009, the Ministry of Education introduced the concept of Professional Learning Communities (PLC) to schools (OECD, 2011e). The PLC provides a forum where teachers share and learn from each other with the specific intent of enhancing student learning. Through continuous dialogue and feedback, teachers improve their classroom skills and stay up-to-date with professional practices. The focus of PLC is to develop new pedagogy to engage the students. The PLC also involves lesson observation and reflection.

A2.22: Best Practice Meetings

Although this technique would be used by most school systems, among the studied school systems this technique is explained with reference to Japan. In Japan, regular weekly meetings are held between the head teachers or the Principal and teachers for cooperatively resolving issues related to schools (NCEE, 2017a).

A2.23: Learning from Other Organisations

The Singaporean Ministry of Education develops partnerships with research institutes at national level, such as Agency for Science, Technology and Research (A*STAR); industry; institutes for higher education; and the Singapore Science Centre to design programs for students at all levels (Poon *et al.*, 2017).

A2.24: Learning from Other Sectors

Montgomery County Public Schools have developed partnership with the Montgomery County Business Roundtable for Education (MCBRE) (MCPS, 2010). This partnership promoted cross-sector knowledge sharing and academic excellence.

APPENDIX 3
RESEARCH INTRODUCTION AND CONTACT DEVELOPMENT (SAMPLE)

Dear Respondent,

I am a PhD researcher at Massey University, New Zealand, pursuing research on the effectiveness of benchmarking (learning from others) for the education sector. I am interested to study how high performing school systems and schools have achieved their stature and to share these secrets with others through the development of a Benchmarking Framework. I discussed my research with Andreas Schleicher (Division Head and coordinator of the OECD Programme for International Student Assessment) and he considered it to be a valuable and interesting contribution. I would like to have your views on it and for that I have attached an overview of my research. Your views will be helpful for directing my research.

Kindly answer the following questions:

- Do you think the research will be beneficial to school systems and schools?
- Do you think the research will help school systems and schools elevate their position on international assessments?
- Do you think the research is heading in the right direction?
- Will you be willing to support and participate in this research?

Your response would be highly appreciated.

Yours faithfully,
Rubab Malik

APPENDIX 4

QUESTIONNAIRE FOR THE SURVEY WITH SCHOOL SYSTEMS



School System Questionnaire

How do School Systems Learn from Each Other

I am Mrs. Rubab Malik, a doctoral student, from Massey University, New Zealand pursuing research under the supervision of Dr Robin Mann (r.s.mann@massey.ac.nz) and Associate Professor Nigel Grigg (n.grigg@massey.ac.nz). This questionnaire is a part of doctoral research conducted at the Centre for Organizational Excellence Research, Massey University.

The purpose of this questionnaire is to understand how school systems (countries or regions within countries) around the world learn from each other in terms of strategies, structures and processes to produce the best educational outcomes. This research is potentially very important as it has been shown that schools and school systems that learn and improve their processes by capturing ideas and techniques from other schools and school systems achieve better educational outcomes. This research will assist all school systems and your school system to

- More effectively use benchmarking as a means to learn from other school systems
- More effectively advise and encourage schools within your school system to use benchmarking and collaboration techniques

The questionnaire is designed to collect responses from the persons involved in the development of policy and strategy at the Ministry of Education. The questions are framed around how school systems learn from other school systems and how school systems support learning of their schools.

Section One of the questionnaire covers general information about the respondent and his/her school system while **Section Two** cover questions about the performance of school system over the last five years. It would require 40 minutes of your time to complete the whole questionnaire including the descriptive questions. But if you cannot spare 40 minutes just fill the quantitative part, which will take no more than 20 minutes of your time.

Participation in this questionnaire is voluntary and responses will be kept completely confidential. Participation in this questionnaire would act as a valuable means of supporting the education sector through sharing various techniques on learning among school systems. **I would be delighted to share a summary on the main findings of this questionnaire with you.** The summary will be ready by the end of September 2015.



This research is conducted in accordance with Massey University Human Ethics Committee guidelines on low risk research. If you have any queries on completing the questionnaire do not hesitate to contact me at r.malik@massey.ac.nz.

I would be grateful if you could support my research by responding to the questionnaire by 7th July 2015.

Thanking you in advance for your support.

Yours faithfully,
Rubab Malik

This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researchers named above are responsible for the ethical conduct of this research.

If you have any concerns about the conduct of this research that you wish to raise with someone other than the researchers, please contact Dr Brian Finch, Director (Research Ethics), telephone 06 366 9099, extn 55015, e-mail humanethics@massey.ac.nz.



Next

School System Questionnaire

Section I: General Information about the Respondent and School System

The purpose of these questions is to collect general information about the respondent and his/her school system.

1. Which [school system](#) do you represent?



2. What is your position within the Ministry or school system? 

3. How long have you been working with the school system? 

4. Are your answers based on the whole education system or some specific schools? 

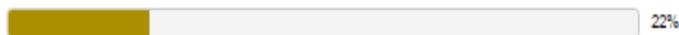
Whole education system (including public, private and other)

Public schools

Private schools

Public and private schools

Kindly specify in case of other.



Prev

Next

School System Questionnaire

Section II: Questions about the Performance of School System

5. Performance Measurement Activities

Considering the past 5 years, has your school system undertaken any of the following activities to learn and/or improve the school system's work practices? 

	Yes	No
Have you compared the performance (e.g. academic, administrative, all-round etc.) of your school system with other school system(s)?	<input type="radio"/>	<input type="radio"/>
Has the performance comparison with other school system(s) helped your school system learn from them and improve performance?	<input type="radio"/>	<input type="radio"/>

Considering the past 5 years, has your school system undertaken any of the following activities to learn and/or improve the school system's work practices?

If "No", go to the next question.

If "Yes":

- Indicate the Extent of Use of Technique and
- Indicate the Effectiveness of Technique for Performance Improvement.

Extent of Use of Technique means how frequently a particular technique is used.

Effectiveness of Technique for Performance Improvement means how useful or effective the technique has been in improving performance.



	Involved in Past 5 years	Extent of Use of Technique	Effectiveness of Technique for Performance Improvement
<p>Within your own school system, have you encouraged high-performing schools to assist low-performing schools to improve their performance? Example</p>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<p>Kindly provide an example or examples of how you use this technique.</p> <div style="border: 1px solid #ccc; height: 60px; width: 100%;"></div>			
			
	Involved in Past 5 years	Extent of Use of Technique	Effectiveness of Technique for Performance Improvement
<p>Within your own school system, have you encouraged low-performing schools to get assistance from high-performing schools to improve their performance? Example</p>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<p>Kindly provide an example or examples of how you use this technique.</p> <div style="border: 1px solid #ccc; height: 60px; width: 100%;"></div>			
 33%			
<div style="display: flex; justify-content: center; gap: 20px;"> Prev Next </div>			

School System Questionnaire

Section II: Questions about the Performance of School System

6. Learning Academic Work Practices

Academic Work Practices deal with the generation and dissemination of knowledge for processes intended to enhance the academic performance of school system. These activities are likely to include pedagogical strategies and IT (Information Technology) services provided to support teaching and learning etc.

Considering the past 5 years, has your school system undertaken any of the following activities to learn and/or improve the school system's work practices?

If "No", go to the next question.

If "Yes":

- Indicate the Extent of Use of Technique and
- Indicate the Effectiveness of Technique for Performance Improvement.

Extent of Use of Technique means how frequently a particular technique is used.

Effectiveness of Technique for Performance Improvement means how useful or effective the technique has been in improving performance.



	Involved in Past 5 years	Extent of Use of Technique	Effectiveness of Technique for Performance Improvement
Has your school system learnt academic work practices from other school system(s)?	<input type="text"/>	<input type="text"/>	<input type="text"/>
Example			

Kindly provide an example or examples of how you use this technique.



Involved in Past 5 years

Extent of Use of Technique

Effectiveness of Technique for
Performance Improvement

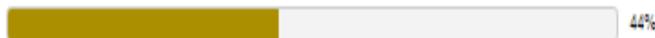
Has your school system recommended its schools to learn academic work practices from one another? [Example](#)

Kindly provide an example or examples of how you use this technique.

Which academic work practices have you learnt from other school system(s)? 

- Teacher development programs
- Teaching approach
- Interactive class environment
- Class management
- Lesson planning
- Use of IT for student learning
- Use of IT for teaching support
- Activity based learning
- Student engagement
- Curriculum
- Reward and recognition for students

Kindly specify in case of other.



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School System Questionnaire

Section II: Questions about the Performance of School System

7. Holistic Learning

Holistic learning deals with all-around/comprehensive learning of students. For this survey it excludes academic learning, and focuses on learning opportunities supported and promoted by school system(s) in such areas as sports, student clubs, instrument playing, art, outdoor education (i.e. camping, scouting etc.) and community services.

Considering the past 5 years, has your school system undertaken any of the following activities to learn and/or improve the school system's work practices?

If "No", go to the next question.

If "Yes":

- Indicate the Extent of Use of Technique and
- Indicate the Effectiveness of Technique for Performance Improvement.

Extent of Use of Technique means how frequently a particular technique is used.

Effectiveness of Technique for Performance Improvement means how useful or effective the technique has been in improving performance.



	Involved in Past 5 years	Extent of Use of Technique	Effectiveness of Technique for Performance Improvement
Has your school system learnt how holistic learning is provided from other school system(s)? Example	<input type="text"/>	<input type="text"/>	<input type="text"/>



	Involved in Past 5 years	Extent of Use of Technique	Effectiveness of Technique for Performance Improvement
Has your school system measured the performance of its students holistically (i.e. on the whole including academic and holistic learning)? Example	<input type="text"/>	<input type="text"/>	<input type="text"/>

Kindly provide an example or examples of how you use this technique.

Involved in Past 5 years

Extent of Use of Technique

Effectiveness of Technique for
Performance Improvement

Has your school system recommended its schools to learn how to improve their holistic learning from one another? [Example](#)

Kindly provide an example or examples of how you use this technique.

Which holistic approach(es) have you learnt from other school system(s)? 

- Sports and games
- Club(s) formation and management
- Outdoor activities (i.e. camping)
- Art
- Instrument playing
- Community services

Kindly specify in case of other.



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School System Questionnaire

Section II: Questions about the Performance of School System

8. Learning Non-Academic Work Practices

Non-Academic Work practices deal with the generation and dissemination of knowledge for processes intended to support/facilitate academic learning. These activities are likely to include strategic planning; developing leadership capabilities; human resources such as recruitment, retention, managing workforce; financial support; library; IT support service etc.

Considering the past 5 years, has your school system undertaken any of the following activities to learn and/or improve the school system's work practices?

If "No", go to the next question.

If "Yes":

- Indicate the Extent of Use of Technique and
- Indicate the Effectiveness of Technique for Performance Improvement.

Extent of Use of Technique means how frequently a particular technique is used.

Effectiveness of Technique for Performance Improvement means how useful or effective the technique has been in improving performance.



	Involved in Past 5 years	Extent of Use of Technique	Effectiveness of Technique for Performance Improvement
Has your school system learnt non-academic work practices from other school system(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Example			

Kindly provide an example or examples of how you use this technique.

	Involved in Past 5 years	Extent of Use of Technique	Effectiveness of Technique for Performance Improvement
Has your school system encouraged its schools to share non-academic work practices with each other? Example	<input type="text"/>	<input type="text"/>	<input type="text"/>
Kindly provide an example or examples of how you use this technique.			
<input type="text"/>			
Which non-academic work practices have you learnt from other school system(s)? 			
<input type="checkbox"/> Strategic planning	<input type="checkbox"/> Funding system	<input type="checkbox"/> Standardization of education	
<input type="checkbox"/> Focus on mission, vision and values	<input type="checkbox"/> Library	<input type="checkbox"/> Enrollment	
<input type="checkbox"/> Developing leadership capabilities	<input type="checkbox"/> Examination	<input type="checkbox"/> Health and safety	
<input type="checkbox"/> Human Resources (i.e. recruitment, retention, workforce management)	<input type="checkbox"/> School catering	<input type="checkbox"/> School transport	
<input type="checkbox"/> Financial matters (i.e. budgeting)	<input type="checkbox"/> IT support services	<input type="checkbox"/> Emergency preparedness	
<input type="checkbox"/> Building maintenance			
<input type="checkbox"/> Payroll process			
<input type="checkbox"/> Security system for schools			
<input type="checkbox"/> Purchasing process			
<input type="checkbox"/> Supplier development			
Kindly specify in case of other.			
<input type="text"/>			
			67%
<input type="button" value="Prev"/>		<input type="button" value="Next"/>	

School System Questionnaire

Section II: Questions about the Performance of School System

9. Learning Policies and Reforms

Policies are clear and simple statements about what the school system intends to achieve over a period of time and how.

Reforms mean intended changes to the education system in order to improve its performance. Reforms could be in the form of interventions, initiatives and improvements.

Considering the past 5 years, has your school system undertaken any of the following activities to learn and/or improve the school system's work practices?

If "No", go to the next question.

If "Yes":

- Indicate the Extent of Use of Technique and
- Indicate the Effectiveness of Technique for Performance Improvement.

Extent of Use of Technique means how frequently a particular technique is used.

Effectiveness of Technique for Performance Improvement means how useful or effective the technique has been in improving performance. 

	Involved in Past 5 years	Extent of Use of Technique	Effectiveness of Technique for Performance Improvement
Has your school system considered education reforms of other school system(s) while revising and/or formulating its own reforms? Example	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Kindly provide an example or examples of how you use this technique.

	Involved in Past 5 years	Extent of Use of Technique	Effectiveness of Technique for Performance Improvement
Has your school system considered education policies of other school system(s) while revising and/or formulating its own policies? Example	<input type="text"/>	<input type="text"/>	<input type="text"/>
Kindly provide an example or examples of how you use this technique.			
<input type="text"/>			
			
	Involved in Past 5 years	Extent of Use of Technique	Effectiveness of Technique for Performance Improvement
Has your school system encouraged schools within its school system to discuss and share new policies and/or reforms? Example	<input type="text"/>	<input type="text"/>	<input type="text"/>
Has your school system encouraged schools within its school system to discuss and share strategies for implementing new policies and/or reforms? Example	<input type="text"/>	<input type="text"/>	<input type="text"/>
Kindly provide an example or examples of how you use this technique.			
<input type="text"/>			
Has the international assessment (e.g. PISA) result impacted your school system's 			
<input type="checkbox"/> Education policies <input type="checkbox"/> Reforms <input type="checkbox"/> Curriculum <input type="checkbox"/> Teacher training programs			
Kindly specify in case of other.			
<input type="text"/>			



School System Questionnaire

Section II: Questions about the Performance of School System

10. Other Learning Mechanisms



In order to promote learning and improvement, has your school system learnt work practices of other school systems through 

- Media
- Online sources
- Teacher exchange
- Visits

Kindly specify in case of other.



	Extent of Use of Technique	Effectiveness of Technique for Performance Improvement
Kindly specify the Extent of Use and Effectiveness of the above learning approach(es).	<input type="text"/>	<input type="text"/>

Kindly provide an example or examples of how you use this technique.

Kindly specify other effective means adopted by your school system to learn from other school systems.



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School System Questionnaire

Section II: Questions about the Performance of School System

11. Would you be able to assist with the next stage of the research? I am seeking to send a questionnaire to academically high-performing and fast-improving primary and secondary schools to learn if and how they use benchmarking. If you can help, please provide the names and/or contact details of these schools below or email at rubabmalik@gmail.com or r.malik@massey.ac.nz.

Of course, you will be kept informed of the next stage of the research and results obtained. 

12. Would you be willing to support the questionnaire to the above-selected schools of your school system?



Yes

No

13. Which are the best months to contact these schools? 

January

May

September

February

June

October

March

July

November

April

August

December

14. Would you be willing to be contacted for a follow-up interview by Skype or telephone? 

Yes

No

15. Please share your contact detail if you like to be interviewed. 

Name

Email Address

Phone Number (optional)



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Done

APPENDIX 5
RESEARCH PLAN AND VALIDATION OF QUESTIONNAIRES BY SCHOOL
SYSTEMS
VALIDATION OF THE
QUESTIONNAIRE FOR SCHOOL SYSTEMS

Dear Respondent,

Over the last two months, March and April 2014, I have been trying to develop contacts with school systems (ministries) around the world, regarding my research. I am happy to share with you that the introduction phase of the research received great encouragement. Based on the initial emails, ten countries have shown positive interest in participating in the research.

Thank you for being a stakeholder in this study!

As part of the research methodology, I am developing a questionnaire to explore if benchmarking (learning from others) has brought significant improvements to school systems. This questionnaire is being designed to help all school systems and your school system. *Therefore, it is very important that the questionnaire is designed to your needs.* I am now sending you the draft questions so you can assess whether you think they are valid or perhaps you may wish to suggest some other questions to include? Also, if you have any comments on the overall research program please let me know.

This research will help your school system to:

- More effectively use benchmarking as a means to learn from other school systems
- More effectively advise and encourage schools within your school system to use benchmarking and collaboration techniques

The outcomes from this will be:

- More collaborative learning
- Expansion of learning horizons
- Raise in calibre of staff members
- Knowing global best practices

- Performance improvement on international assessments

The research has two phases.

PHASE I- Feedback from school systems

This is the time frame regarding the school system questionnaire.

Activities	Timeline
Receive feedback on the questionnaire design	12 th - 22 nd May 2015
Launch of online questionnaire survey	22 nd June 2015
Receive survey responses	7 th July 2015
Results to be shared with respondents	30 th September 2015

PHASE II- Feedback from schools

You are also encouraged to support the school questionnaire, which is optional. Your support would be required in identifying the schools and commenting on the school questionnaire. The time frame for the school questionnaire is as follows.

Activities	Timeline
Receive feedback on the questionnaire design	19 th May – 1 st September 2015
Launch of online questionnaire survey	7 th September 2015
Receive survey responses	30 th October 2015
Results to be shared with respondents	30 th November 2015

Yours faithfully,

Rubab Malik

VALIDATION OF THE QUESTIONNAIRE FOR SCHOOLS

Dear Respondent,

I appreciate your involvement in my research project examining ‘How school systems learn from each other?’ conducted at Massey University, New Zealand. As promised earlier, I am pleased to now share the responses that were received from 20 school systems around the world.

As the next stage of the research, I will be sending a further questionnaire to individual schools. Before sending this questionnaire, I seek your opinion on it. The questionnaire is being designed to help all schools, including schools in your region. Therefore, it is important that the questionnaire is well designed to meet the needs of your schools. I am herewith sending you the preview of the school questionnaire. Perhaps you may wish to offer suggestions on how to make it more valuable.

I look forward to your further participation and feedback.

The link to the preview of the school questionnaire is:

https://www.surveymonkey.net/create/survey/preview?sm=b0ac7sbyXKuYCgf_2BN29e8zendx2pXjbOJiFH6RhkfpI_3D

I would be grateful for your response by **1st September 2015**.

Yours faithfully,

Rubab Malik

APPENDIX 6
SURVEY PARTICIPATION INVITATIONS
(SCHOOL SYSTEMS AND SCHOOLS)

INVITATION TO SCHOOL SYSTEMS FOR PARTICIPATING IN THE
SURVEY

Dear Respondent,

Over recent weeks, I have been developing contacts with school systems around the world regarding my research. I am thankful to you for taking interest in my research and responding to my emails. You have been very supportive throughout this time. Your suggestions and feedback have helped me refine the questionnaire and develop it according to your expectations.

According to the timeline sent to you with the draft questionnaire, the final questionnaire is now available.

So, I am sending you the link to the online questionnaire survey.

The link to the online questionnaire survey is:

<https://www.surveymonkey.com/r/SchoolSystemQuestionnaire2015>

Kindly submit your responses by **7th July 2015**.

I am thankful for your time and support.

Yours faithfully,

Rubab Malik

INVITATION TO SCHOOL SYSTEMS FOR PROMOTING THE SURVEY TO SCHOOLS

Dear Respondent,

I very much appreciate your involvement in my research project examining 'How school systems learn from each other?', which is being conducted at Massey University, New Zealand.

As the next stage of the research, I am now examining 'How schools learn from each other?' by sending a further questionnaire to individual schools.

I now request your assistance with this stage of the research, in which participation will be sought from individual schools. I am herewith sending you the link to online questionnaire for schools. Participation is requested of primary and secondary schools.

You are requested to circulate the following link to schools of your school system and ensure responses.

The link to the online questionnaire is:

<https://www.surveymonkey.com/r/SchoolQuestionnaire2015>

The schools are requested to submit their responses by **30th October 2015**.

I would be grateful for the participation of schools within your school system.

Yours faithfully,

Rubab Malik

INVITATION TO SCHOOLS FOR PARTICIPATING IN THE SURVEY

Dear Respondent,

My name is Mrs Rubab Malik. I am a doctoral researcher at Massey University, New Zealand. My research area is benchmarking, which is a performance improvement technique that involves learning best practices from others and implementing them well. My supervisors are Dr Robin Mann (r.s.mann@massey.ac.nz) and Associate Professor Nigel Grigg (n.grigg@massey.ac.nz).

I am pursuing research on the effectiveness of benchmarking for the education sector. As a researcher, I am interested to study how high/good performing school systems and schools have achieved their status and to share these learnings with others through the development of a Benchmarking Framework. For the first phase of my research, I have received participation from 20 school systems around the world. My research participants include **Finland, Estonia, Poland, Spain, Dubai, Czech Republic, Portugal, Iceland, Sri Lanka, Norway, Iredell-Statesville Schools (USA), Chugach School District (USA), Vietnam, Sweden, Serbia, Indonesia and Belgium.**

This research is potentially very important as it has been shown that school systems and schools that learn and improve their processes by capturing ideas and techniques from other school systems and schools (therefore conducting benchmarking) achieve better educational outcomes. This research will help your school - and all schools - to more effectively use benchmarking as a means to improve performance.

The outcomes from this research will be:

- More collaborative learning
- Expansion of learning horizons
- Rise in calibre of staff members
- Learning global best practices
- Performance improvement on national and international assessments

For the next phase, I invite you, and your school to join me on this learning journey. I believe that participation in this research will enhance sharing and learning of powerful benchmarking techniques.

If you wish to participate, kindly follow the link below to submit your responses by **30th October 2015.**

The link to the online questionnaire is:

<https://www.surveymonkey.com/r/SchoolQuestionnaire2015>

I look forward to receiving your participation.

Yours faithfully,
Rubab Malik

APPENDIX 7

QUESTIONNAIRE FOR THE SURVEY WITH SCHOOLS



School Questionnaire

How do Schools Learn from Each Other

I am Mrs. Rubab Malik, a doctoral student, from Massey University, New Zealand pursuing research under the supervision of Dr. Robin Mann (r.s.mann@massey.ac.nz) and Associate Professor Nigel Grigg (n.grigg@massey.ac.nz). This questionnaire is a part of doctoral research conducted at the Centre for Organizational Excellence Research, Massey University.

The purpose of this questionnaire is to understand how schools around the world learn from each other in terms of strategies, structure, and processes to produce the best educational outcomes; and how they support the learning of teachers. This research is potentially very important as it has been shown that schools that learn and improve their processes by capturing ideas and techniques from other schools achieve better educational outcomes. This research will assist all schools and your school to

- More effectively use benchmarking as a means to learn from other schools
- More effectively advise and encourage teachers within your school to use benchmarking and collaborative techniques

The questionnaire is designed to collect responses from the head of school and/or senior teacher(s). The responses should be based on the whole school. The questions are framed around how schools learn from other schools and how teachers learn from other teachers.

Section One of the questionnaire covers general information about the respondent and his/her school while **Section Two** covers questions about the performance of school over the last five years. It would require 40 minutes of your time to complete the whole questionnaire including the descriptive questions. But if you cannot spare 40 minutes just fill in the quantitative part, which will not take more than 20 minutes of your time.

Participation in this questionnaire is voluntary and responses will be kept completely confidential. Participation in this questionnaire would act as a valuable means of supporting the education system through sharing various techniques on learning among schools and teachers. **I would be delighted to share a summary of the main findings of the questionnaire with you.** The summary will share aggregated response data and not the data from individual schools. The summary will be ready by the end of November 2015.

This research is conducted in accordance with Massey University Human Ethics Committee guidelines on low risk research. If you have any queries on completing the questionnaire do not hesitate to contact me at r.malik@massey.ac.nz. I would be grateful if you could support my research by responding to the questionnaire by 30th September 2015. Thanking you in advance for your support.

Yours faithfully,
Rubab Malik

*This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named above are responsible for the ethical conduct of this research.

If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher(s), please contact Dr Brian Finch, Director (Research Ethics), telephone 06 356 9099, extension 50016, email humanethics@massey.ac.nz.*

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School Questionnaire

Section I: General Information about the Respondent and School

The purpose of these questions is to collect general information about the respondent and school. 

1. What is the name of your school? 

2. Which country is the school located within? 

* 3. Please give your email address. 

4. How do you measure the performance of your school? 

- Holistically (on the whole, including academics, extracurricular activities i.e. sports, social awareness, participation in social activities, values etc.)
- Academically (i.e. on the basis of grades, number of graduates etc.)
- Non-academically (i.e. leadership capabilities, recruitment, retention etc.)
- On the basis of achievements (rewards/recognition)
- On the basis of number of admissions
- Other

Kindly specify in case of other.

5. Considering the past 5 years, how would you rate the performance of your school? 

- Declined considerably
- Declined
- Remained somewhat the same
- Improved
- Improved considerably

6. To what extent are you satisfied with the quality of education at your school? 

- Very unsatisfied
- Somewhat unsatisfied
- Neither satisfied nor unsatisfied
- Satisfied
- Very satisfied

7. Are your answers based on the whole school? 

- Yes
- No

Kindly specify in case of "No".

8. What is the level of your school? 

- Primary
- Secondary
- Both
- Other

Kindly specify in case of other.



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School Questionnaire

Section II: Questions about the Performance of School

9. Performance Measurement Activities

Considering the past 5 years, has the school undertaken any of the following activities to learn and/or improve the school's work practices? 

Did your school at any point compare its performance against another school(s) for [academic performance](#)? 

Yes No

Did your school at any point compare its performance against another school(s) for [non-academic performance](#)? 

Yes No

Did your school at any point compare its performance against another school(s) for [holistic learning](#)? 

Yes No

Did your school at any point compare its performance against another organization (e.g. industry)? 

Yes No

Did the performance comparison of your school with another school(s) and/or organization(s) result in learning and/or improvement? 

Yes No

If "Yes", to what extent did it assist your school in learning and/or improvement. 

- Very little
- To some extent
- Moderately
- Reasonably
- Significantly

School Questionnaire

Section II: Questions about the Performance of School

10. Learning Academic Work Practices

Academic Work Practices deal with the generation and dissemination of knowledge for processes intended to enhance the academic performance of a school. These activities are likely to include pedagogical strategies and other activities related to the sharing of knowledge and information.

Learning through Peers

Considering the past 5 years, has your school undertaken any of the following activities to learn and/or improve the school's work practices?

If "No", go to the next question.

If "Yes":

- Indicate the Extent of Use of Technique and*
- Indicate the Effectiveness of Technique for Performance Improvement.*

Extent of Use of Technique means how frequently a particular technique is used.

Effectiveness of Technique for Performance Improvement means how useful or effective the technique has been in improving performance.



	Involvement in Past 5 years	Extent of Use of Technique	Effectiveness of Technique for Performance Improvement
Has your school encouraged staff at all levels to assist their peers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Kindly provide an example or examples of how you use this technique.



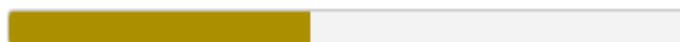
	Involvement in Past 5 years	Extent of Use of Technique	Effectiveness of Technique for Performance Improvement
Has your school encouraged staff at all levels to get assistance from their peers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Kindly provide an example or examples of how you use this technique.

Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through 

	Involved in Past 5 years	Extent of Use of Technique	Effectiveness of Technique for Performance Improvement
Regular meetings (particularly between expert and novice teachers)	<input type="text"/>	<input type="text" value="Once in 5 years"/>	<input type="text"/>
Collaborative lesson planning	<input type="text"/>	<input type="text"/>	<input type="text"/>
Demonstration lesson (i.e. in which a senior teaches how a good class is supposed to be)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Seminars	<input type="text"/>	<input type="text"/>	<input type="text"/>
Workshops	<input type="text"/>	<input type="text"/>	<input type="text"/>
Observations (i.e. teachers observing senior teachers delivering lesson)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Face-to-face training (provided by senior teachers)	<input type="text"/>	<input type="text"/>	<input type="text"/>

Kindly provide an example or examples of how you use these techniques.



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School Questionnaire

Section II: Questions about the Performance of School

Learning through Observations

Considering the past 5 years, has your school undertaken any of the following activities to learn and/or improve the school's work practices?

If "No", go to the next question.

If "Yes":

- Indicate the Extent of Use of Technique and
- Indicate the Effectiveness of Technique for Performance Improvement.

Extent of Use of Technique means how frequently a particular technique is used.

Effectiveness of Technique for Performance Improvement means how useful or effective the technique has been in improving performance.



	Involved in Past 5 years	Extent of Use of Technique	Effectiveness of Technique for Performance Improvement
Has your school undertaken observations of teachers' lessons by the principal and/or senior teacher(s) for identifying strengths and weaknesses in teaching methodologies, followed by suggestions for improvement?	<input type="text"/>	<input type="text"/>	<input type="text" value="Ineffective"/> Ineffective Not very effective Moderately effective Reasonably effective Highly effective

Kindly provide an example or examples of how you use this technique.



	Involved in Past 5 years	Extent of Use of Technique	Effectiveness of Technique for Performance Improvement
Has your school undertaken observations of teachers' lessons by external teachers (from outside your school) followed by their feedback and suggestions for improvement?	<input type="text"/>	<input type="text"/>	<input type="text"/>

Kindly provide an example or examples of how you use this technique.

	Involved in Past 5 years	Extent of Use of Technique	Effectiveness of Technique for Performance Improvement
<p>Has your school ensured that teachers participating in sharing sessions (e.g. workshops, seminars etc.) share learned lessons with their counterparts?</p>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<p>Kindly provide an example or examples of how you use this technique.</p> <div style="border: 1px solid #ccc; height: 40px; width: 100%;"></div>			
			
	Involved in Past 5 years	Extent of Use of Technique	Effectiveness of Technique for Performance Improvement
<p>Has your school appointed experienced teacher(s) as consultant(s), to share knowledge, skills and experience with in-service teachers?</p>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<p>Kindly provide an example or examples of how you use this technique.</p> <div style="border: 1px solid #ccc; height: 40px; width: 100%;"></div>			
			
	Involved in Past 5 years	Extent of Use of Technique	Effectiveness of Technique for Performance Improvement
<p>Does the school have a website to facilitate teachers to share work practices and/or learn from each other?</p>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<p>Kindly provide an example or examples of how you use this technique.</p> <div style="border: 1px solid #ccc; height: 40px; width: 100%;"></div>			
<p>Kindly specify other effective means adopted at your school that enable teachers to learn from other teachers (from colleagues and/or from teachers at other schools). </p> <div style="border: 1px solid #ccc; height: 30px; width: 100%;"></div>			



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School Questionnaire

Section II: Questions about the Performance of School

Learning from Other Schools

Considering the past 5 years, has your school undertaken any of the following activities to learn and/or improve the school's work practices?

If "No", go to the next question.

If "Yes":

- Indicate the Extent of Use of Technique and*
- Indicate the Effectiveness of Technique for Performance Improvement.*

Extent of Use of Technique means how frequently a particular technique is used.

Effectiveness of Technique for Performance Improvement means how useful or effective the technique has been in improving performance.



	Involved in Past 5 years	Extent of Use of Technique	Effectiveness of Technique for Performance Improvement
Has your school at any point collaborated with a local school (i.e. within your country or school system) to share pedagogical work practices (e.g. teaching methodologies)?	<input type="button" value="Yes"/> <input type="button" value="No"/>	<input type="text"/>	<input type="text"/>

Kindly provide an example or examples of how you use this technique.



	Involved in Past 5 years	Extent of Use of Technique	Effectiveness of Technique for Performance Improvement
Has your school at any point collaborated with an international school(s) (i.e. outside of your own school system) to share pedagogical work practices (i.e. teaching methodologies)?	<input type="text"/>	<input type="text"/>	<input type="text"/>

Kindly provide an example or examples of how you use this technique.

Has your school learned about improvement initiatives at another school(s) through 

	Involved in Past 5 years	Extent of use of Technique	Effectiveness of Technique for Performance Improvement
Media	<input type="text"/>	<input type="text"/>	<input type="text"/>
Web sources	<input type="text"/>	<input type="text"/>	<input type="text"/>
Conferences/Seminars	<input type="text"/>	<input type="text"/>	<input type="text"/>
Teacher exchange	<input type="text"/>	<input type="text"/>	<input type="text"/>
Visits	<input type="text"/>	<input type="text"/>	<input type="text"/>

Kindly provide an example or examples of how you use these techniques.

Kindly specify other effective means adopted at your school to learn from other schools. 

Which academic work practices have you learned from other school(s)? 

- | | |
|---|--|
| <input type="checkbox"/> Teacher development programs | <input type="checkbox"/> Use of IT for teaching support |
| <input type="checkbox"/> Teaching approach/methodology | <input type="checkbox"/> Activity based learning |
| <input type="checkbox"/> Interactive class environment | <input type="checkbox"/> Student engagement |
| <input type="checkbox"/> Class management | <input type="checkbox"/> Curriculum |
| <input type="checkbox"/> Lesson planning | <input type="checkbox"/> Reward and recognition for students |
| <input type="checkbox"/> Use of IT for student learning | <input type="checkbox"/> Other |

Kindly specify in case of other.



School Questionnaire

Section II: Questions about the Performance of School

11. Holistic Learning

Holistic learning deals with all-around/comprehensive learning of students. For this survey it excludes academic learning, and focuses on learning opportunities dealing with social, mental and physical aspects supported and promoted by a school in such areas as social interactions, community services, sports, student clubs, instrument playing, art, outdoor education (i.e. camping, scouting) etc.

Considering the past 5 years, has your school undertaken any of the following activities to learn and/or improve the school's work practices?

If "No", go to the next question.

If "Yes":

- a) Indicate the Extent of Use of Technique and*
- b) Indicate the Effectiveness of Technique for Performance Improvement.*

Extent of Use of Technique means how frequently a particular technique is used.

Effectiveness of Technique for Performance Improvement means how useful or effective the technique has been in improving performance.



	Involved in Past 5 years	Extent of Use of Technique	Effectiveness of Technique for Performance Improvement
Has your school included provision of holistic learning in its strategy?	<input type="text"/>	<input type="text"/>	<input type="text"/>

Kindly provide an example or examples of how you use this technique.



	Involved in Past 5 years	Extent of Use of Technique	Effectiveness of Technique for Performance Improvement
Has your school compared its holistic learning with other schools?	<input type="text"/>	<input type="text"/>	<input type="text"/>

Kindly provide an example or examples of how you use this technique.



	Involved in Past 5 years	Extent of Use of Technique	Effectiveness of Technique for Performance Improvement
Has your school learned how holistic learning is provided by other schools?	<input type="text"/>	<input type="text"/>	<input type="text"/>
Kindly provide an example or examples of how you use this technique.			
<input type="text"/>			
			
	Involved in Past 5 years	Extent of Use of Technique	Effectiveness of Technique for Performance Improvement
Has your school measured the performance of its students holistically (on the whole, including academics, social, mental, and physical aspects e.g. extracurricular activities i.e. sports)?	<input type="text"/>	<input type="text"/>	<input type="text"/>
Kindly provide an example or examples of how you use this technique.			
<input type="text"/>			
Which holistic approach(es) have you learned from other school(s)? 			
<input type="checkbox"/> Class engagement/participation		<input type="checkbox"/> Outdoor activities (i.e. camping)	
<input type="checkbox"/> Community services		<input type="checkbox"/> Art	
<input type="checkbox"/> Sports and games		<input type="checkbox"/> Instrument playing	
<input type="checkbox"/> Club(s) formation and management		<input type="checkbox"/> Other	
Kindly specify in case of other.			
<input type="text"/>			
			
<input type="button" value="Prev"/>		<input type="button" value="Next"/>	

12. Learning Non-academic Work Practices

Non-Academic Work practices deal with the generation and dissemination of knowledge for processes intended to support/facilitate academic learning of a school. These activities are likely to include strategic planning, developing leadership capabilities, human resources (i.e. recruitment, retention and managing workforce etc.), financial support, library, IT support service etc.

Considering the past 5 years, has your school undertaken any of the following activities to learn and/or improve the school's work practices?

If "No", go to the next question.

If "Yes":

- a) Indicate the Extent of Use of Technique and*
- b) Indicate the Effectiveness of Technique for Performance Improvement.*

Extent of Use of Technique means how frequently a particular technique is used.

Effectiveness of Technique for Performance Improvement means how useful or effective the technique has been in improving performance.



	Involved in Past 5 years	Extent of Use of Technique	Effectiveness of Technique for Performance Improvement
Has your school at any point collaborated with a local school (i.e. within your country or school system) for sharing and/or exchanging non-academic work practices?	<input type="text"/>	<input type="text"/>	<input type="text"/>

Kindly provide an example or examples of how you use this technique.



	Involved in Past 5 years	Extent of Use of Technique	Effectiveness of Technique for Performance Improvement
Has your school at any point collaborated with an international school (i.e. outside of your own school system) for sharing and/or exchanging non-academic work practices?	<input type="text"/>	<input type="text"/>	<input type="text"/>

Kindly provide an example or examples of how you use this technique.

Involved in Past 5 years	Extent of Use of Technique	Effectiveness of Technique for Performance Improvement																					
<p>Has your school at any point encouraged sharing and/or exchanging of non-academic work practices among staff?</p> <div style="border: 1px solid #ccc; width: 100px; height: 20px; margin: 5px auto;"></div>	<div style="border: 1px solid #ccc; width: 100px; height: 20px; margin: 5px auto;"></div>	<div style="border: 1px solid #ccc; width: 100px; height: 20px; margin: 5px auto; position: relative;"> <div style="position: absolute; top: -20px; left: 50%; transform: translate(-50%, -50%); font-size: 10px;">▼</div> <div style="position: absolute; bottom: -20px; left: 50%; transform: translate(-50%, -50%); font-size: 10px;">▲</div> </div> <div style="border: 1px solid #ccc; width: 100%; height: 60px; margin-top: 5px; position: relative;"> <div style="position: absolute; top: -1px; left: 0; background-color: #007bff; color: white; padding: 2px;">Ineffective</div> <div style="position: absolute; top: 1px; left: 0; background-color: #007bff; color: white; padding: 2px;">Not very effective</div> <div style="position: absolute; top: 3px; left: 0; background-color: #007bff; color: white; padding: 2px;">Moderately effective</div> <div style="position: absolute; top: 5px; left: 0; background-color: #007bff; color: white; padding: 2px;">Reasonably effective</div> <div style="position: absolute; top: 7px; left: 0; background-color: #007bff; color: white; padding: 2px;">Highly effective</div> </div>																					
<p>Kindly provide an example or examples of how you use this technique.</p> <div style="border: 1px solid #ccc; width: 100%; height: 40px; margin-top: 5px;"></div>																							
<p>Which non-academic work practices have you learned from other school(s)? </p> <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;"><input type="checkbox"/> Strategic planning</td> <td style="width: 33%;"><input type="checkbox"/> Security system for school</td> <td style="width: 33%;"><input type="checkbox"/> Examination</td> </tr> <tr> <td><input type="checkbox"/> Focus on mission, vision and values</td> <td><input type="checkbox"/> Purchasing process</td> <td><input type="checkbox"/> Health and safety</td> </tr> <tr> <td><input type="checkbox"/> Developing leadership capabilities</td> <td><input type="checkbox"/> Supplier development</td> <td><input type="checkbox"/> School catering</td> </tr> <tr> <td><input type="checkbox"/> Human resources (i.e. recruitment, retention, workforce management)</td> <td><input type="checkbox"/> Funding system</td> <td><input type="checkbox"/> School transport</td> </tr> <tr> <td><input type="checkbox"/> Financial matters (i.e. budgeting)</td> <td><input type="checkbox"/> Standardization of education</td> <td><input type="checkbox"/> IT support services</td> </tr> <tr> <td><input type="checkbox"/> Building maintenance</td> <td><input type="checkbox"/> Library</td> <td><input type="checkbox"/> Emergency preparedness</td> </tr> <tr> <td><input type="checkbox"/> Payroll process</td> <td><input type="checkbox"/> Enrollment</td> <td><input type="checkbox"/> Other</td> </tr> </table> <p>Kindly specify in case of other.</p> <div style="border: 1px solid #ccc; width: 100%; height: 20px; margin-top: 5px;"></div>			<input type="checkbox"/> Strategic planning	<input type="checkbox"/> Security system for school	<input type="checkbox"/> Examination	<input type="checkbox"/> Focus on mission, vision and values	<input type="checkbox"/> Purchasing process	<input type="checkbox"/> Health and safety	<input type="checkbox"/> Developing leadership capabilities	<input type="checkbox"/> Supplier development	<input type="checkbox"/> School catering	<input type="checkbox"/> Human resources (i.e. recruitment, retention, workforce management)	<input type="checkbox"/> Funding system	<input type="checkbox"/> School transport	<input type="checkbox"/> Financial matters (i.e. budgeting)	<input type="checkbox"/> Standardization of education	<input type="checkbox"/> IT support services	<input type="checkbox"/> Building maintenance	<input type="checkbox"/> Library	<input type="checkbox"/> Emergency preparedness	<input type="checkbox"/> Payroll process	<input type="checkbox"/> Enrollment	<input type="checkbox"/> Other
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<p>While learning from other schools, which of the following points are considered by your school? </p> <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> Learning area (i.e. academic, general etc.)</td> </tr> <tr> <td><input type="checkbox"/> Required resources (i.e. people, time, cost/capital)</td> </tr> <tr> <td><input type="checkbox"/> Expected outcomes/benefits</td> </tr> <tr> <td><input type="checkbox"/> Maturity of the other school (i.e. age of school)</td> </tr> <tr> <td><input type="checkbox"/> Performance level of the other school</td> </tr> <tr> <td><input type="checkbox"/> Realization of results (i.e immediate, gradual)</td> </tr> <tr> <td><input type="checkbox"/> Other</td> </tr> </table> <p>Kindly specify in case of other.</p> <div style="border: 1px solid #ccc; width: 100%; height: 40px; margin-top: 5px;"></div>			<input type="checkbox"/> Learning area (i.e. academic, general etc.)	<input type="checkbox"/> Required resources (i.e. people, time, cost/capital)	<input type="checkbox"/> Expected outcomes/benefits	<input type="checkbox"/> Maturity of the other school (i.e. age of school)	<input type="checkbox"/> Performance level of the other school	<input type="checkbox"/> Realization of results (i.e immediate, gradual)	<input type="checkbox"/> Other														
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School Questionnaire

Follow Up Details

I will be preparing a report to share findings from this questionnaire. Do you consent to add the name of your school in that report? 

Yes

No

Would you be willing to be contacted for a follow-up interview by Skype or telephone? 

Yes

No

If "Yes", which are the best months to contact you for interview? 

February

May

March

June

April

July

Please share your contact detail if you like to be interviewed. 

Name

Email Address

Phone Number (Optional)

Prev

Done

APPENDIX 8
SUMMARY REPORT OF THE SURVEY WITH SCHOOL SYSTEMS



“HOW DO SCHOOL SYSTEMS LEARN FROM EACH OTHER?”

Findings from the School System Questionnaire

Rubab Malik

1st September 2015

Supervisors

Dr Robin Mann

A/Prof Nigel Grigg

EXECUTIVE SUMMARY

Benchmarking is a performance improvement technique that involves learning best practices from others and implementing them well. As a means to explore the role of benchmarking in improving the performance of school systems and schools around the world, a study is being conducted at Massey University in New Zealand.

This is a preliminary report to share findings from the survey investigating the use of benchmarking within school systems. The survey was intended to determine the extent to which benchmarking is used by school systems and to identify benchmarking techniques used by school systems to learn from other school systems and for supporting the learning of their schools. The questionnaire-based survey was administered to school systems interested in the research. Although it was not possible to involve each and every school system, responses were received from 20 school systems around the world. The data collected from 20 school systems revealed many interesting findings about benchmarking and its application. This report shares cumulative responses for each closed-ended survey question by graphically presenting it. The responses for open-ended questions are not included in the report as they required more time for analysis.

This report determines that benchmarking is widely used by school systems as a means to learn from other school systems and also for promoting learning among their schools. In addition, the exploratory variables for each question show how benchmarking leverages the performance of participating school systems.

This report is part of a larger study to explore the role of benchmarking to the performance of school systems and schools. In the next phase of this study, I will be administering a survey to schools to study the impact of benchmarking on their performance. Later, benchmarking techniques identified by school systems and schools will be explored in detail through structured interviews. The outcome from this research will be a Benchmarking Framework to assist school systems and schools to undertake benchmarking effectively leading to better educational and societal outcomes.

ANALYSIS OF THE QUESTIONNAIRE RESPONSES

In total 20 school systems participated in the research. The survey respondents belonged to the Ministries of Education/School Board and had been working with their school system for the last 7 to 35 years.

The aggregated responses for each question are now presented.

The following graph represents responses to the following question:

Are your answers based on the whole education system or some specific schools? (Q4)

Figure 1 below shows that the majority of responses (80%) are related to the whole education system, 15% are related to public schools and 5% of responses are related to private schools. The responses in this report are therefore mostly related to the whole education system.

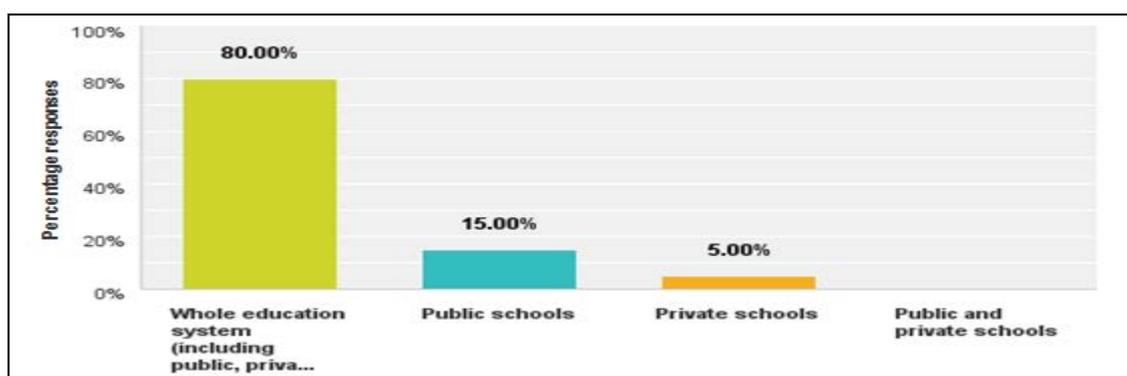


Figure 1 Scope of Survey Responses

Performance Measurement Activities

The following graphs represent responses to the following questions:

Have you compared the performance (e.g. academic, administrative, all-round etc.) of your school system with other school system(s)? (Q5-1)

Has the performance comparison with other school system(s) helped your school system learn from them and improve performance? (Q5-2)

Figure 2 below shows that the majority (95%) of the school systems compared their performance with other school systems and the majority (88.89%) of the school systems also benefited from this comparison. A greater number of the school systems therefore compared their performance with other school systems and learned from this comparison.

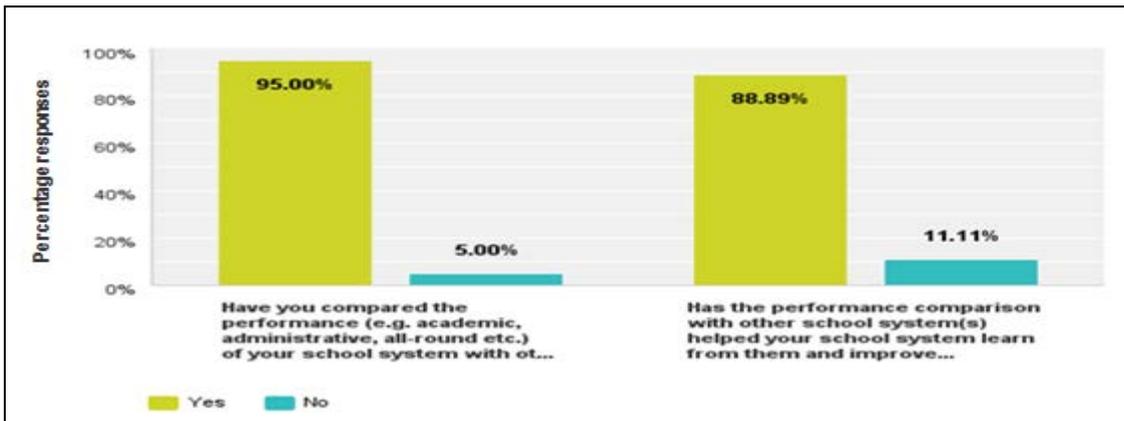


Figure 2 Performance Comparison between School Systems

The following graphs represent responses to the following questions:

Within your own school system, have you encouraged high-performing schools to assist low-performing schools to improve their performance? (Q5-3)

Within your own school system, have you encouraged low-performing schools to get assistance from high-performing schools to improve their performance? (Q5-4)

Figure 3 shows that two-third (66.67%) of the responding school systems encouraged their high-performing schools to assist low-performing schools and somewhat 61% of the responding school systems encouraged their low-performing schools to get assistance from high-performing schools for performance improvement. However, with a widely distributed extent of use ⁵⁸(Figure 4), 70% of respondents indicated encouraging high-performing schools to assist low-performing schools as reasonably to highly effective for performance improvement (Figure 5). Furthermore, 55% or more respondents indicated encouraging low-performing schools to get assistance from high-performing schools as reasonably to highly effective for performance improvement (Figure 5). Hence, a reasonable number of the school systems encouraged schools to learn from each other.

⁵⁸ The extent of use of benchmarking means the frequency of use of benchmarking

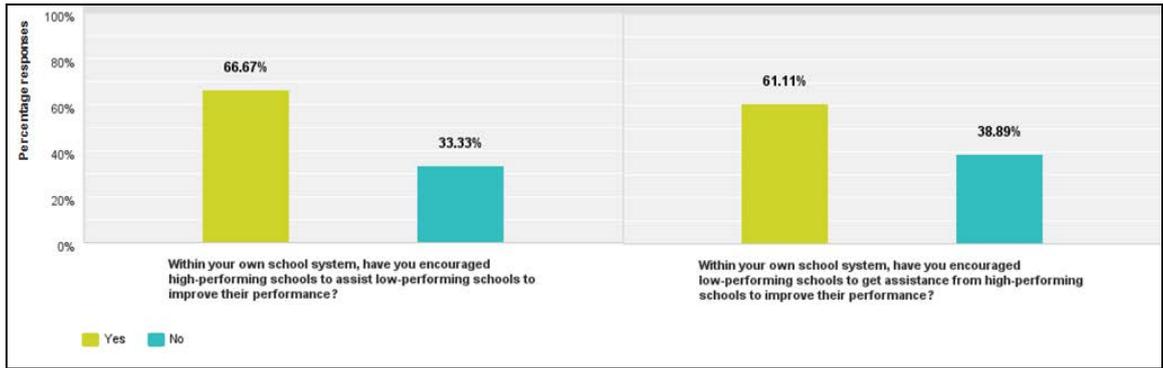


Figure 3 School Systems Encouraged Schools to Assist or Get Assistance from Each Other

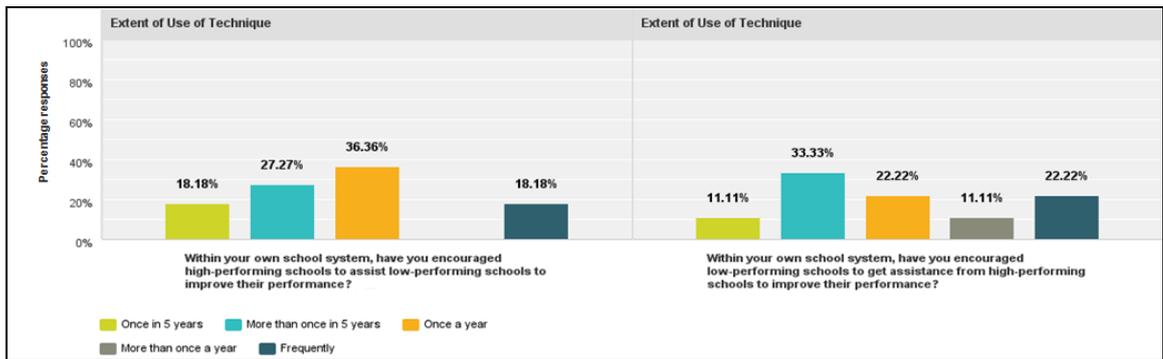


Figure 4 School Systems Encouraged Schools to Assist or Get Assistance from Each Other - Extent of Use of Technique

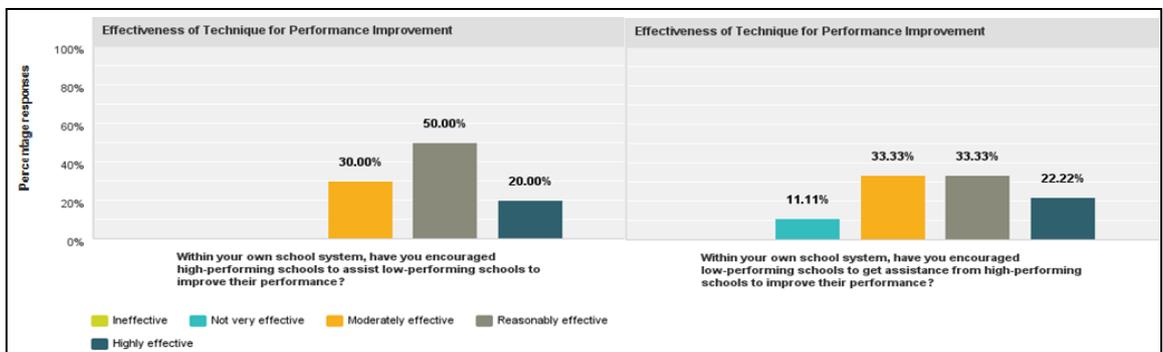


Figure 5 School Systems Encouraged Schools to Assist or Get Assistance from Each Other - Effectiveness of Technique for Performance Improvement

Learning Academic Work Practices

The following graphs represent responses to the following questions:

Has your school system learnt academic work practices from other school system(s)? (Q6-1)

Has your school system recommended its schools to learn academic work practices from one another? (Q6-2)

Figure 6 below shows that the majority (94.44%) of the school systems learned academic work practices from other school systems and the majority (83.33%) of the

school systems also encouraged their schools to learn academic work practices from each other. However, with a distributed extent of use (Figure 7), 60% or more of the respondents indicated learning academic work practices from other school systems as reasonably to highly effective for performance improvement and more than 66% of the respondents indicated recommending schools to learn academic work practices from one another as reasonably to highly effective for performance improvement (Figure 8). Therefore, the majority of the school systems learned academic work practices from other school systems and also recommended their schools to learn academic work practices from each other.

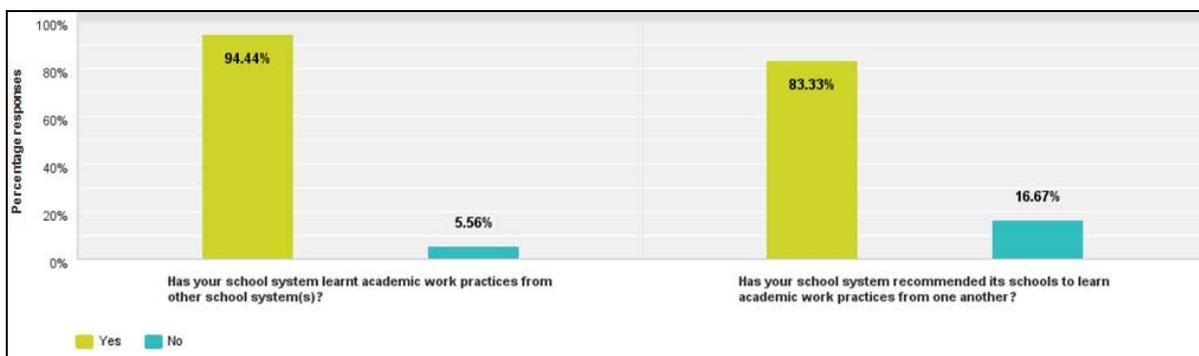


Figure 6 School Systems Learned Academic Work Practices and Encouraging Schools to Learn Academic Work Practices

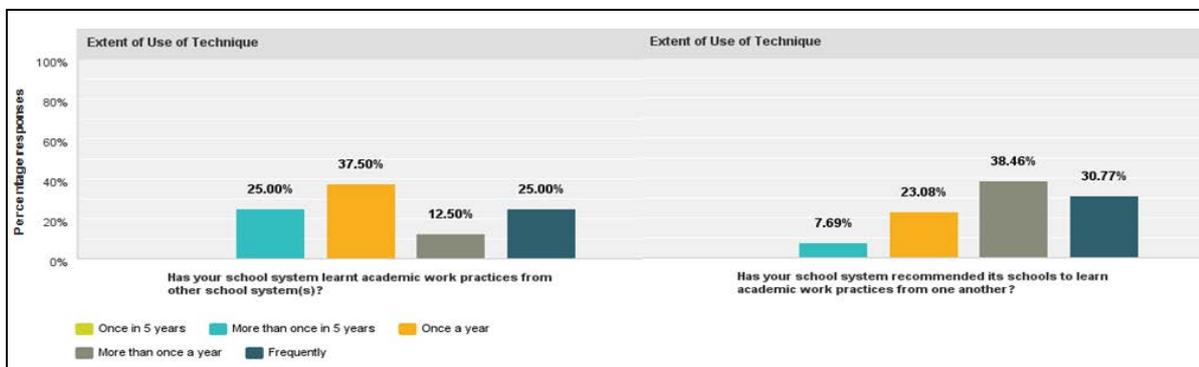


Figure 7 School Systems Learned Academic Work Practices and Encouraging Schools to Learn Academic Work Practices - Extent of Use of Technique

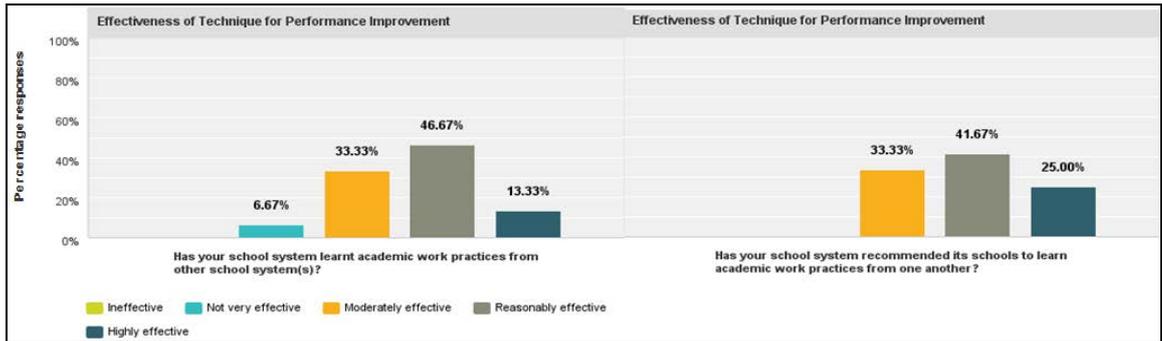


Figure 8 School Systems Learned Academic Work Practices and Encouraging Schools to Learn Academic Work Practices - Effectiveness of Technique for Performance Improvement

The following responses are related to the following question:

Which academic work practices have you learnt from other school systems(s)?
(Q6-3)

Figure 9 shows that the school systems learned a number of academic work practices from each other. However, Teacher Development and Curriculum are the most widely learned (68.75%) work practices.

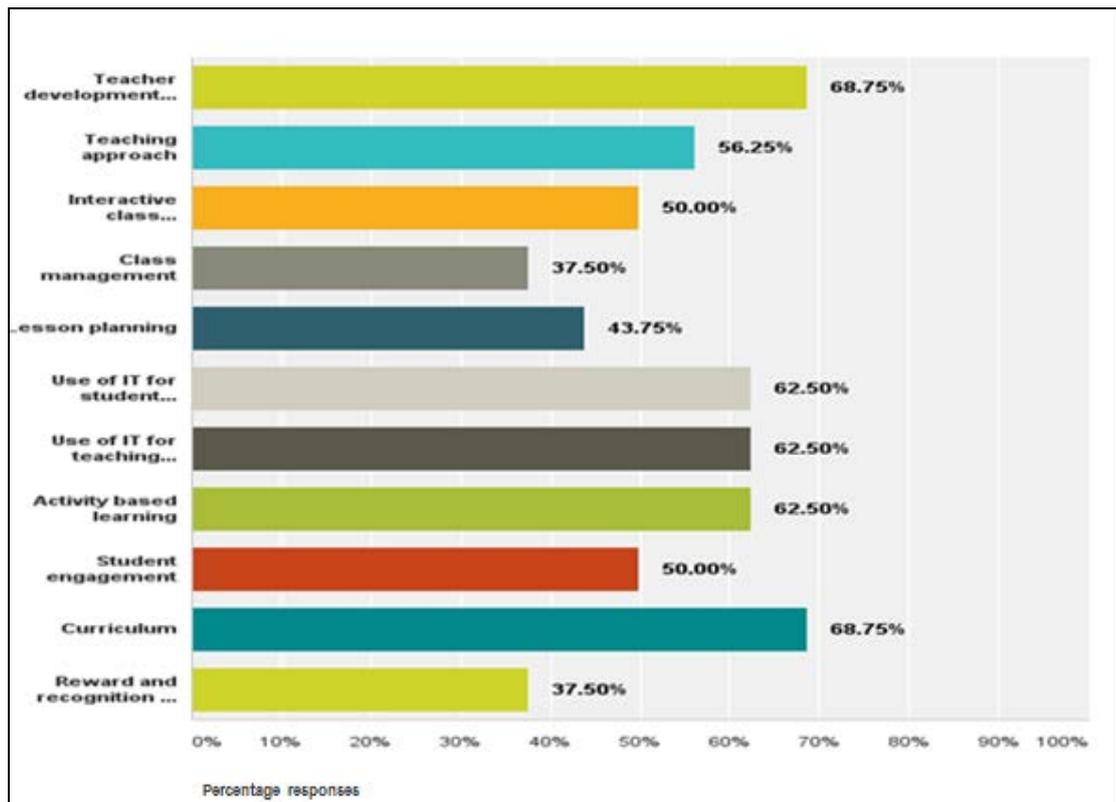


Figure 9 Academic Work Practices Learned from Other School Systems

Holistic Learning

The following graphs represent responses to the following questions:

Has your school system learnt how holistic learning is provided from other school system(s)? (Q7-1)

Has your school system recommended its schools to learn how to improve their holistic learning from one another? (Q7-2)

Figure 10 shows a mixed trend in relation to holistic learning in school systems and schools therein. More than 47% of the school systems learned provision of holistic learning from other school systems and more than 56% of the school systems recommended their schools to learn how to improve their holistic learning from each other. With a varied extent of use (Figure 11) for both these questions, 50% or more of the respondents indicated learning provision of holistic learning from other school systems and recommending schools to learn ways to improve their holistic learning from each other as reasonably to highly effective for performance improvement (Figure 12). Therefore, the responding school systems have a limited focus on the improvement of holistic learning approaches.

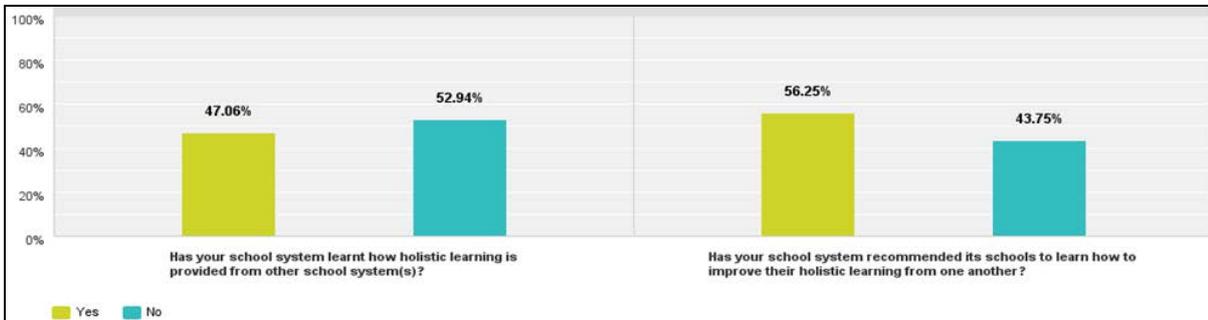


Figure 10 School Systems Learned Provision of Holistic Learning and Encouraged Schools to Learn Provision of Holistic Learning

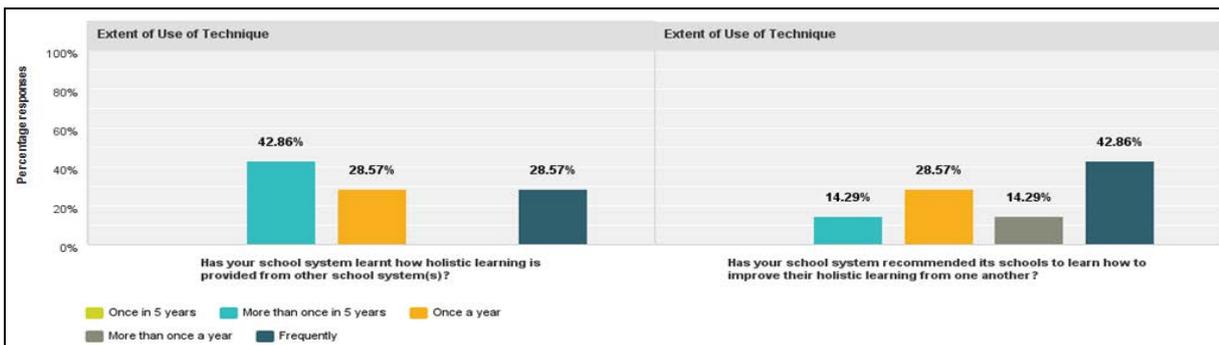


Figure 11 School Systems Learned Provision of Holistic Learning and Encouraged Schools to Learn Provision of Holistic Learning - Extent of Use of Technique

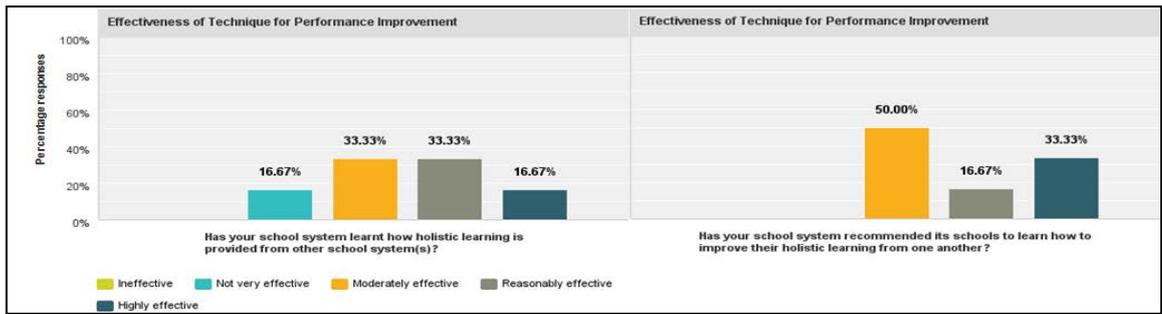


Figure 12 School Systems Learned Provision of Holistic Learning and Encouraged Schools to Learn Provision of Holistic Learning - Effectiveness of Technique for Performance Improvement

The following graph represents responses to the following question:

Has your school system measured the performance of its students holistically (i.e. on the whole including academic and holistic learning)? (Q7-3)

Figure 13 shows that more than half (52.94%) of the responding school systems measured the performance of their students holistically. However, with a distributed extent of use (Figure 14), 37% or more of the respondents indicated that measuring the performance of students holistically has been highly effective for performance improvement (Figure 14). Although only a limited number of school systems measured the performance of students holistically, it is fairly beneficial for performance improvement.

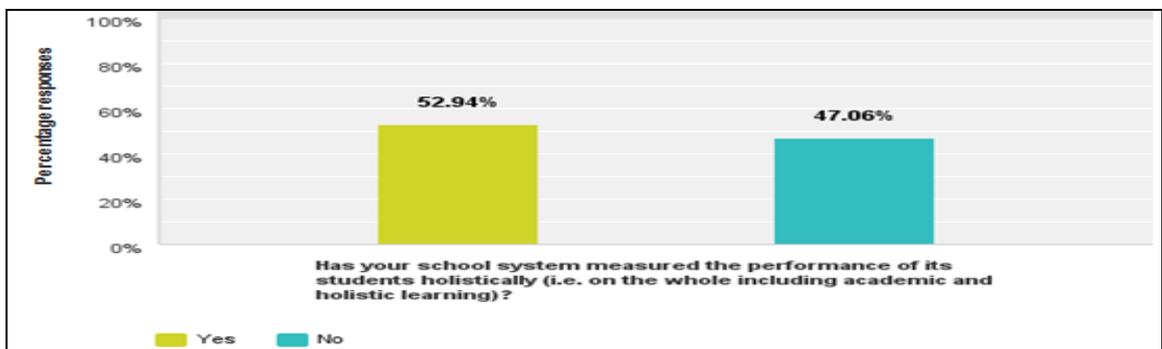


Figure 13 Schools Measured the Performance of Students Holistically

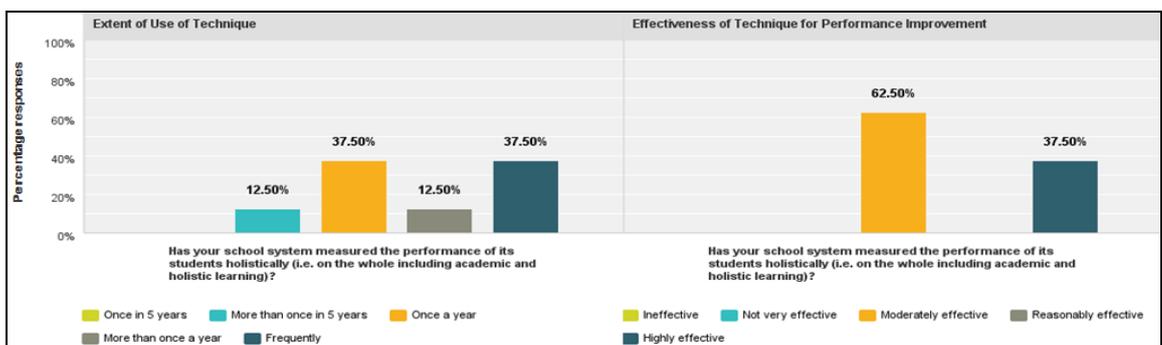


Figure 14 Schools Measured the Performance of Students Holistically - Extent of Use of Technique and Effectiveness of Technique for Performance Improvement

The following graph represents responses to the following question:

Which holistic approaches have you learnt from other school system(s)? (Q7-4)

Figure 15 represents various holistic approaches learned from other school systems. Although school systems have learned several holistic approaches from other school systems, Sports and Games are learned the most (87.5%).

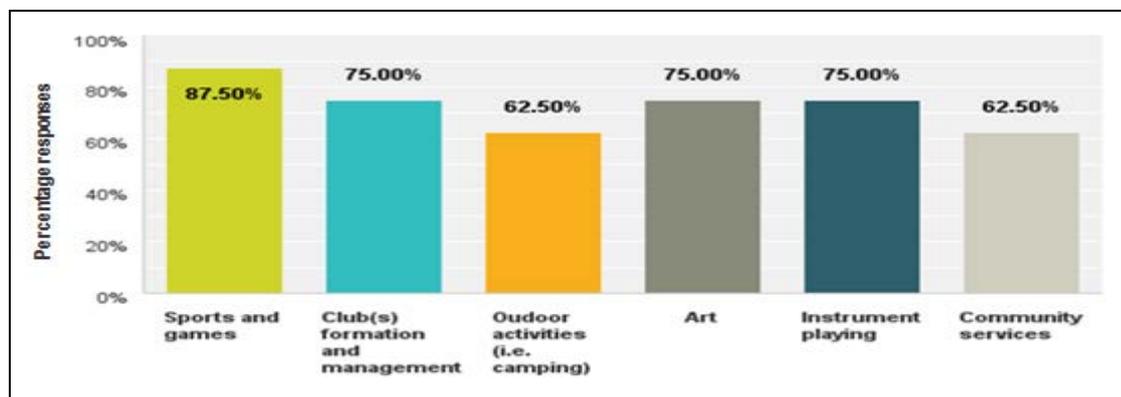


Figure 15 Holistic Approaches Learned from Other School Systems

Learning Non-academic Work Practices

The following graphs represent responses to the following questions:

Has your school system learnt non-academic work practices from other school system(s)? (Q8-1)

Has your school system encouraged its schools to share non-academic work practices with each other? (Q8-2)

Figure 16 represents that a large number (70.59%) of the school systems learned non-academic work practices from other school systems and a larger number (75%) of the school systems recommended their schools to share non-academic work practices. However, with a diverse extent of use (Figure 17), 75% of the respondents indicated learning non-academic work practices from other school systems as reasonably to highly effective for performance improvement and 50% of the respondents indicated encouraging schools to share non-academic work practices with each other as reasonably to highly effective for performance improvement (Figure 18). A large number of the school systems therefore learned non-academic work practices from other school systems and also recommended their schools to engage in such learning.

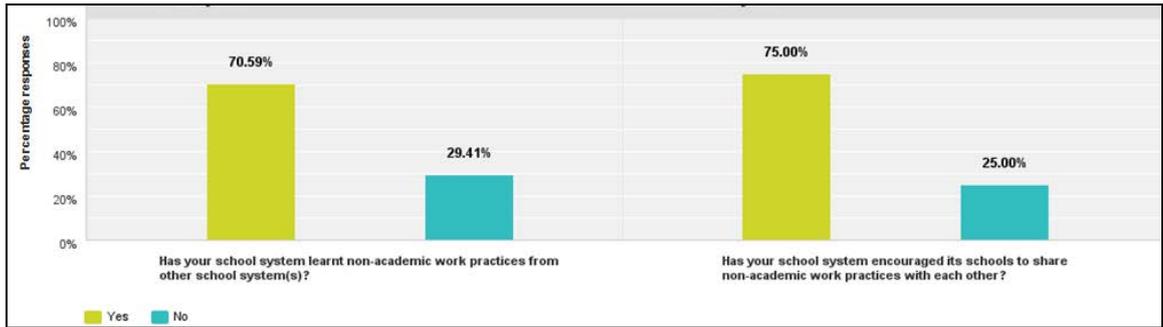


Figure 16 School Systems Learned Non-academic Work Practices and Recommended Schools to Learn Non-academic Work Practices

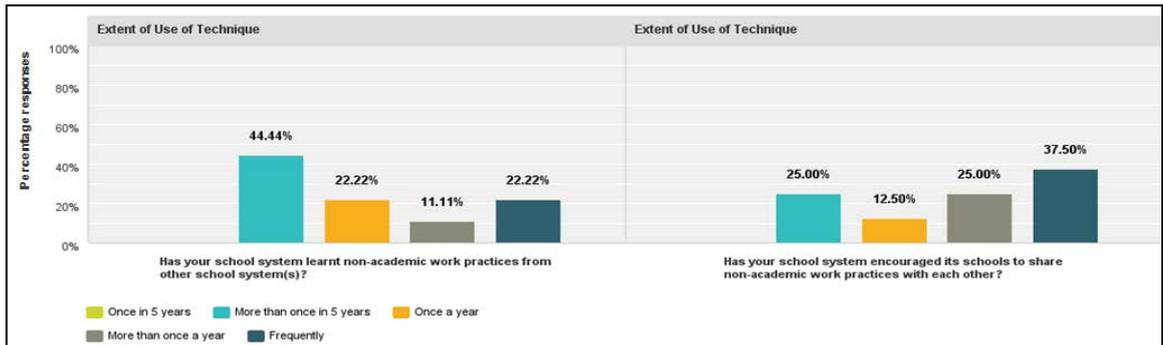


Figure 17 School Systems Learned Non-academic Work Practices and Recommended Schools to Learn Non-academic Work Practices - Extent of Use of Technique

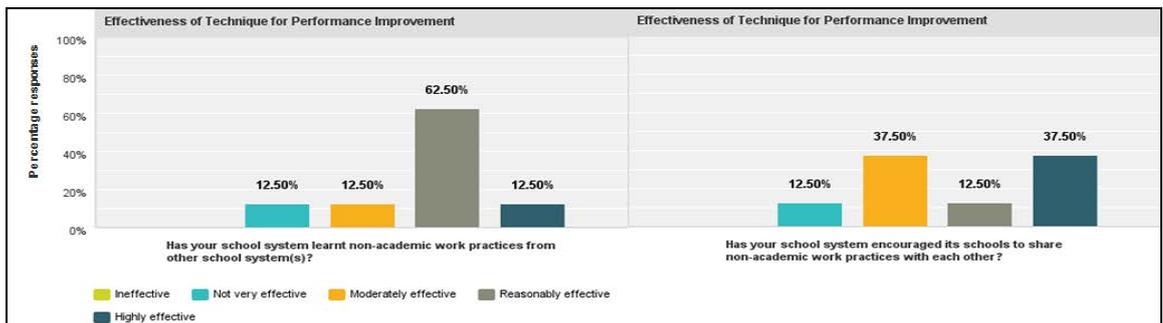


Figure 18 School Systems Learned Non-academic Work Practices and Recommended Schools to Learn Non-academic Work Practices - Effectiveness of Technique for Performance Improvement

The following graph represents responses to the following question:

Which non-academic work practices have you learnt from other school system(s)? (Q8-3)

Figure 19 represents the non-academic work practices learned from other school systems. Although a wide variety of non-academic work practices are learned from other school systems, Developing Leadership Capabilities and IT Support Services are learned by a large number (76.92%) of the school systems.

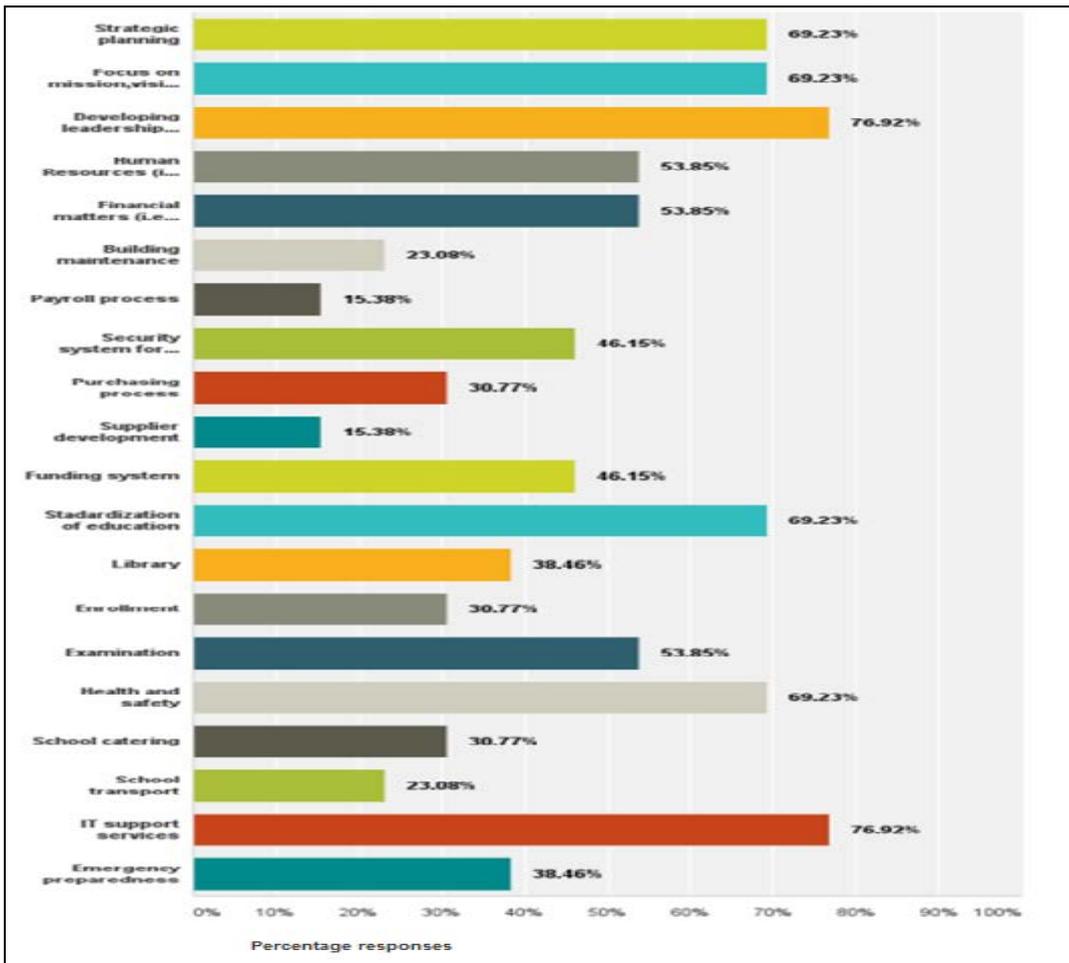


Figure 19 Non-academic Work Practices learned from Other School Systems

Learning Policies and Reforms

The following graphs represent responses to the following questions:

Has your school system considered education reforms of other school system(s) while revising and/or formulating its own reforms? (Q9-1)

Has your school system considered education policies of other school system(s) while revising and/or formulating its own policies? (Q9-2)

Figure 20 shows that the majority (82.35%) of the school systems considered education reforms of other school systems while revising/formulating their own reforms and the majority (87.5%) of the school systems considered education policies of other school systems while revising/formulating their own policies. However, for a distributed extent of use (Figure 21), more than 41% of the respondents indicated considering education reforms of other school systems while revising/formulating their own reform as reasonably to highly effective for performance improvement, and more than 24% of the respondents indicated considering education policies of other school systems while revising/formulating their own policies as reasonably to highly effective for

performance improvement (Figure 22). A large number of the school systems therefore learned education reforms and policies of other school systems.

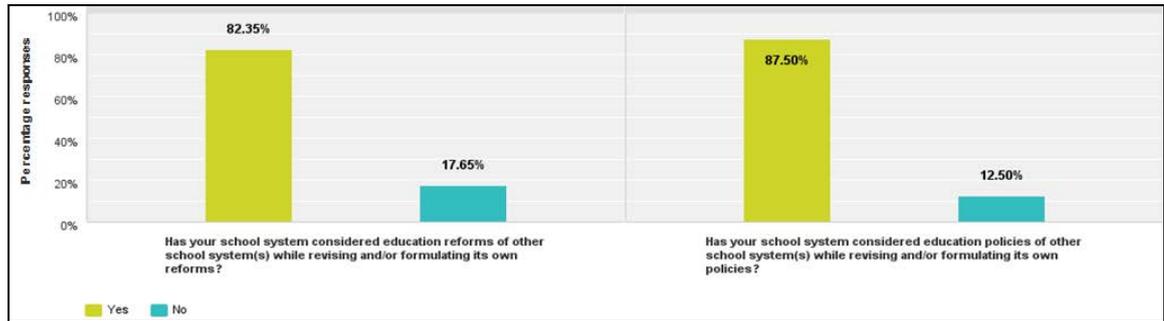


Figure 20 School Systems Considered Education Reforms and Policies of Other School Systems

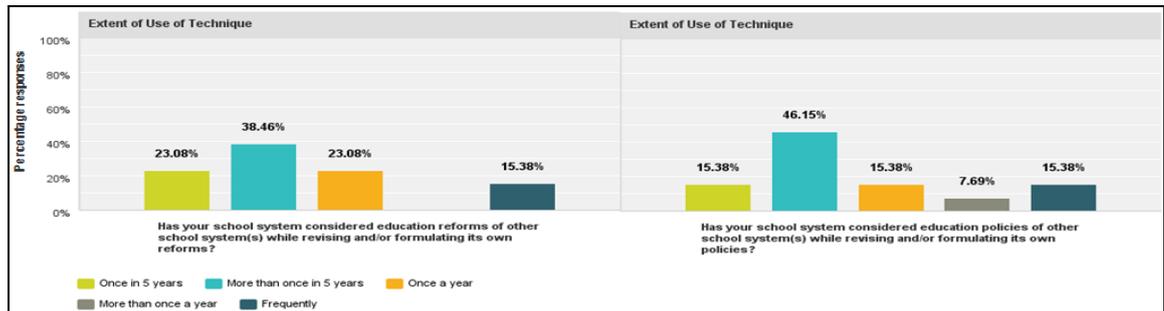


Figure 21 School Systems Considered Education Reforms and Policies of Other School Systems - Extent of Use of Technique

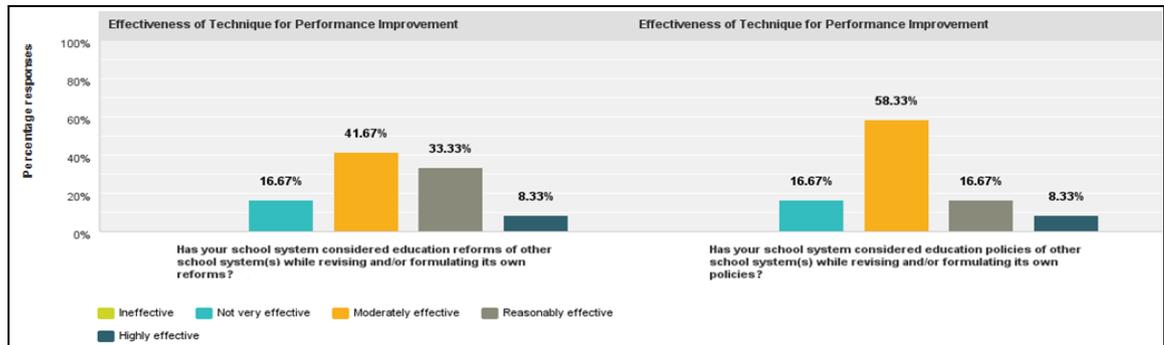


Figure 22 School Systems Considered Education Reforms and Policies of Other School Systems - Effectiveness of Technique for Performance Improvement

The following graphs represent responses to the following questions:

Has your school system encouraged schools within its school system to discuss and share new policies and/or reforms? (Q9-3)

Has your school system encouraged schools within its school system to discuss and share strategies for implementing new policies and/or reforms? (Q9-4)

Figure 23 shows that a large number (77.78%) of the school systems encouraged their schools to share new policies and/or reforms and the majority (88.24%) of the school systems also encouraged schools to discuss and share strategies for implementing new policies and/or reforms. With a distributed extent of use (Figure 24), more than 36% of the respondents indicated encouraging schools to discuss and share new policies and/or

reforms as reasonably to highly effective for performance improvement and more than 41% of the respondents indicated sharing strategies for implementing new policies and/or reforms as reasonably to highly effective for performance improvement (Figure 25). A large number of the school systems therefore encouraged schools to discuss and share new policies and reforms and strategies for their implementation.

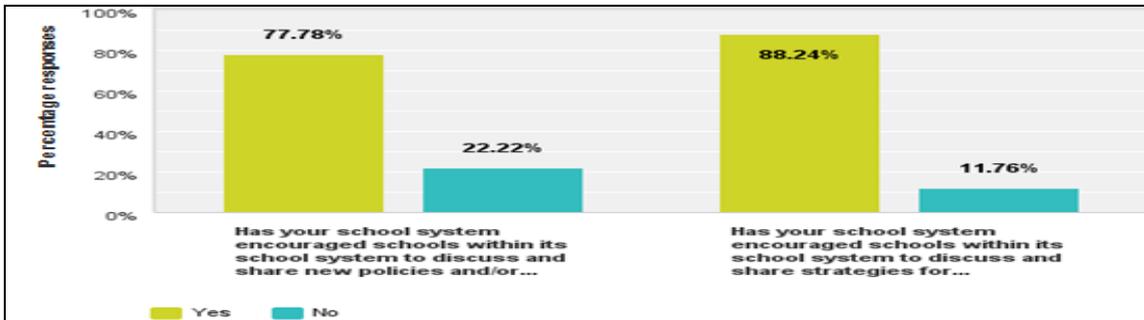


Figure 23 School Systems Encouraged Schools to Discuss and Share Policies and/or Reforms and Strategies for their Implementation

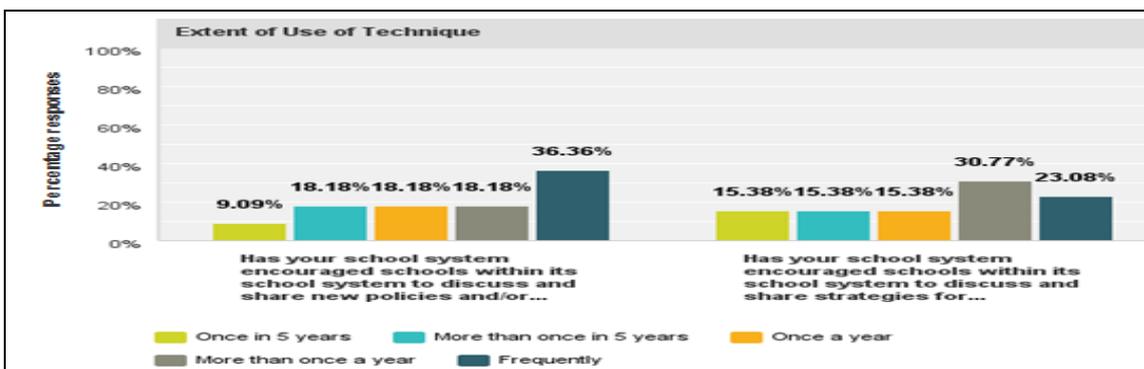


Figure 24 School Systems Encouraged Schools to Discuss and Share Policies and/or Reforms and Strategies for their Implementations - Extent of Use of Technique

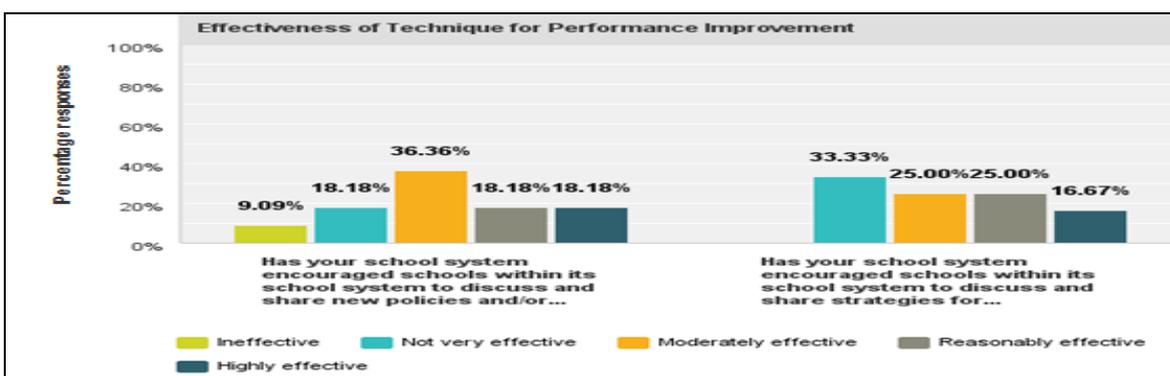


Figure 25 School Systems Encouraged Schools to Discuss and Share Policies and/or Reforms and Strategies for their Implementation - Effectiveness of Technique for Performance Improvement

The following graph represents responses to the following question:

Has the international assessment (e.g. PISA) result impacted your school system's Education Policies, Reforms, Curriculum and Teacher Training Programs? (Q9-5)

For Q9-5, the respondents had the liberty to choose multiple options. Figure 26 shows that the result of international assessment impacted the Education Policies, Reforms and Curriculum of 80% of the school systems; whereas it impacted Teacher Training Programs of only 53.33% of the school systems.

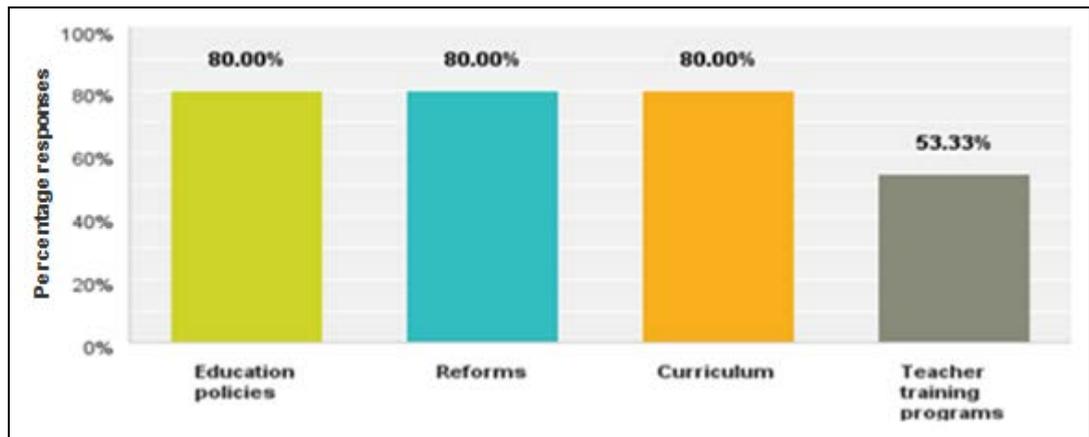


Figure 26 Impact of International Assessments on Various Aspects of School Systems

Question 10: Other Learning Mechanisms

The following graph represents responses to the following question:

In order to promote learning and improvement has your school system learnt work practices of other school systems through Media, Online Sources, Teacher Exchange and/or Visits? (Q10-1)

For Q10-1, the respondents had the right to choose multiple options. Figure 27 shows that the school systems learned work practices of other school systems through a variety of methods. All (100%) the school systems indicated that they have learned work practices of other school systems through visits, the majority (81.25%) of the school systems indicated that they have learned work practices of other school systems through online sources, 75% of the school systems learned work practices of other school systems through teacher exchange and 37.5% of the school systems learned work practices of other school systems through media. With a distributed extent of use (Figure 28), more than 38% of the respondents indicated learning work practices of other school systems through media, online sources, teacher exchange and/or visits as reasonably to highly effective for performance improvement (Figure 29).

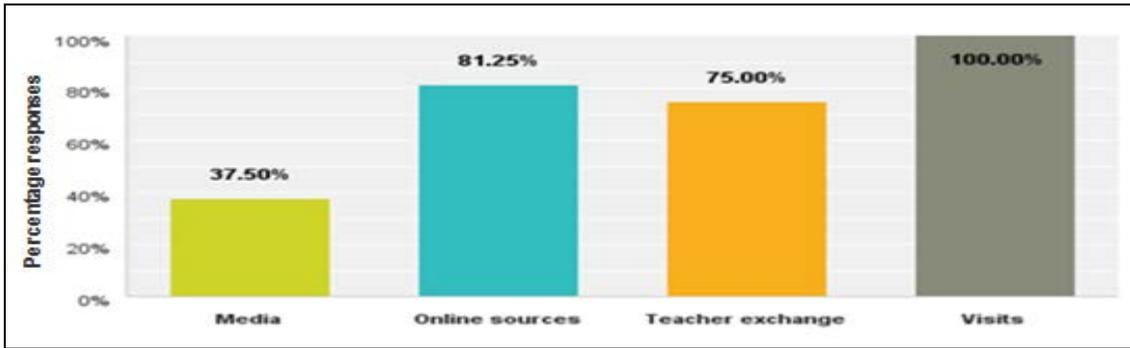


Figure 27 Methods Adopted by School Systems to Learn Work Practices of Other School Systems

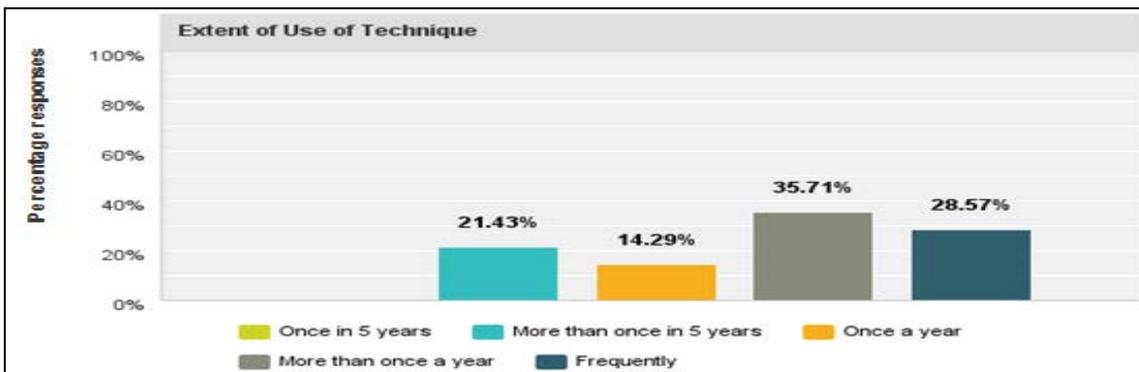


Figure 28 Means Adopted by School Systems to Learn Work Practices of Other School Systems - Extent of Use of Technique

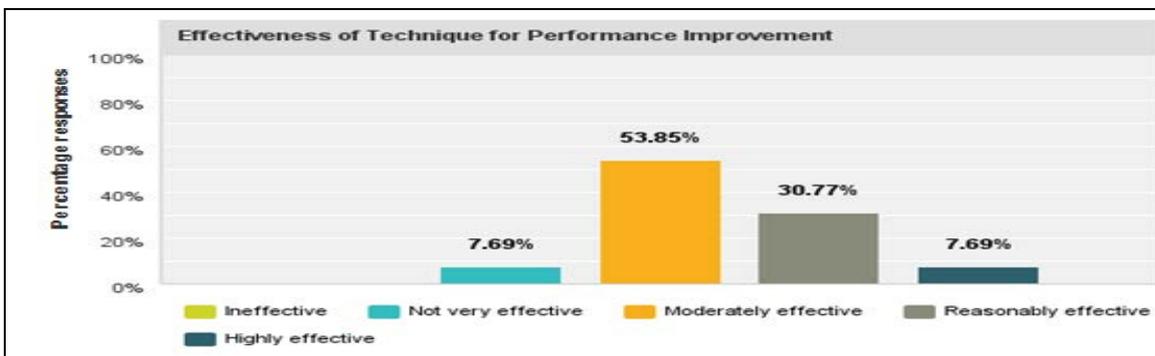


Figure 29 Means Adopted by School Systems to Learn Work Practices of Other School Systems - Effectiveness of Technique for Performance Improvement

CONCLUSION

The above aggregated responses demonstrated that school systems have used benchmarking to learn from other school systems and for supporting learning of their schools; however, they do not recognise benchmarking by its name.

The school systems have used benchmarking for performance comparison and best practice learning (referred to as performance benchmarking and best-practice benchmarking). The school systems are conducting performance benchmarking by means of performance comparison for regular self-assessment. They learn best practices

from other school systems and also encourage their schools to learn and share best practices. The responses indicated that benchmarking has helped in improving the performance of school systems and schools within. The findings recognised benchmarking as a contributor to the performance of school systems.

APPENDIX 9
SUMMARY REPORT OF THE SURVEY WITH SCHOOLS



“HOW DO SCHOOLS LEARN FROM EACH OTHER?”

Findings from the School Questionnaire

Rubab Malik

30th November 2015

Supervisors

Dr Robin Mann

A/Prof Nigel Grigg

EXECUTIVE SUMMARY

Benchmarking is a performance improvement technique that involves learning best practices from others and implementing them well. As a means to explore the role of benchmarking in improving the performance of school systems and schools around the world, a study is being conducted at Massey University in New Zealand.

This is a preliminary report to share findings from the survey investigating the use of benchmarking within schools. The survey was intended to determine the extent to which benchmarking is used by schools and to identify benchmarking techniques used by schools to learn from other schools and for supporting the learnings of their staff (especially teachers). The questionnaire-based survey was administered to schools interested in the research. Although it was not possible to involve each and every school, responses were received from 183 schools from around the world and revealed many interesting findings about benchmarking and its application. Responses were received from schools in New Zealand, Australia, Canada, Czech Republic, Portugal, Poland, Singapore, Philippines, Iceland, UAE, and Indonesia. The names of schools that agreed to be identified are presented at the end of the report. This report shares cumulative responses for each closed-ended survey question by graphically presenting it. The responses for open-ended questions are not included in the report as they required more time for analysis.

This report determines that benchmarking is widely used by schools as a means to learn from other schools and also for promoting learning and sharing among staff. In addition, the exploratory variables for each question show how benchmarking leverages the performance of participating schools.

This report is part of a larger study to explore the role of benchmarking to the performance of school systems and schools. Prior to this survey, a survey was administered to school systems and attracted responses from 20 school systems, including Finland, Estonia, Poland, Spain, Dubai, Czech Republic, Portugal, Iceland, Sri Lanka, Norway, Iredell-Statesville Schools (USA), Chugach School District (USA), Vietnam, Sweden, Serbia, Indonesia and Belgium. In the next phase of this study, benchmarking techniques identified by school systems and schools will be explored in

detail through structured interviews. The outcome from this research will be a Benchmarking Framework to assist school systems and schools to undertake benchmarking effectively leading to better educational and societal outcomes.

ANALYSIS OF THE QUESTIONNAIRE RESPONSES

In total 183 schools participated in the survey. The respondents included Principals and/or members of senior management team of schools.

The aggregated responses for each question of school questionnaire are now presented graphically.

The following graph represents responses to the following question:

How do you measure the performance of your school? (Q4)

For Q4, the respondents had the liberty to choose more than one answer choices. Figure 1 below shows that schools measured their performance in a number of ways. Among the identified performance measurement areas, holistic performance is measured by the majority (83.70%) of the schools, academic performance by 39.67%, non-academic by 14.67%, achievement based by 23.37%, admissions based by 7.61% and others by 5.98% of the schools. The majority of the schools measured the performance of their school holistically.

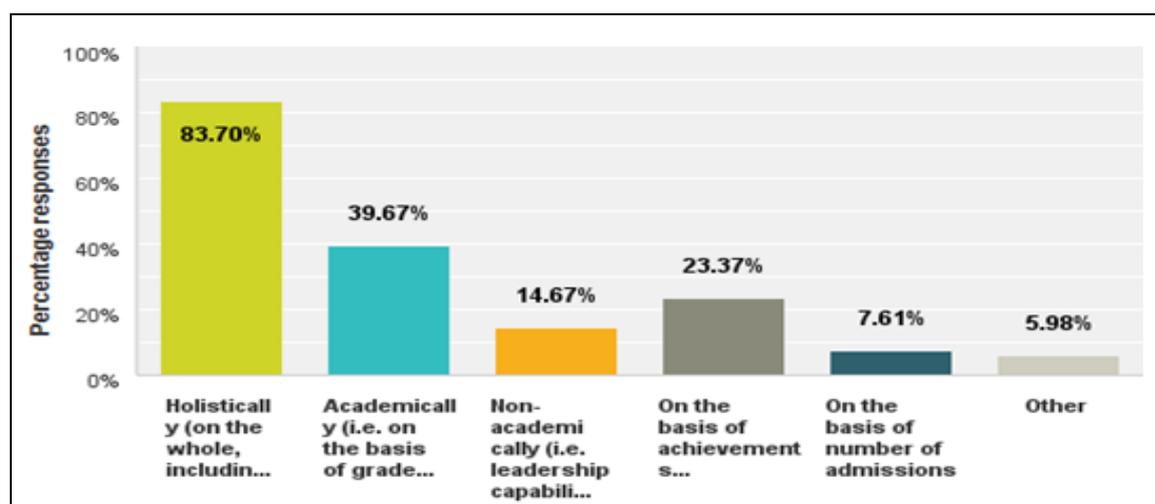


Figure 1 Criteria for Performance Measurement Adopted by Schools

The following graph represents responses to the following question:

Considering the past 5 years, how would you rate the performance of your school? (Q5)

Figure 2 below shows that 60.33% of the respondents claimed that the performance of their school has improved over the last 5 years and more than 21.20% of the respondents recognised the performance to have improved significantly over the last 5 years. However, 17.39% of the respondents considered their performance to be more or less the same and only about 1.09% of the respondents observed a decline in

performance. The majority of the schools have therefore improved their performance over the last 5 years.

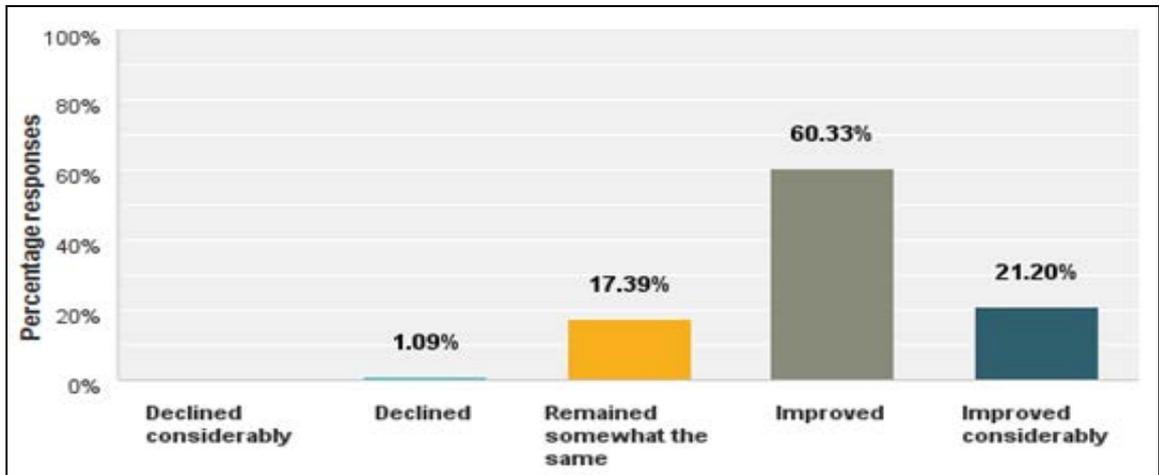


Figure 2 Change in the Performance of Schools over the Last 5 Years

The following graph represents responses to the following question:

To what extent are you satisfied with the quality of education at your school?
(Q6)

Figure 3 below shows that 57.38% of the respondents are satisfied with the quality of education at their school and about 17.49% are very satisfied. However, 14.21% of the respondents are neither satisfied nor dissatisfied and 5.46% of the respondents in each category are somewhat unsatisfied and very unsatisfied with the quality of education at their school. The majority of the schools are therefore satisfied with the quality of education at their school.

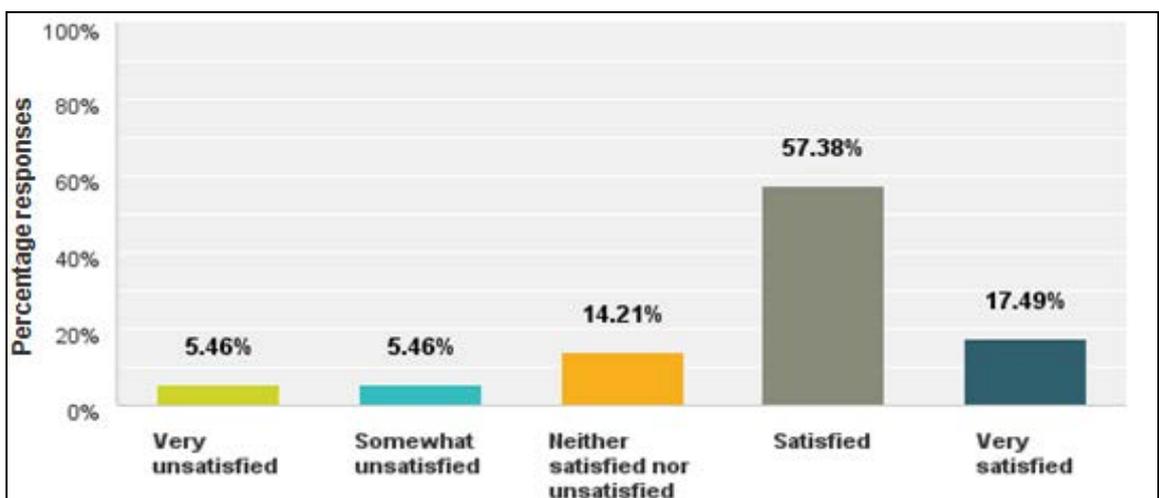


Figure 3 Level of Satisfaction with the Quality of Education Provided

The following graph represents responses to the following question:

Are your answers based on the whole school? (Q7)

Figure 4 below shows that the majority (93.99%) of the responses are related to the whole school and about 6.01% of the responses are related to certain specific areas of the school.

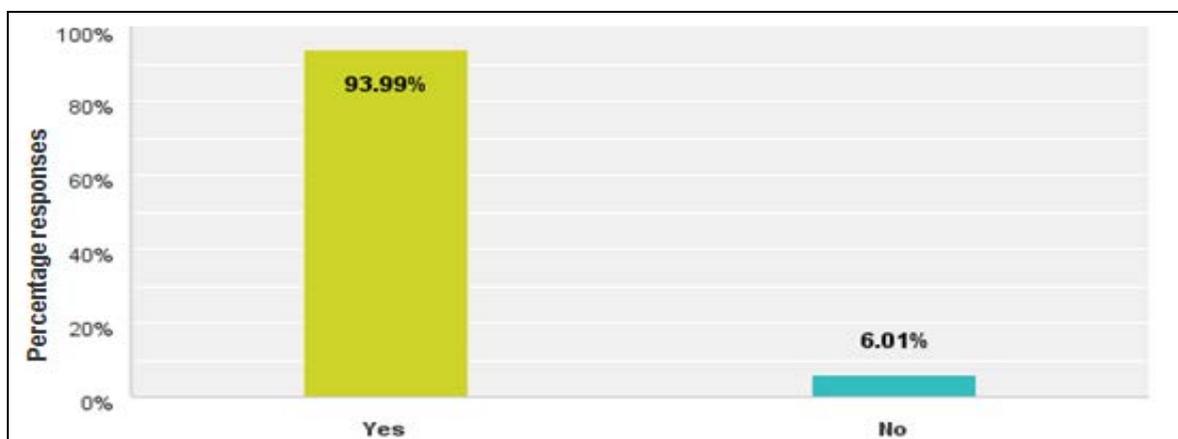


Figure 4 Scope of Survey Responses

The following graph represents responses to the following question:

What is the level of your school? (Q8)

Figure 5 below shows that 50.55% of the respondents belonged to primary level, 20.33% of the respondents belonged to secondary level and 17.58% of the respondents belonged to both primary and secondary level. However, about 11.54% of the respondents belonged to other levels of education. The majority of the schools in this report are related to primary and secondary level.

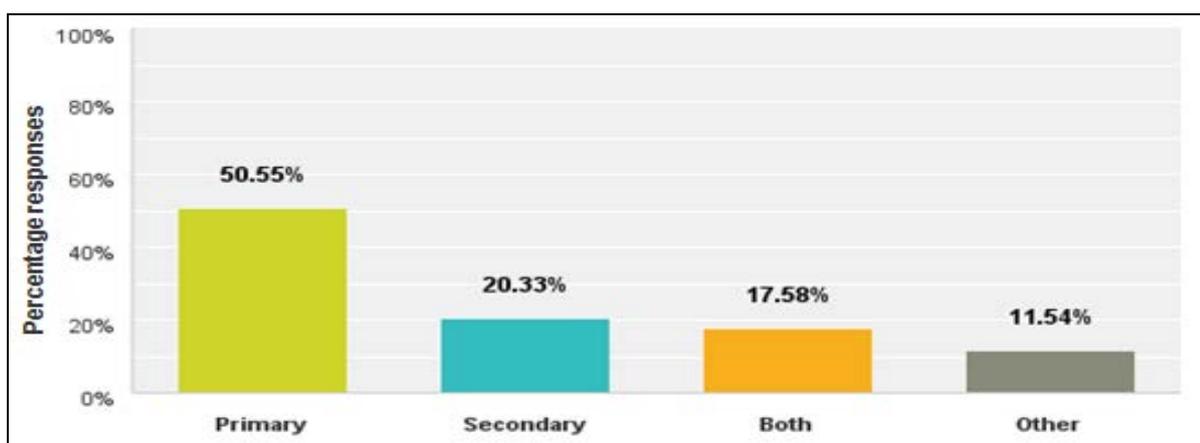


Figure 5 Level of Participating Schools

Question 9: Performance Measurement Activities

The following graph represents responses to the following questions:

Did your school at any point compare its performance against another school(s) for academic performance? (Q9-1)

Did your school at any point compare its performance against another school(s) for non-academic performance? (Q9-2)

Figure 6 below show that 77.71% of the schools compared their performance with other schools for academic performance. However, only 50% of the schools compared their performance with other schools for non-academic performance. A greater number of the schools therefore compared their academic performance with other schools.

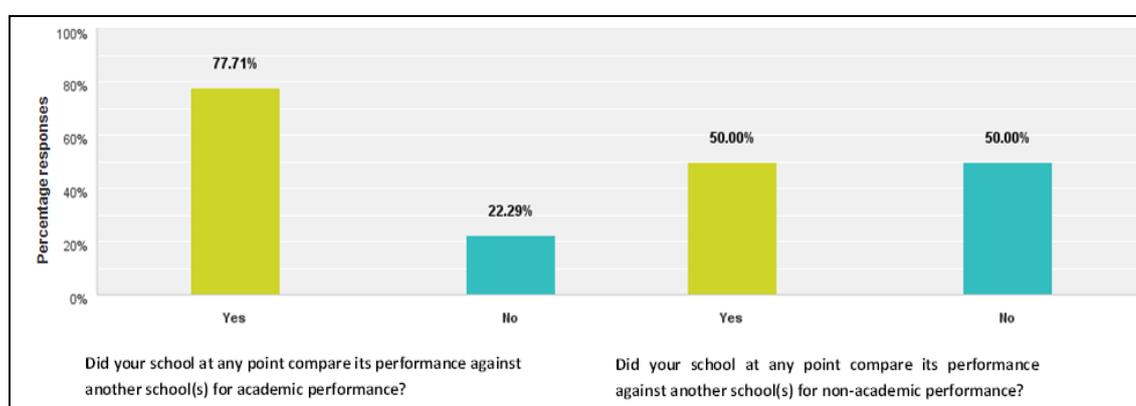


Figure 6 Comparison of Academic and Non-Academic Performance

The following graph represents responses to the following questions:

Did your school at any point compare its performance against another school(s) for holistic learning? (Q9-3)

Did your school at any point compare its performance against another organisation (e.g. industry)? (Q9-4)

Figure 7 shows that 43.93% of the schools compared their performance against another school for holistic learning and only 13.22% of the schools compared their performance against another organisation. Schools therefore compared their holistic performance with other schools more than comparing performance with other organisations.

However, the majority of the schools compared their academic performance with other schools (refer to Figures 6 and 7).

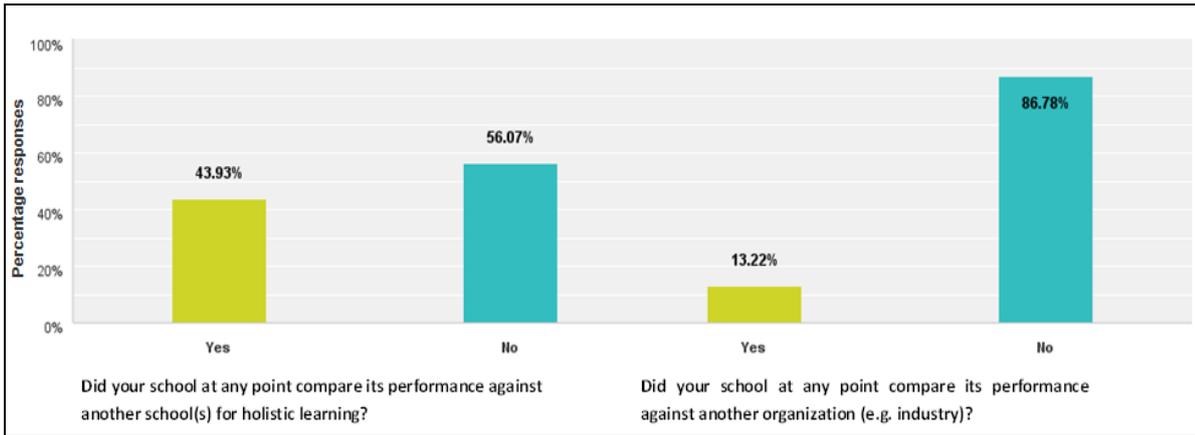


Figure 7 Comparison of Holistic Performance and Comparison of Performance with Other Organisations

The following graph represents responses to the following question:

Did the performance comparison of your school with another school(s) and/or organisation(s) result in learning and/or improvement? (Q9-5)

Figure 8 below shows that 68.64% of the schools have found the performance comparison (presented in Figures 6 and 7) useful for learning and improvement. A large number of the schools therefore considered performance comparison beneficial for learning and improvement.

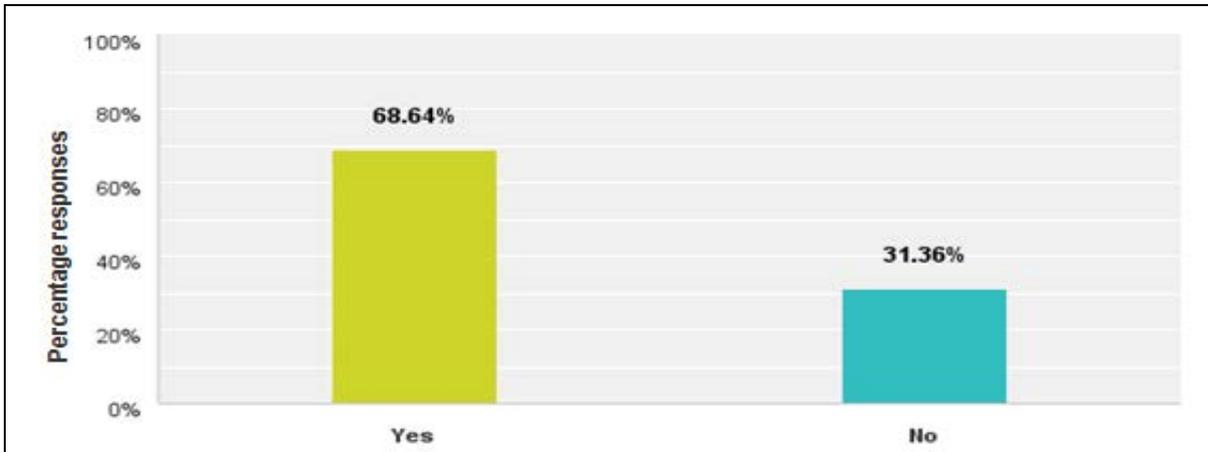


Figure 8 Outcome of Performance Comparison with another School(s) and/or Organisation

The following graph represents responses to the following question:

To what extent did the performance comparison (i.e. academic, non-academic etc.) assist your school in learning and/or improvement? (Q9-6)

Figure 9 shows that 69.11% of the schools indicated that the performance comparison resulted in a moderate to significant learning and/or improvement.

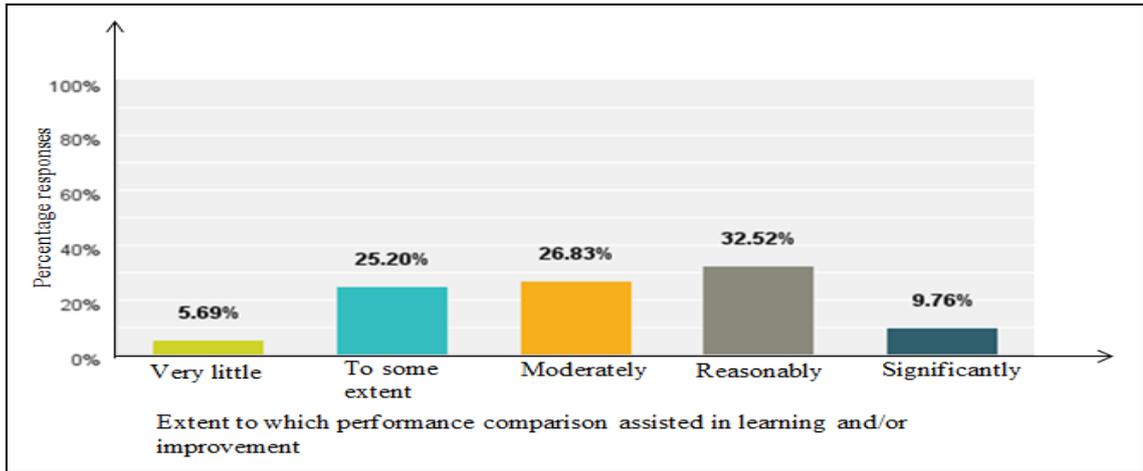


Figure 9 Learning and/or Improvement Resulting From Performance Comparison

Question 10: Learning Academic Work Practices

The following graph represents responses to the following questions:

Has your school encouraged staff at all levels to assist their peers? (Q10-1)

Has your school encouraged staff at all levels to get assistance from their peers? (Q10-2)

Figure 10 below shows that the majority (96.64%) of the schools encouraged staff to assist their peers and the majority (94.59%) of the schools also encouraged staff to get assistance from their peers. However, with a reasonable extent of use⁵⁹ (Figure 11) more than 71% of the respondents indicated encouraging staff to assist their peers as reasonably to highly effective for performance improvement and more than 65% of the respondents indicated encouraging staff to get assistance from their peers as reasonably to highly effective for performance improvement (Figure 12). A large number of the schools therefore encouraged their staff to learn from each other.

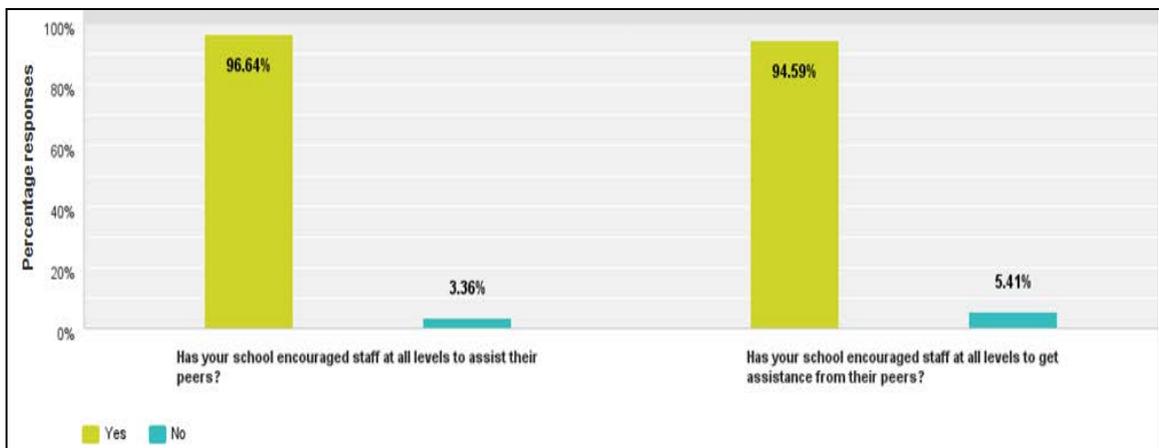


Figure 10 Schools Encouraged Staff to Learn from Each Other

⁵⁹ The extent of use of benchmarking means the frequency of use of benchmarking

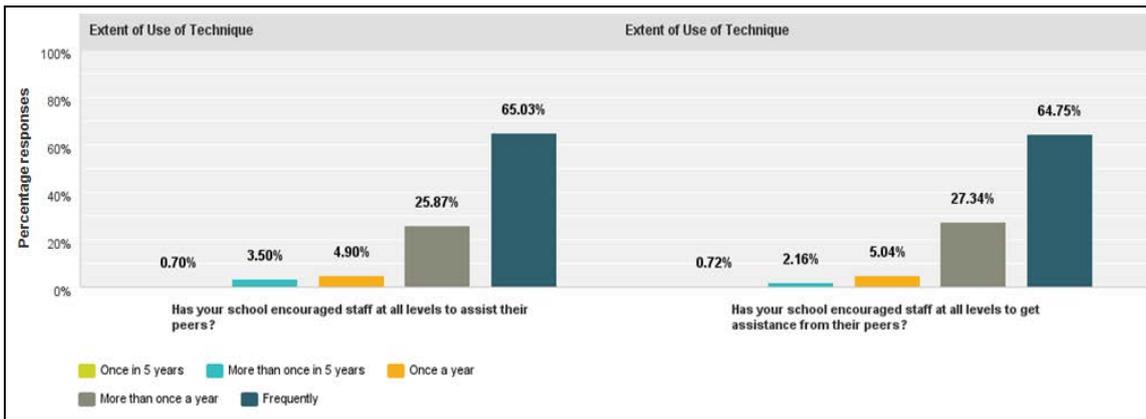


Figure 11 Schools Encouraged Staff to Learn from Each Other - Extent of Use of Technique

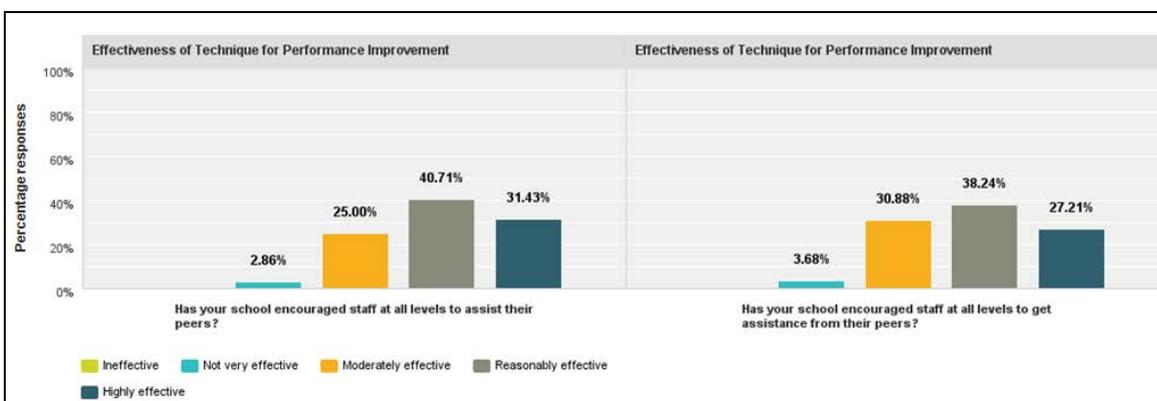


Figure 12 Schools Encouraged Staff to Learn from Each Other - Effectiveness of Technique for Performance Improvement

The following graph represents responses to the following question:

Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through regular meetings, collaborative lesson planning, demonstration lessons, seminars, workshops, observations and/or face-to-face training? (Q10-3)

Figure 13 below shows that senior teachers share their teaching experience with other teachers through Regular Meetings, Collaborative Lesson Planning, Demonstration Lessons, Seminars, Workshops, Observations and Face-to-face Training. However, the majority (90.13%) of the schools encouraged sharing of work practices between senior teachers and other teachers through Regular Meetings and Collaborative Lesson Planning. With a distributed extent of use (Figure 14), all these methods are considered reasonably to highly effective by the majority of respondents (Figure 14). Hence, the senior teachers share their teaching experience with other teachers through several methods.

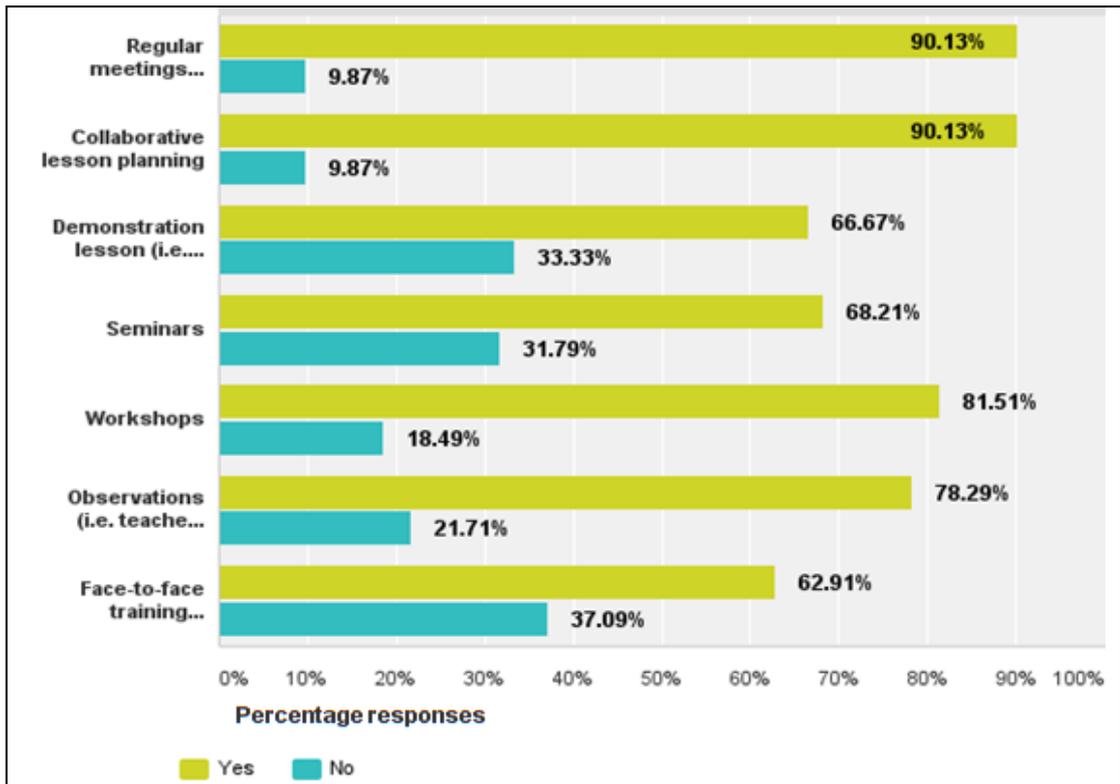


Figure 13 Methods Adopted by Senior Teachers to Share Experience and Work Practices with Other Teachers

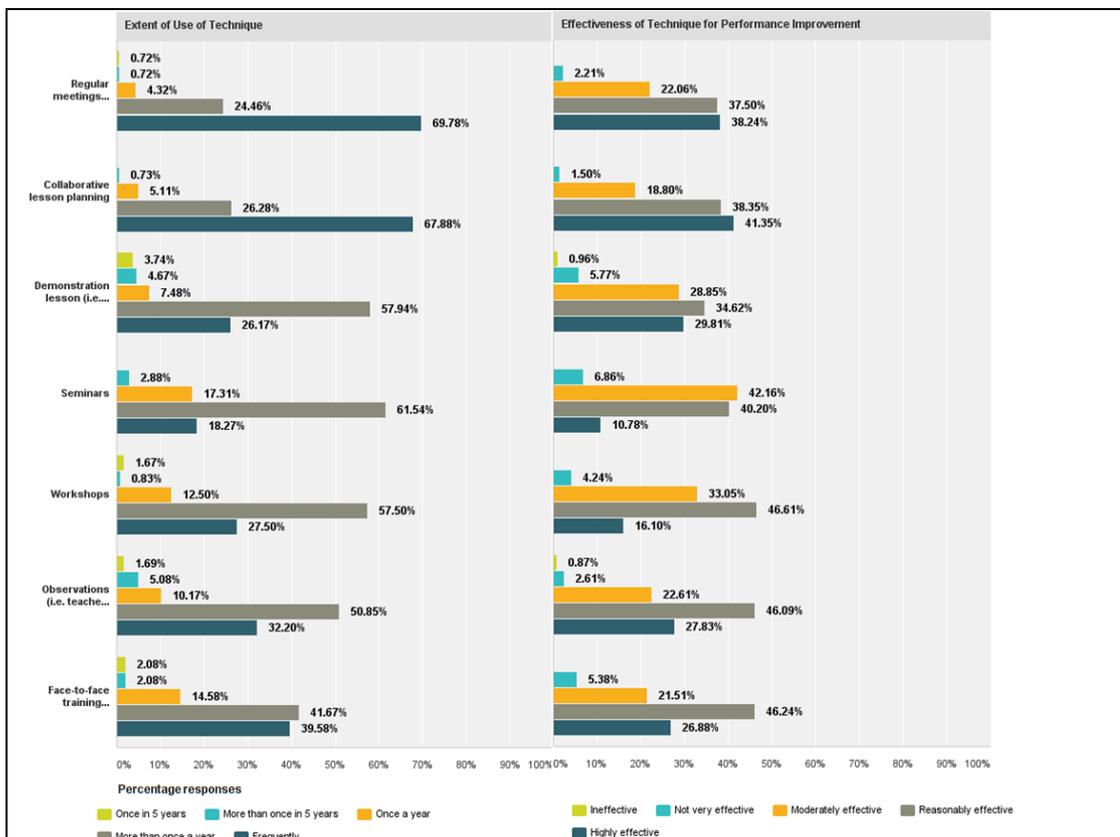


Figure 14 Methods Adopted by Senior Teachers to Share Experience and Work Practices with Other Teachers - Extent of Use and Effectiveness of Technique for Performance Improvement

Learning through Observations

The following graph represents responses to the following question:

Has your school undertaken observations of teachers' lessons by the principal and/or senior teacher(s) for identifying strengths and weaknesses in teaching methodologies, followed by suggestions for improvement? (Q10-4)

Figure 15 below shows that the majority (90.48%) of the schools undertook observations of teachers' lessons by the principal and/or senior teacher for identifying strengths and weaknesses in teaching methodologies. With a distributed extent of use, this technique is considered reasonably to highly effective by more than 66% of the respondents (Figure 16). A large number of the schools therefore undertook observations of teachers' lessons by the principal and/or senior teacher.

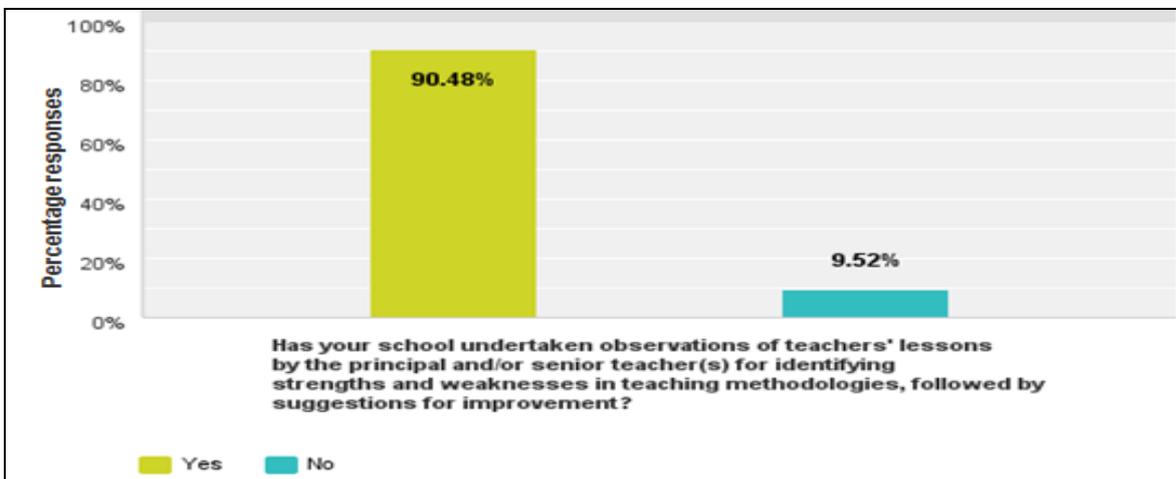


Figure 15 Schools Undertaken Observations of Teachers' Lessons by the Principal and/or Senior Teacher

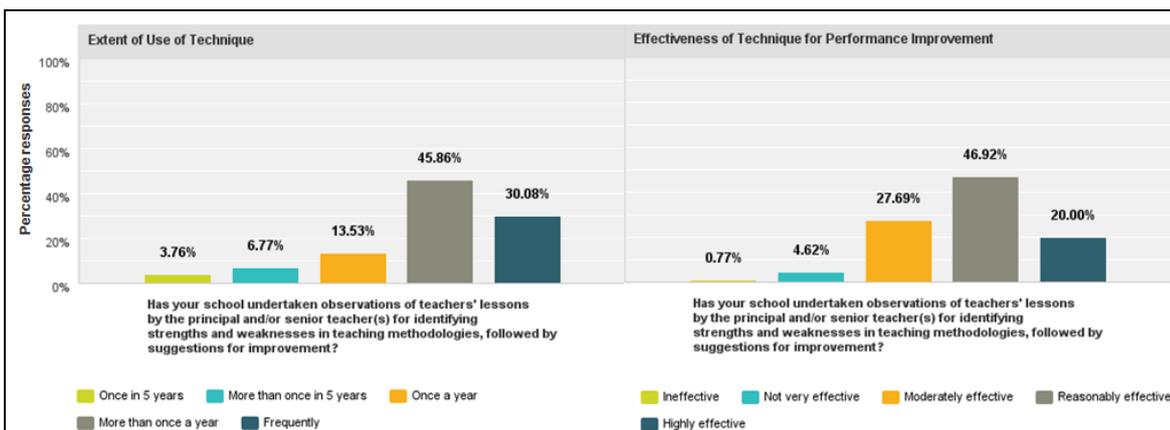


Figure 16 Schools Undertaken Observations of Teachers' Lessons by the Principal and/or Senior Teacher - Extent of Use and Effectiveness of Technique for Performance Improvement

The following graph represents responses to the following question:

Has your school undertaken observations of teachers' lessons by external teachers (from outside your school) followed by their feedback and suggestions for improvement? (Q10-5)

Figure 17 below shows a mixed trend in relation to observations of teachers' lessons by external teachers, as only 52.38% of the schools used this technique. However, with a varied extent of use, 35.53% of the respondents considered this approach reasonably effective and 19.74% of the respondents considered it highly effective for performance improvement (Figure 18). A large number of the schools undertaking observations of teachers' lessons by external teachers considered it beneficial for performance improvement.

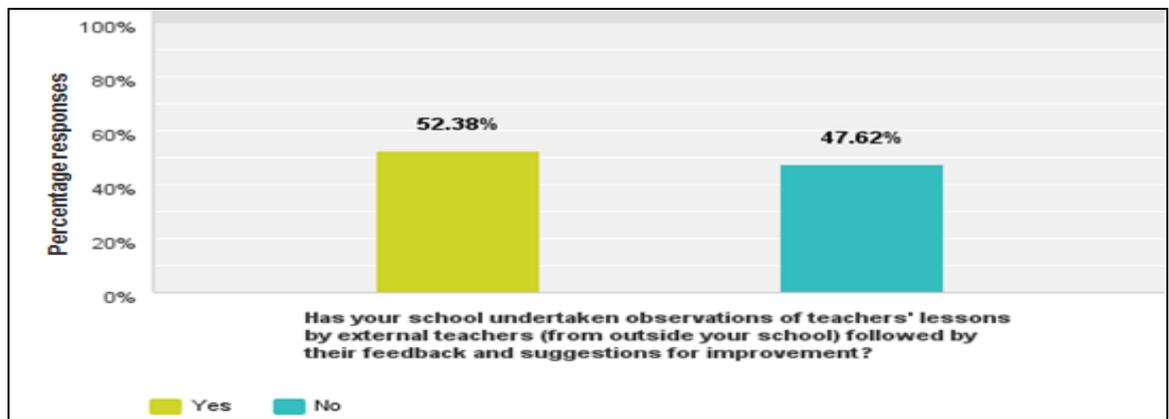


Figure 17 Schools Undertaken Observations of Teachers' Lessons by External Teachers

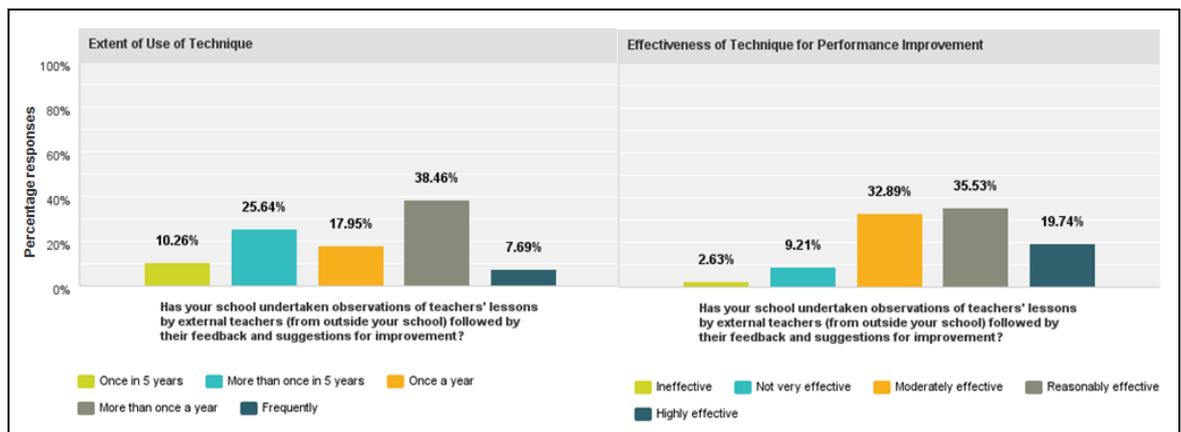


Figure 18 Schools Undertaken Observations of Teachers' Lessons by External Teachers - Extent of Use and Effectiveness of Technique for Performance Improvement

The following graph represents responses to the following question:

Has your school ensured that teachers participating in sharing sessions (e.g. workshops, seminars etc.) share learned lessons with their counterparts? (Q10-6)

Figure 19 below shows that 79.59% of the schools ensured that teachers participating in sharing sessions share learned lessons with their counterparts. However, with a diverse extent of use, more than 63% of the respondents indicated sharing of learned lessons as reasonably to highly effective for performance improvement (Figure 20). A large number of the schools therefore considered sharing of learnings with counterparts effective for performance improvement.

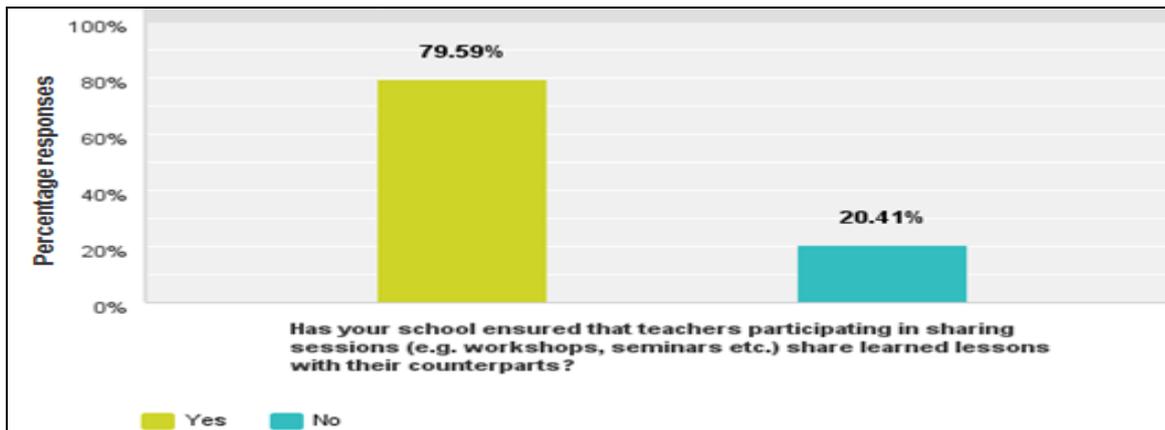


Figure 19 Schools Ensured Sharing of Learnings from Sharing Sessions

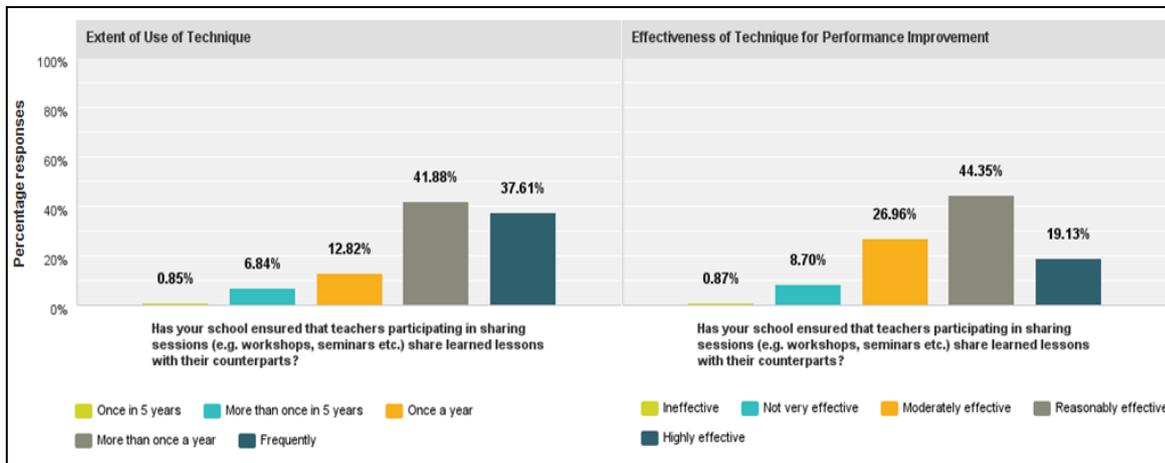


Figure 20 Schools Ensured Sharing of Learnings from Sharing Sessions - Extent of Use and Effectiveness of Technique for Performance Improvement

The following graph represents responses to the following question:

Has your school appointed experienced teacher(s) as consultant(s), to share knowledge, skills and experience with in-service teachers? (Q10-7)

Figure 21 below shows a mixed trend, as only 51.39% of the schools appointed experienced teachers as consultants for sharing of knowledge skills and experience with in-service teachers. With a varied extent of use, more than 83% of the respondents indicated appointing experienced teachers as consultants to be reasonably to highly

effective for performance improvement (Figure 22). A large number of the schools appointing consultant teachers therefore considered it beneficial for performance improvement.

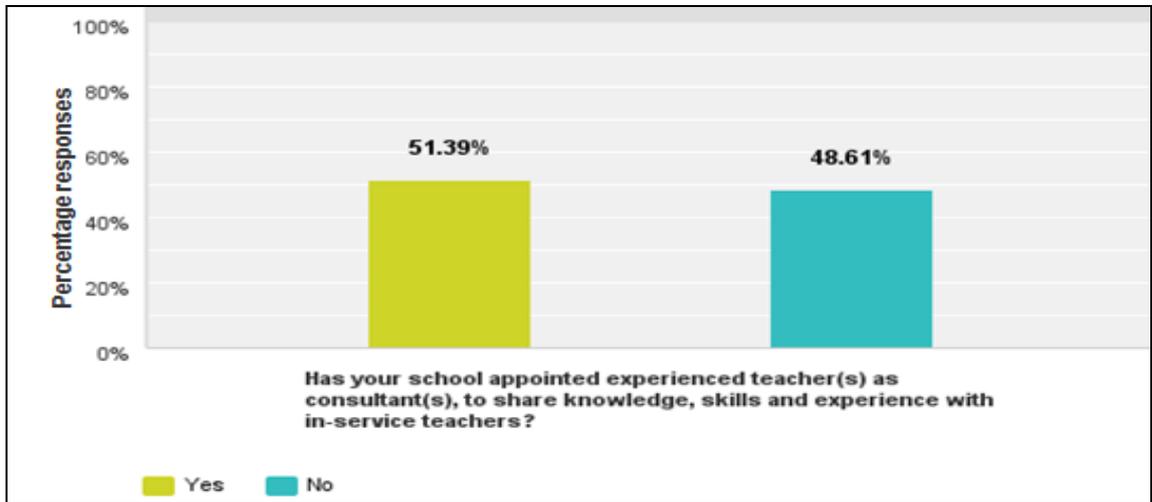


Figure 21 Appointed Experienced Teachers as Consultants

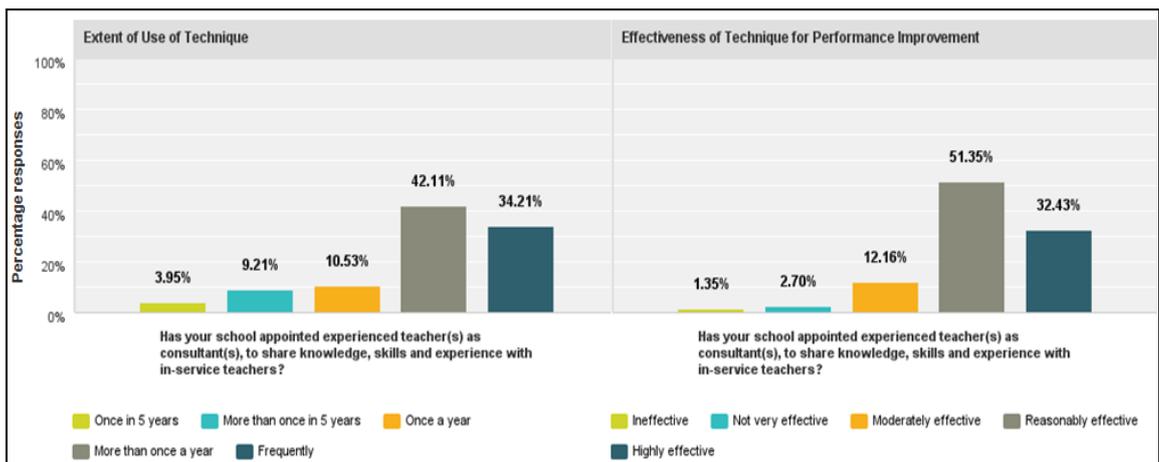


Figure 22 Appointed Experienced Teachers as Consultants - Extent of Use and Effectiveness of Technique for Performance Improvement

The following graph represents responses to the following question:

Does the school have a website to facilitate teachers to share work practices and/or learn from each other? (Q10-8)

Figure 23 below shows that 47.95% of the schools have a website to facilitate teachers to share work practices with each other. With a frequent use of this approach by 72.46% of the schools, more than 72% of the respondents indicated this approach as reasonably to highly effective for performance improvement (Figure 24). A large number of the schools having a website considered it useful for learning and sharing of work practices among teachers.

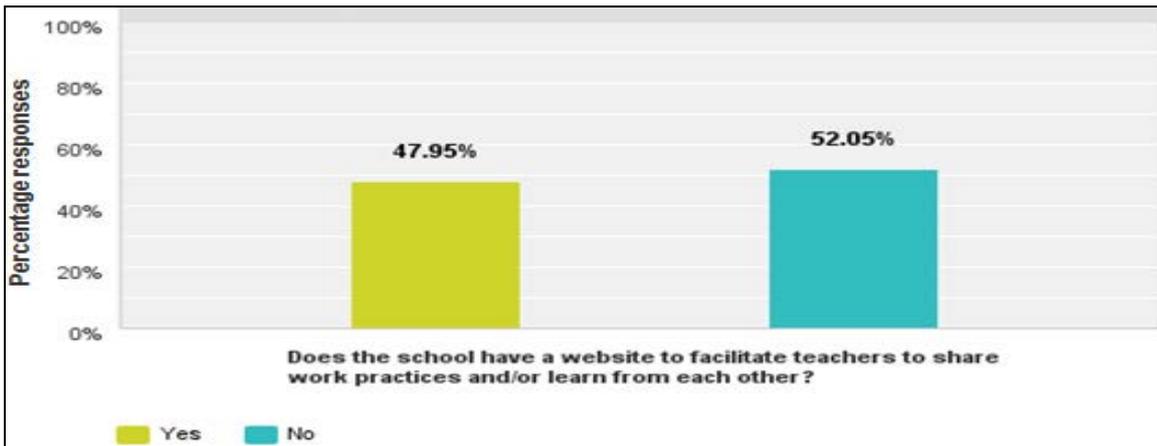


Figure 23 Schools Developed Website for Sharing and/or Learning Among Teachers

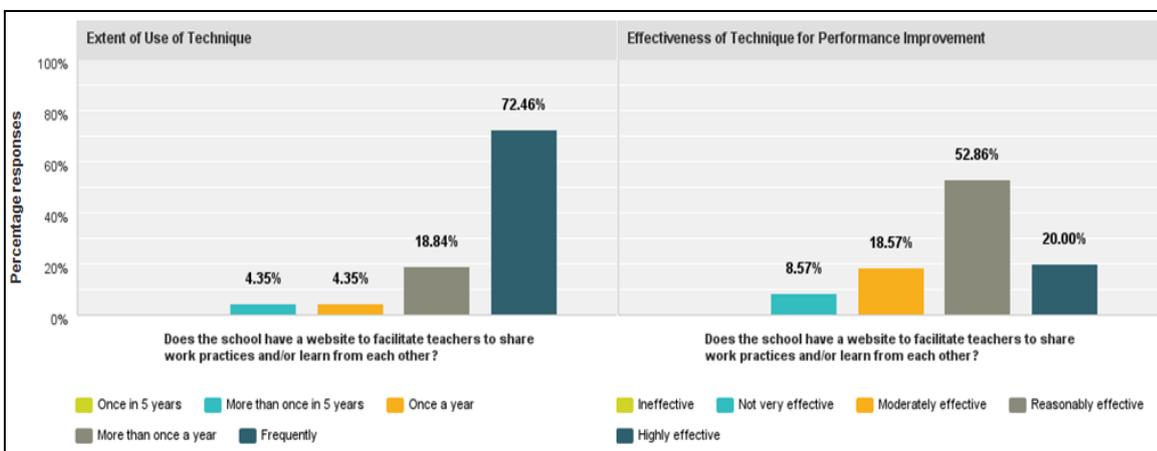


Figure 24 Schools Developed Website for Sharing and/or Learning Among Teachers - Extent of Use and Effectiveness of Technique for Performance Improvement

Learning from Other Schools

The following graph represents responses to the following question:

Has your school at any point collaborated with a local school (i.e. within your country or school system) to share pedagogical work practices (e.g. teaching methodologies)? (Q10-10)

Figure 25 below shows that 76.64% of the schools collaborated with local schools to share pedagogical work practices. However, with a distributed extent of use, this technique is considered reasonably to highly effective by more than 55% of the respondents (Figure 26). A reasonable number of the schools collaborating with local schools for sharing of pedagogical work practices considered it valuable for performance improvement.

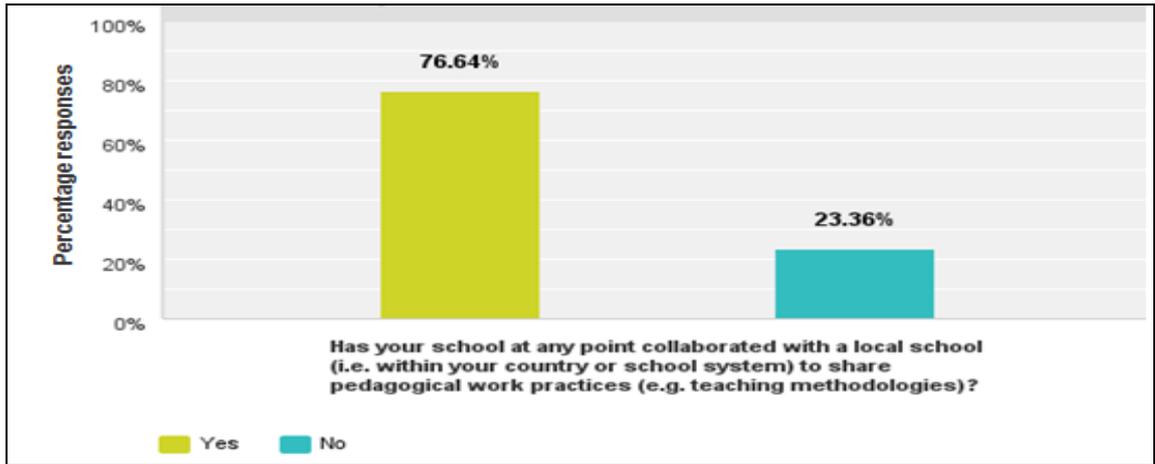


Figure 25 Schools Collaborated with Local Schools for Pedagogical Sharing

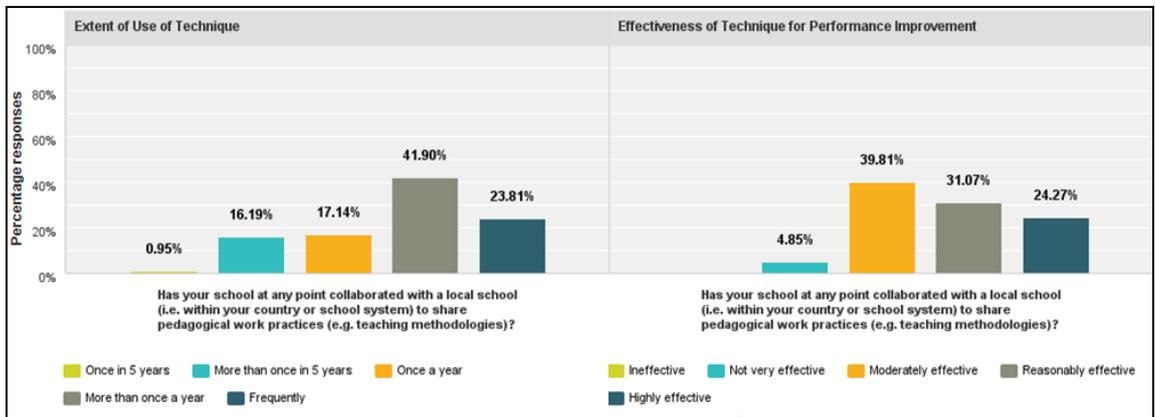


Figure 26 Schools Collaborated with Local Schools for Pedagogical Sharing - Extent of Use and Effectiveness of Technique for Performance Improvement

The following graph represents responses to the following question:

Has your school at any point collaborated with an international school(s) (i.e. outside of your own school system) to share pedagogical work practices (i.e. teaching methodologies)? (Q10-11)

Figure 27 below shows that only 39.42% of the schools collaborated with international schools to share pedagogical work practices. With a distributed extent of use, this technique is considered reasonably to highly effective by more than 48% of the respondents (Figure 28). A reasonable number of the schools collaborating with international schools for sharing of pedagogical work practices considered it valuable for performance improvement.

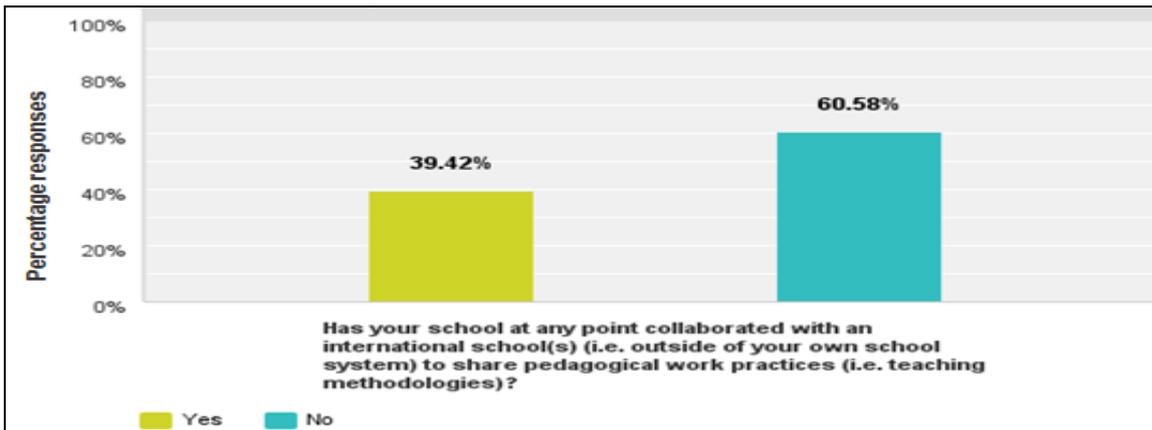


Figure 27 Schools Collaborated with International Schools for Pedagogical Sharing

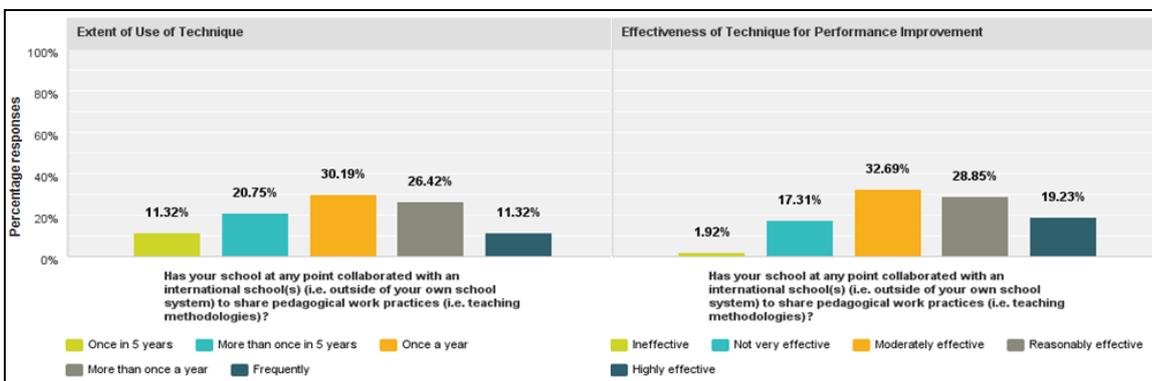


Figure 28 Schools Collaborated with International Schools for Pedagogical Sharing - Extent of Use and Effectiveness of Technique for Performance Improvement

The following graph represents responses to the following question:

Has your school learned about improvement initiatives at another school(s) through media, web sources, conferences/seminars, teacher exchange and/or visits? (Q10-12)

Figure 29 below shows that schools learned about improvement initiatives at other schools through Media, Web Sources, Conferences/Seminars, Teacher Exchange and Visits. Of these, Conferences/Seminars and Visits are the most frequently used methods for learning improvement initiatives at other schools and are employed by more than 84.92% and 82.68% of the schools respectively. However, with a varied use of each of these method, Conferences/Seminars and Visits are considered reasonably to highly effective by more than 53% and 63.55% of the respondents respectively (Figure 30). Thus, the schools learned about improvement initiatives at other schools through a number of methods.

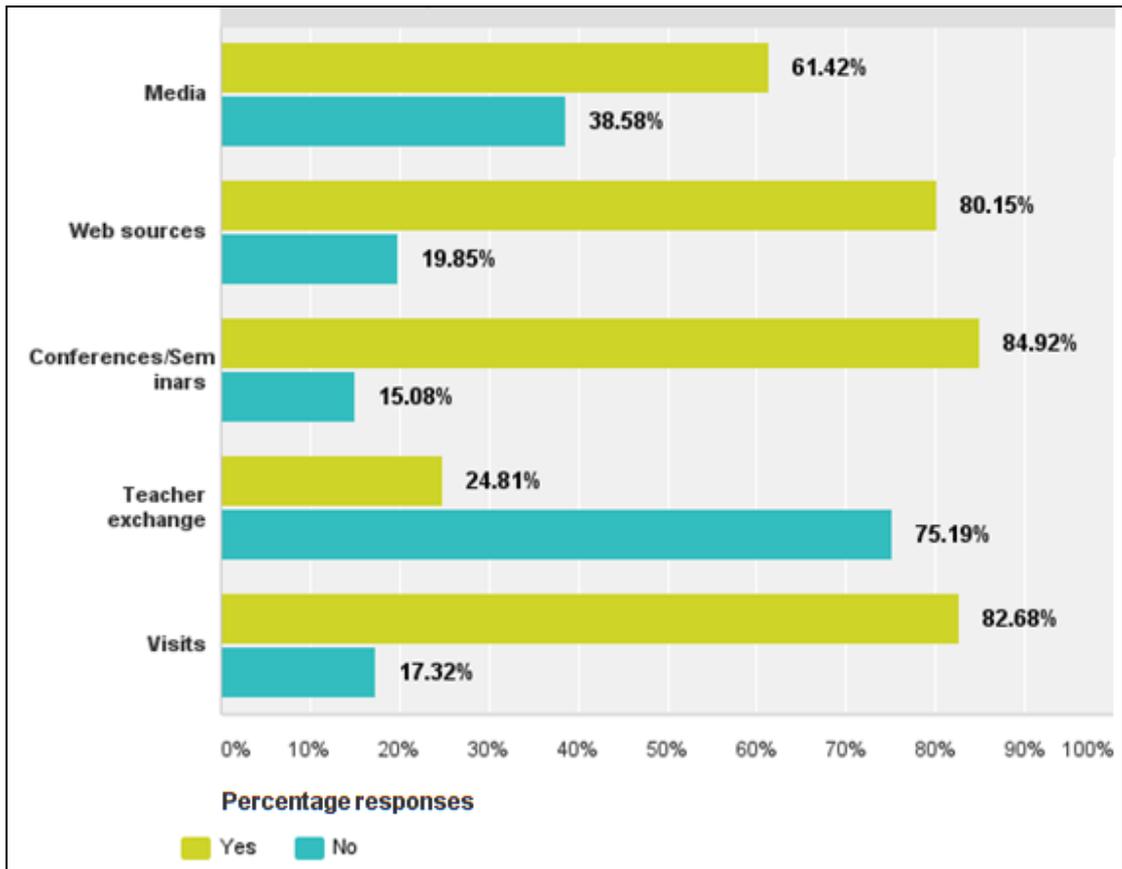


Figure 29 Methods Adopted by Schools to Learn About Improvement Initiatives at Other Schools

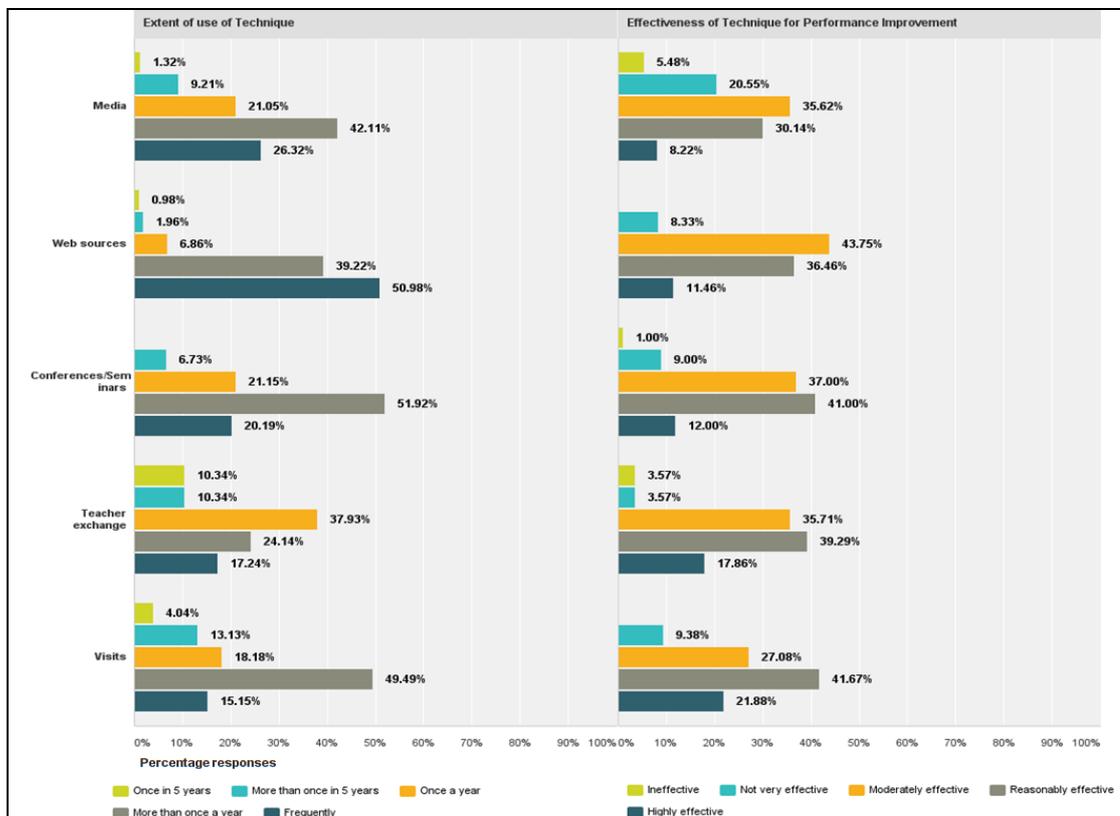


Figure 30 Methods Adopted by Schools to Learn About Improvement Initiatives at Other Schools - Extent of Use and Effectiveness of Technique for Performance Improvement

The following graph represents responses to the following question:

Which academic work practices have you learned from other school(s)? (Q10-14)

Figure 31 below shows that the schools learned a number of academic work practices from other schools. However, the Use of IT for Student Learning and Teaching Approach/Methodology are learned more than other academic work practices, and are used by 73.02% and 66.67% of the schools respectively.

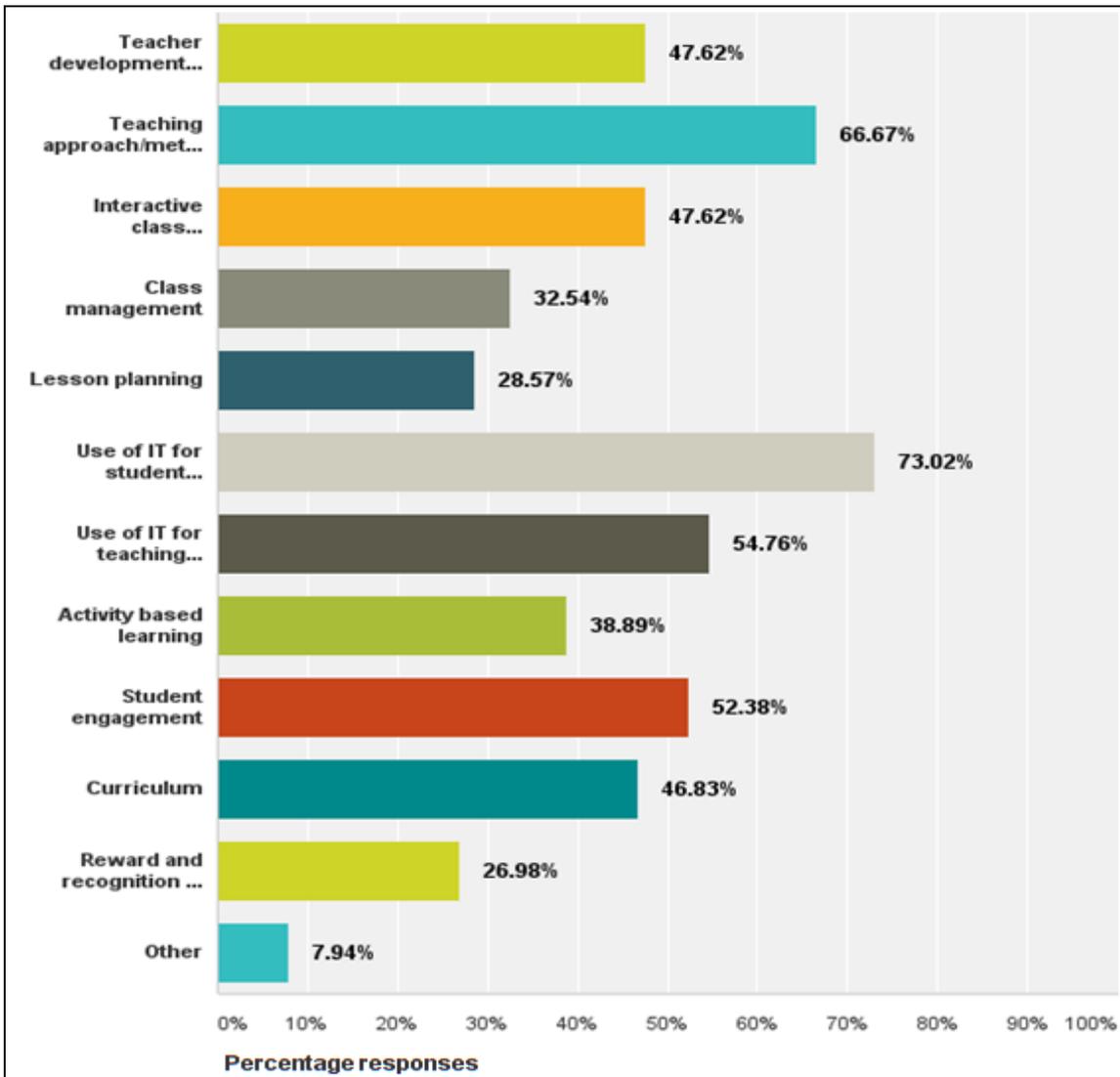


Figure 31 Academic Work Practices Learned from Other Schools

Question 11: Holistic Learning

The following graph represents responses to the following question:

Has your school included provision of holistic learning in its strategy? (Q11-1)

Figure 32 below shows that 72.52% of the schools have included provision of holistic learning in their strategy. However, with a varied extent of use, this technique is

considered reasonably to highly effective by more than 76% of the respondents (Figure 33). A large number of the schools have therefore included the provision of holistic learning in their strategy.

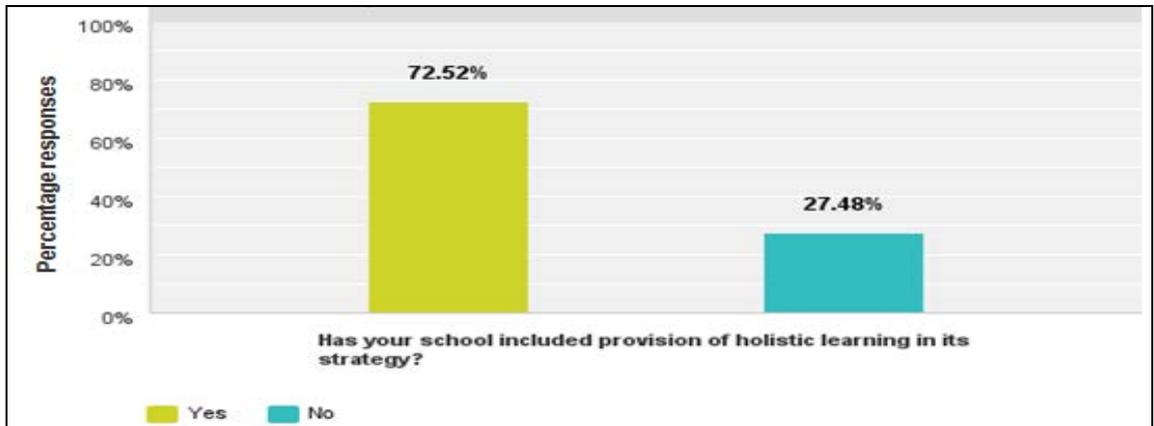


Figure 32 Schools Included Provision of Holistic Learning in Strategy

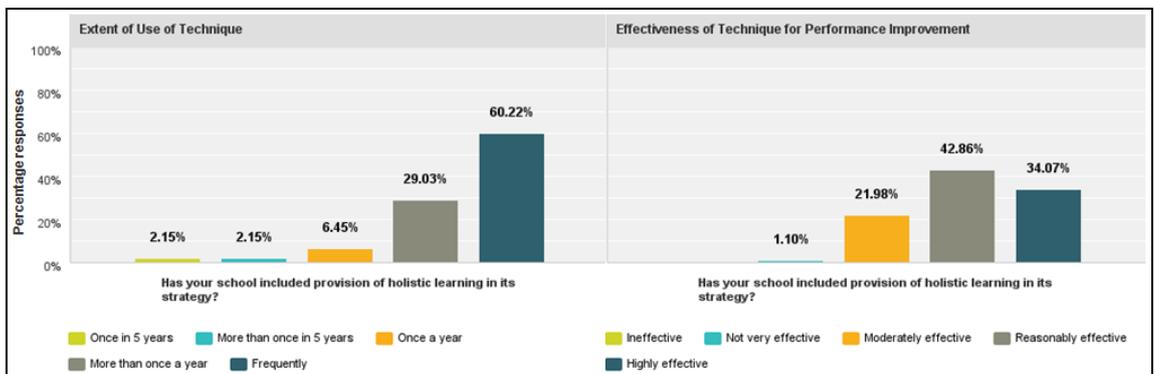


Figure 33 Schools Included Provision of Holistic Learning in Strategy - Extent of Use and Effectiveness of Technique for Performance Improvement

The following graph represents responses to the following question:

Has your school compared its holistic learning with other schools? (Q11-2)

Figure 34 below shows that only 34.65% of the schools compared their holistic learning with other schools. However, with a varied extent of use, the technique is considered to be reasonably to highly effective by more than 52% of the respondents (Figure 35). Hence, more than half of the schools comparing their holistic learning with other schools considered it valuable for performance improvement.

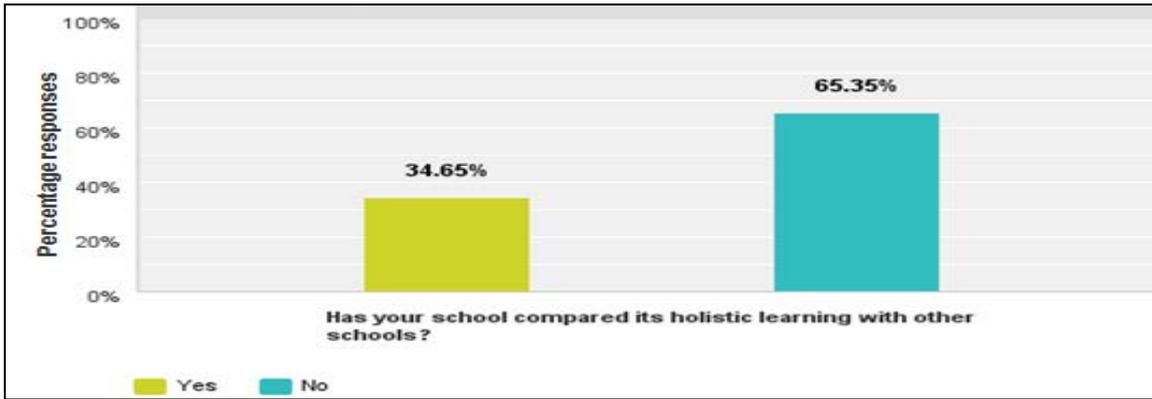


Figure 34 Schools Compared Holistic Learning with Other Schools

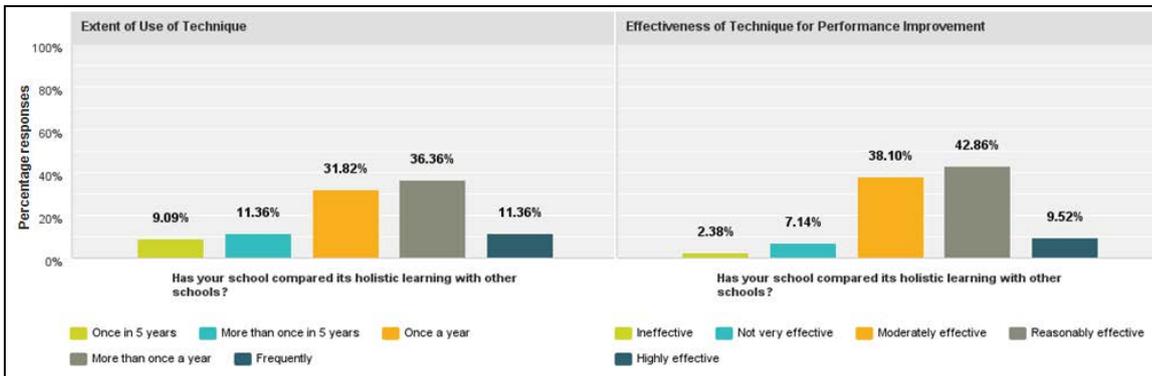


Figure 35 Schools Compared Holistic Learning with Other Schools - Extent of Use and Effectiveness of Technique for Performance Improvement

The following graph represents responses to the following question:

Has your school learned how holistic learning is provided by other schools?
(Q11-3)

Figure 36 below shows that only 36% of the schools learned provision of holistic learning from other schools. With a distributed extent of use, this technique is considered reasonably to highly effective by more than 45% of the respondents (Figure 37). Although learning provision of holistic learning from other schools is not used to a great extent, it is found beneficial for performance improvement.

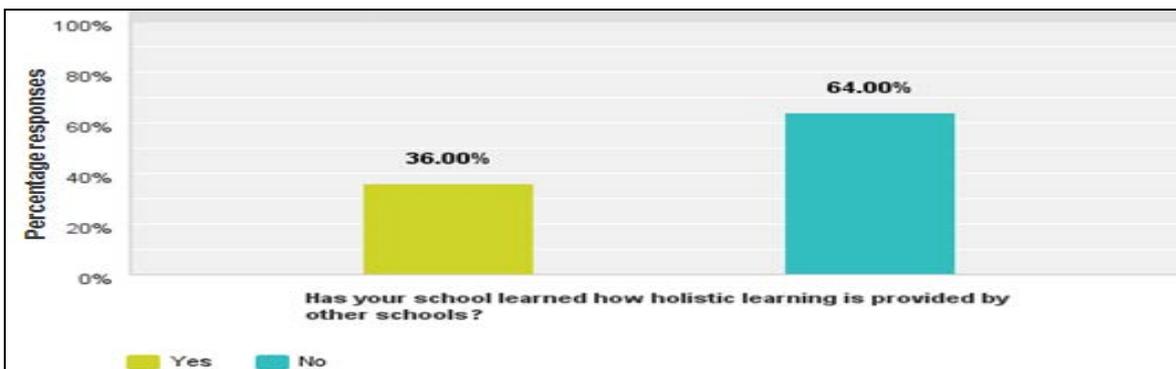


Figure 36 Schools Learned Provision of Holistic Learning from Other Schools

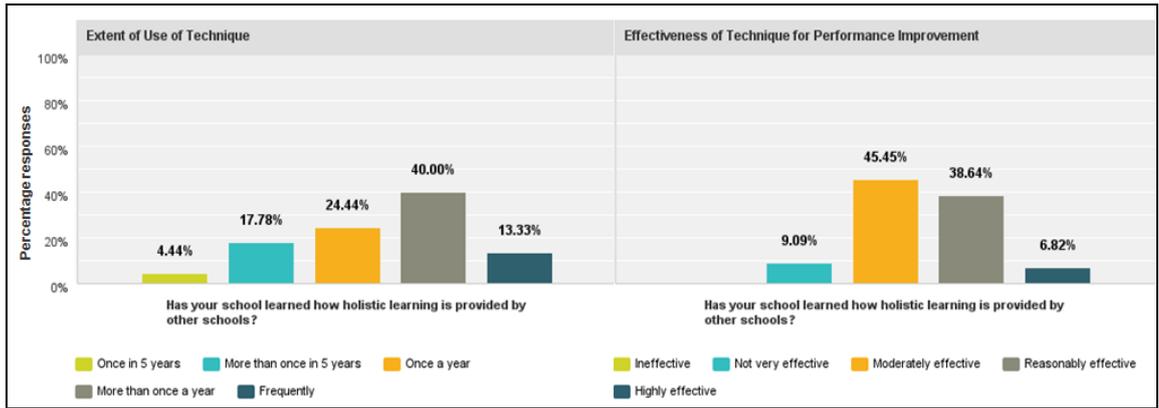


Figure 37 Schools Learned Provision of Holistic Learning from Other Schools - Extent of Use and Effectiveness of Technique for Performance Improvement

The following graph represents responses to the following question:

Has your school measured the performance of its students holistically (on the whole, including academics, social, mental, and physical aspects e.g. extracurricular activities i.e. sports)? (Q11-4)

Figure 38 below shows that about half (49.61%) of the schools measured the performance of their students holistically. However, with a varied extent of use, more than 62% of the respondents considered this approach reasonably to highly effective for performance improvement (Figure 39). Although, only a limited number of schools measured the performance of students holistically, it is considered fairly beneficial for performance improvement.

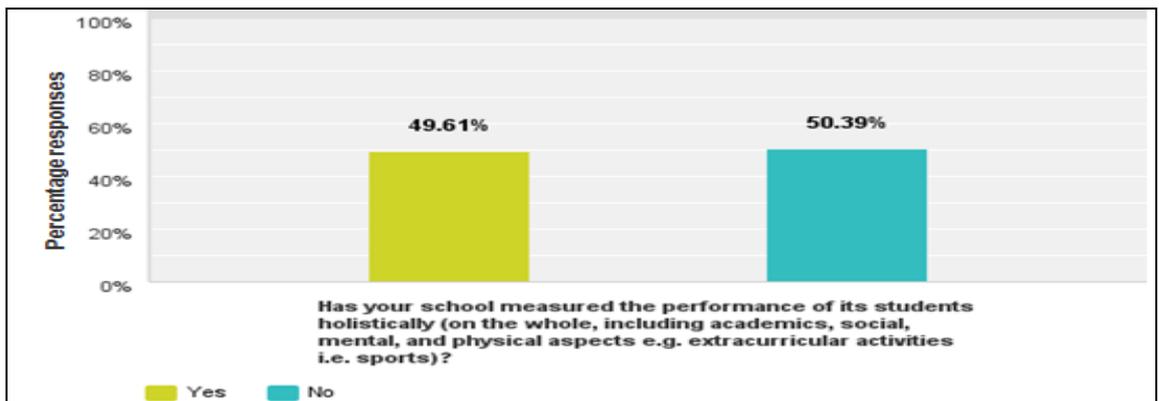


Figure 38 Measure the Performance of Students Holistically

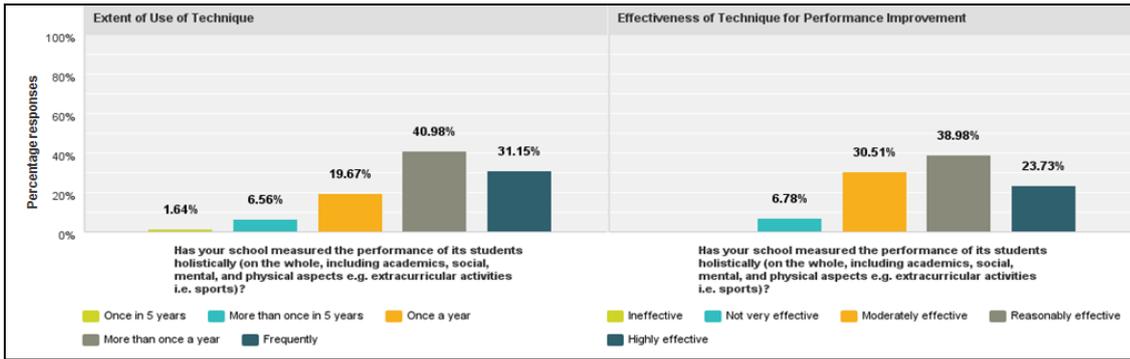


Figure 39 Measure the Performance of Students Holistically - Extent of Use and Effectiveness of Technique for Performance Improvement

The following graph represents responses to the following question:

Which holistic approach (es) have you learned from other school(s)? (Q11-5)

Figure 40 below represents various holistic approaches learned from other schools. Although the schools have learned several holistic approaches from each other, Sports and Games are learned by most (69.51%) of the schools.

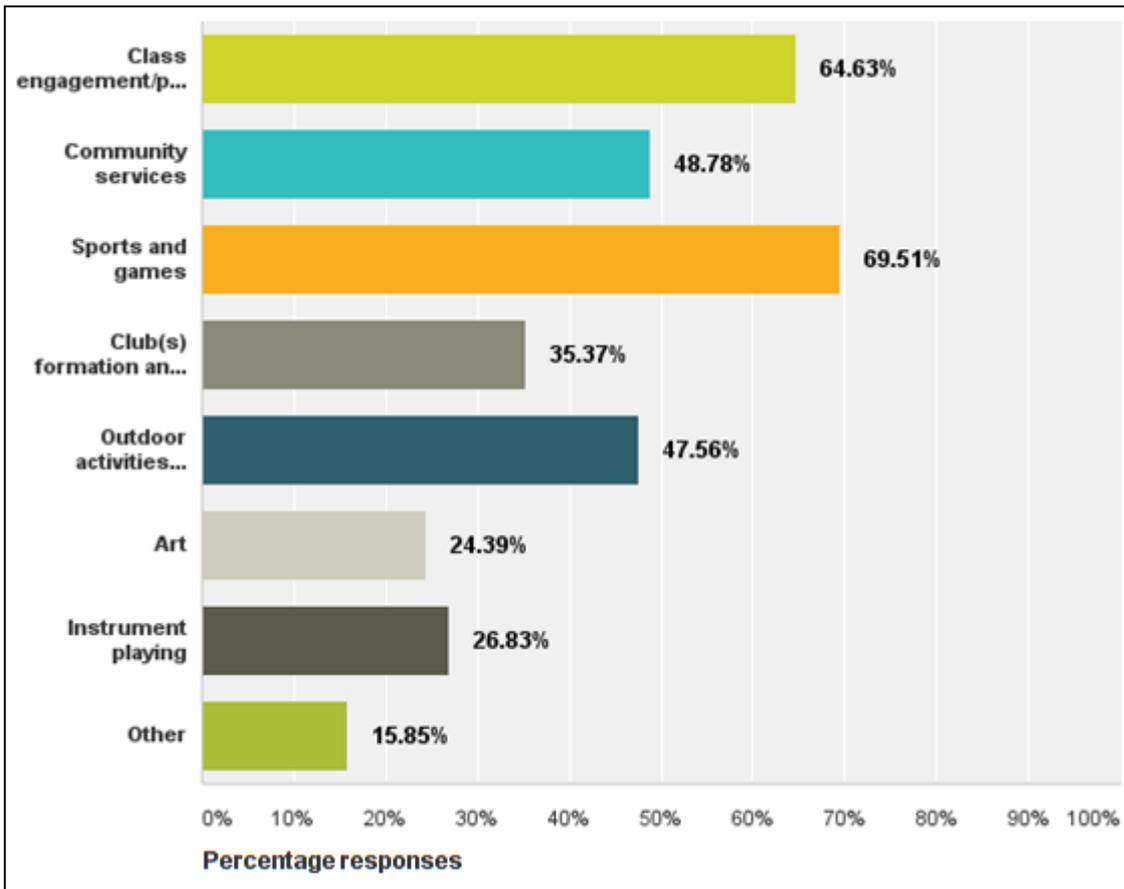


Figure 40 Holistic Approaches Learned from Other Schools

Question 12: Learning Non-Academic Work Practices

The following graph represents responses to the following question:

Has your school at any point collaborated with a local school (i.e. within your country or school system) for sharing and/or exchanging non-academic work practices? (Q12-1)

Figure 41 below shows that only 59.84% of the schools collaborated with local schools for sharing of non-academic work practices. With a distributed extent of use, more than 56% of the respondents considered this approach reasonably to highly effective for performance improvement (Figure 42). Therefore, a reasonable number of the schools considered learning non-academic work practices from local schools beneficial for performance improvement.

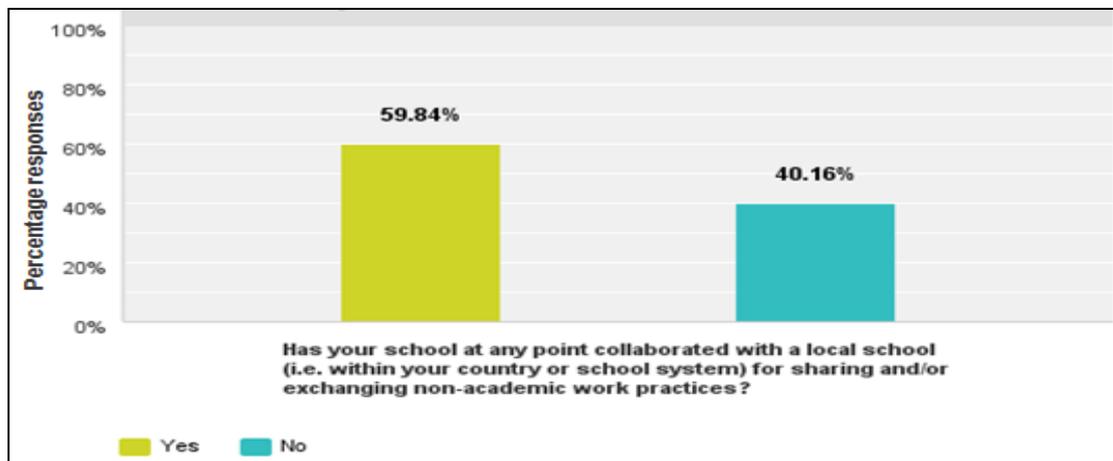


Figure 41 Schools Collaborated with Local Schools for Sharing and/or Exchange of Non-academic Work Practices

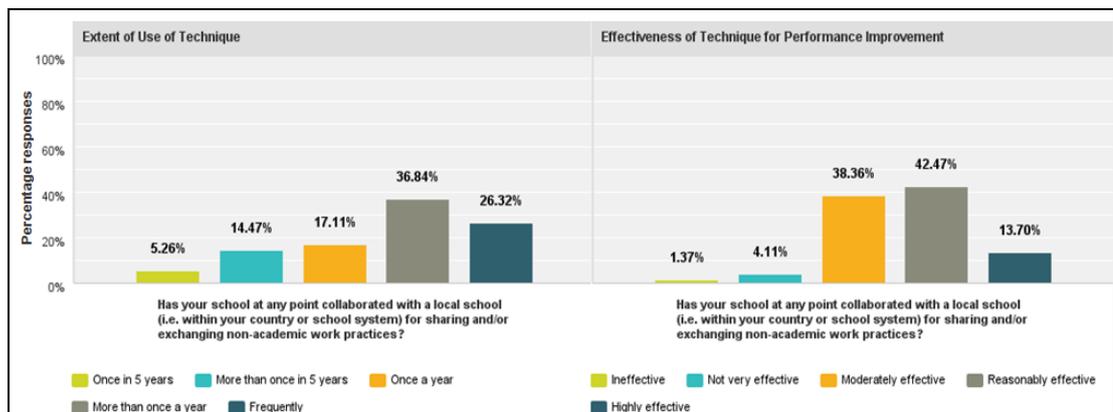


Figure 42 Schools Collaborated with Local Schools for Sharing and/or Exchange of Non-academic Work Practices - Extent of Use and Effectiveness of Technique for Performance Improvement

The following graph represents responses to the following question:

Has your school at any point collaborated with an international school (i.e. outside of your own school system) for sharing and/or exchanging non-academic work practices? (Q12-2)

Figure 43 below shows that only 30.16% of the schools collaborated with international schools for sharing and/or exchanging non-academic work practices. With a varied extent of use, more than 51% of the respondents indicated sharing and/or exchanging non-academic work practices with international schools reasonably to highly effective for performance improvement (Figure 44). Therefore, a reasonable number of the schools learning non-academic work practices from international schools considered it beneficial for performance improvement.

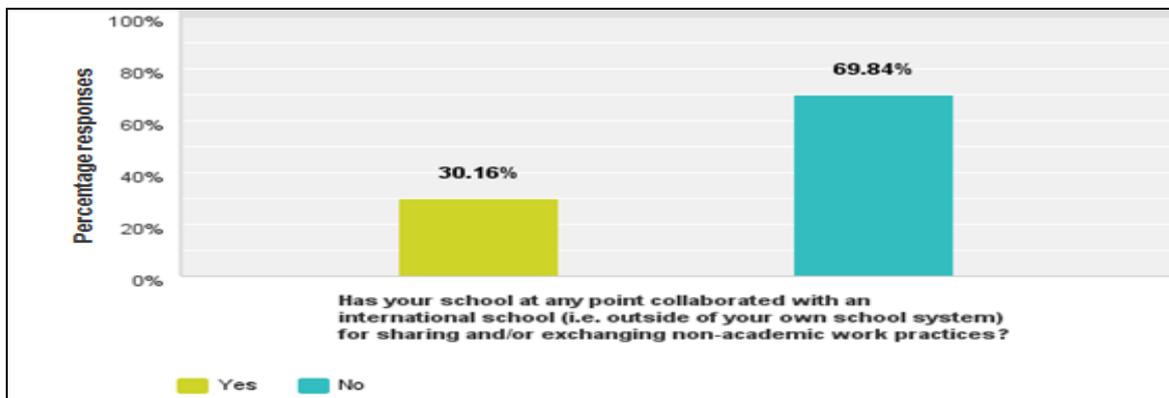


Figure 43 Schools Collaborated with International Schools for Sharing and/or Exchange of Non-academic Work Practices

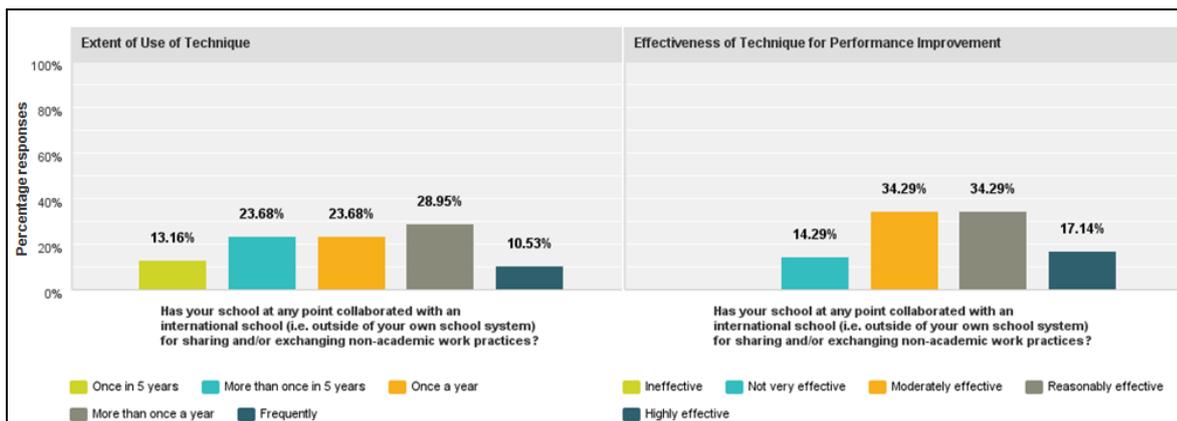


Figure 44 Schools Collaborated with International Schools for Sharing and/or Exchange of Non-academic Work Practices - Extent of Use and Effectiveness of Technique for Performance Improvement

The following graph represents responses to the following question:

Has your school at any point encouraged sharing and/or exchanging of non-academic work practices among staff? (Q12-3)

Figure 45 below shows that 63.71% of the schools encouraged sharing and/or exchanging non-academic work practices among staff. However, with a distributed extent of use, more than 65% of the respondents indicated encouraging sharing and/or exchanging non-academic work practices among staff as reasonably to highly effective for performance improvement (Figure 46). Therefore, a reasonable number of the schools encouraging sharing and/or exchange of non-academic work practices among staff considered it fairly beneficial for performance improvement.

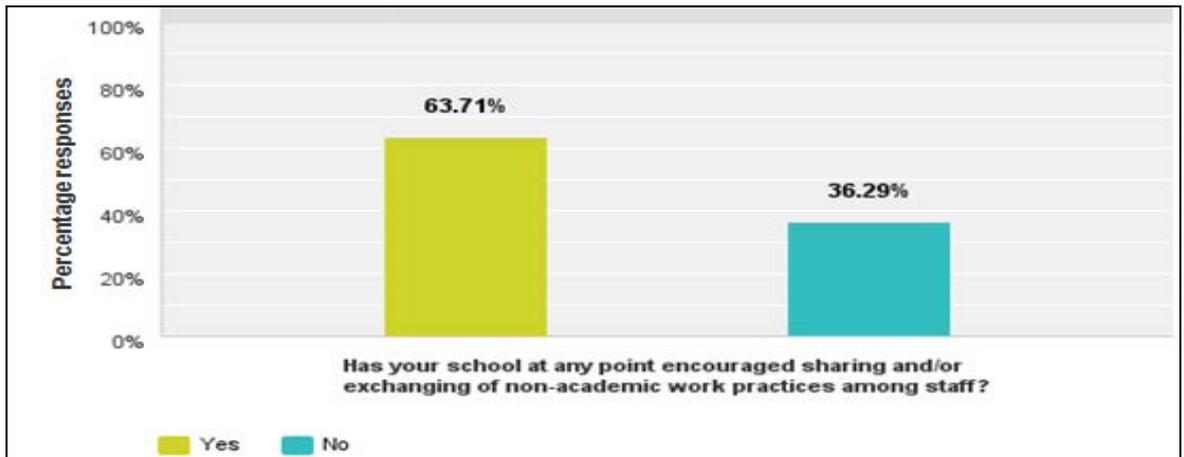


Figure 45 Schools Encouraged Sharing/Exchange of Non-Academic Work Practices

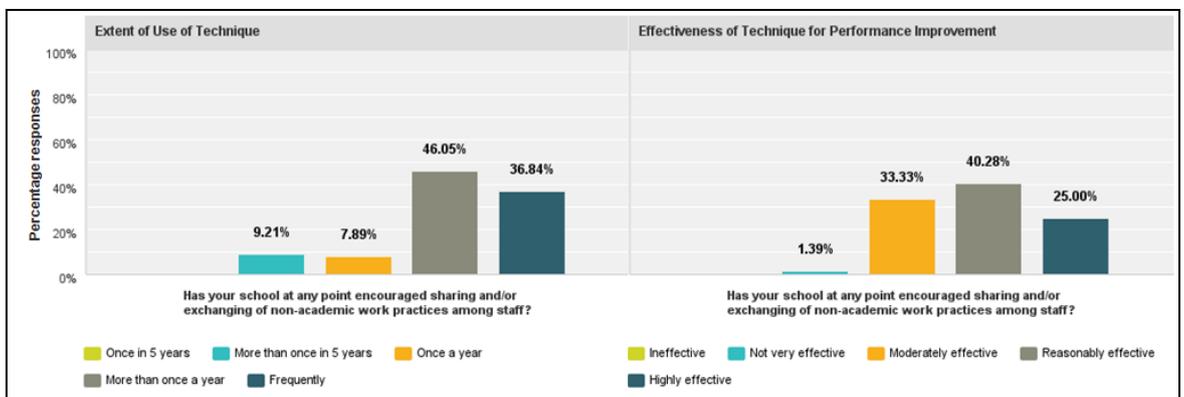


Figure 46 Schools Encouraged Sharing/Exchange of Non-Academic Work Practices - Extent of Use and Effectiveness of Technique for Performance Improvement

The following graph represents responses to the following question:

*Which non-academic work practices have you learned from other school(s)?
(Q12-4)*

Figure 47 below represents responses for non-academic work practices learned from other schools. Although a wide variety of non-academic work practices are learned from other schools, Health and Safety are learned by most (55.43%) of the schools.

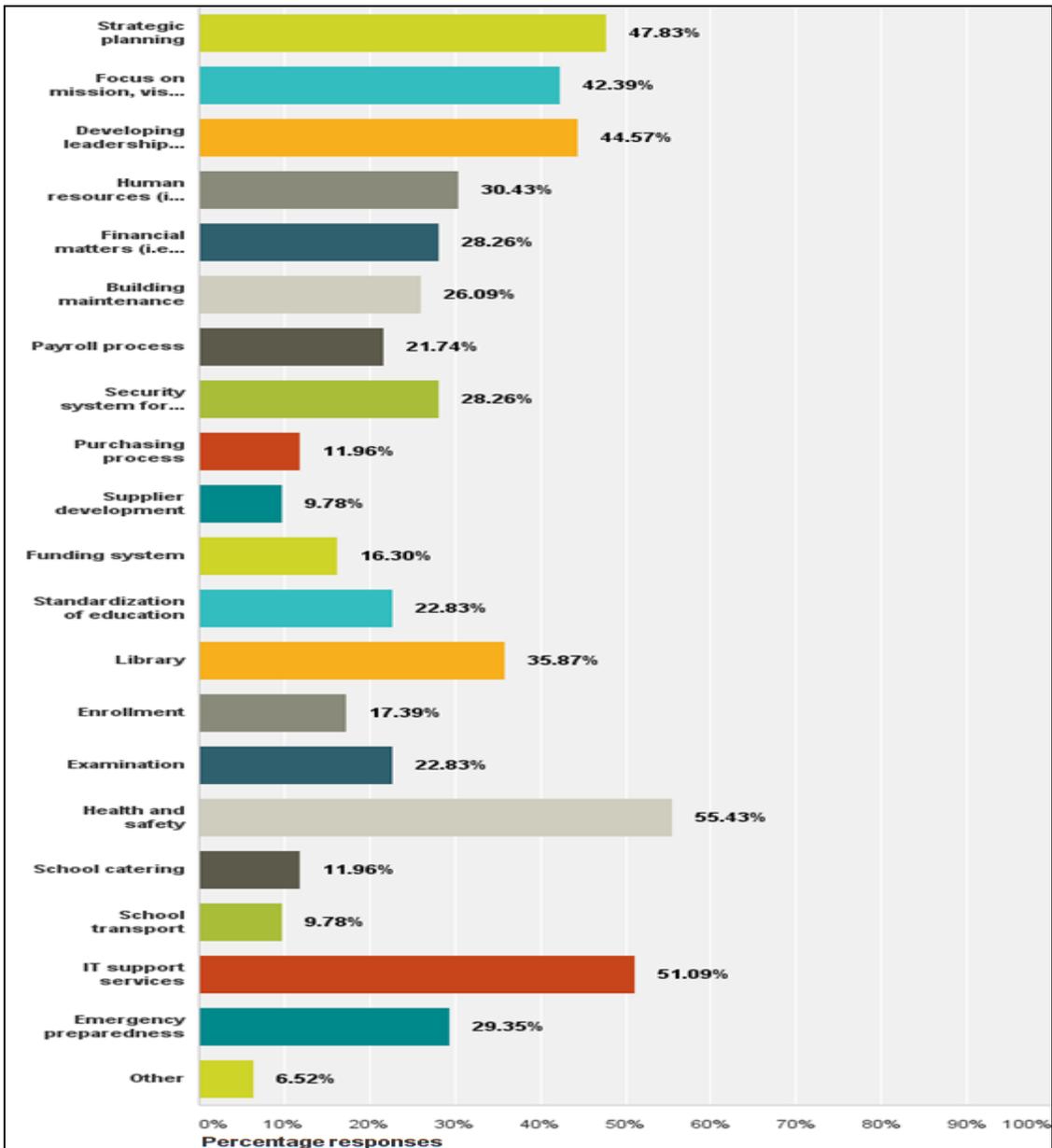


Figure 47 Non-academic Work Practices Learned from Other Schools

The following graph represents responses to the following question:

While learning from other schools, which of the following points are considered by your school? (Q12-5)

For Q12-5, the respondents had the choice to select more than one options. Figure 48 below represents responses in relation to points considered by schools while learning from other schools. Although a number of points are considered while learning from other schools, Learning Areas is considered by a large number (78.57%) of the schools while learning from another school.

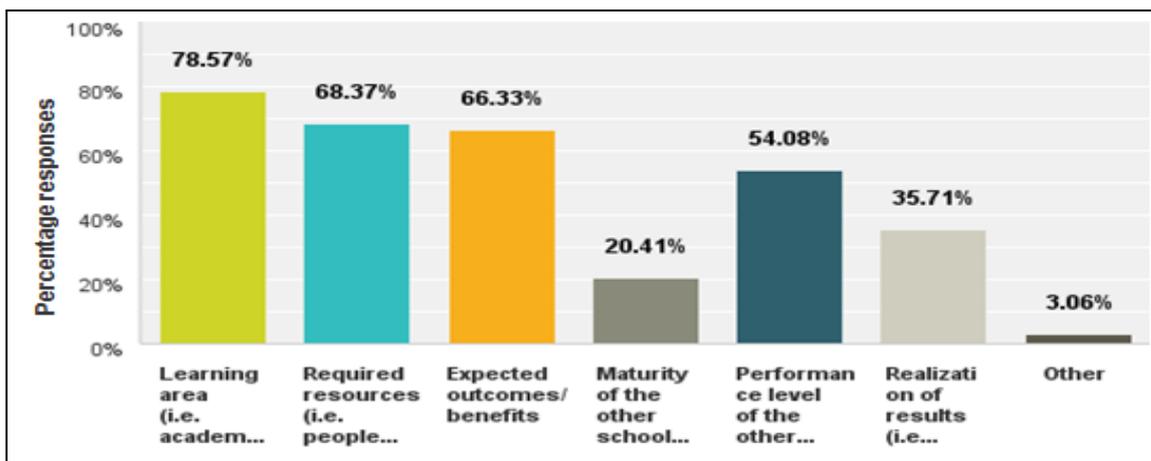


Figure 48 Points Considered by Schools While Choosing a Schools to Learn From

CONCLUSION

The above aggregated responses demonstrated that benchmarking is used by schools to learn from other schools and for supporting the learning of staff members (teachers); however, they do not recognise benchmarking by its name.

The schools have used benchmarking for performance comparison and best practice learning (referred to as performance benchmarking and best-practice benchmarking). The schools are conducting performance benchmarking by means of performance measurement/comparison for regular self-assessment. They learn best practices from other schools and also encourage their staff members (teachers) to learn and share best practices. The responses indicated that benchmarking has helped to improve the performance of schools and teachers. The findings recognised benchmarking as a significant contributor to the performance of schools.

I am thankful for your participation. Without your support and involvement it would have not been possible to formulate this report. For more information on the next steps of the study, please contact me at r.malik@massey.ac.nz.

NAMES OF THE SURVEYED SCHOOLS THAT AGREED TO BE IDENTIFIED

Serial Number	Names of Participating Schools	Country
1	Milson School	New Zealand
2	Základní Škola Třebíč, Benešova 585	Czech Republic
3	Základní Škola, Praha 3, Lupáčova Acronym Junior Language School, Prague	Czech Republic
4	Higher Professional And Secondary Agricultural School Bystřice and Pernštejnem	Czech Republic

5	Základní Škola S Rozšířenou Výukou Jazyků K Milíčovu 674 Praha 4	Czech Republic
6	ZŠ Výčapy, Příspěvková Organizace	Czech Republic
7	Mangaroa School	New Zealand
8	Freemans Bay School	New Zealand
9	Gymnázium Velké Meziříčí	Czech Republic
10	Crawshaw School	New Zealand
11	Cecylia Plater- Zyberk School	Poland
12	Mairehau Primary School	New Zealand
13	Gymnázium Brno, Křenová	Czech Republic
14	Gymnázium, Šumperk, Masarykovo Nam 8	Czech Republic
15	Lxxv Liceum Ogólnokształcace Im. Jana Iii Sobieskiego (High School)	Czech Republic
16	Gymnázium Chotěboř	Czech Republic
17	Trinity Lutheran College	Australia
18	Základní Škola Výčapy Příspěvková Organizace	Czech Republic
19	Gimnazjum Im. Ks. Stanisława Słotwińskiego W Kamieniu	Poland
20	Northdale Central Public School	Canada
21	Grenivíkurskoli	Iceland
22	Hokowhitu School	New Zealand
23	Paraparaumu Beach School	New Zealand
24	Wa Ora Montessori School	New Zealand
25	Te Papapa School	New Zealand
26	Valley Central School	Canada
27	Our Lady Of Lourdes	New Zealand
28	Landakotsskóli	Iceland
29	Listowel Central Public School	Canada
30	Figueira Da Foz	Portugal
31	North Loburn School	New Zealand
32	Middle School No. 82 In Warsaw	Poland
33	Hornby High School	New Zealand
34	Aranui Primary School	New Zealand
35	East Devonport School	Australia
36	Lincoln Primary School	New Zealand
37	College Street Normal School	New Zealand
38	Awapuni School (Gisborne)	New Zealand
39	Titahi Bay North School	New Zealand
40	Tarlac College Of Agriculture	Philippines
41	Agrupamento De Escolas De Santa Bárbara- FãNew Zealanderes	Portugal
42	Isabella Dicken Elementary School	Canada
43	Technical Upper Secondary School Of Food And Catering	Poland
44	Gimnazjum Nr 81 Im. Prof. W. Doroszewskiego	Poland
45	Xxiii Maria Skłodowska-Curie Secondary School In	Poland

	Warsaw	
46	Gimnazjum Nr 81 W Warszawie	Poland
47	Zespół Szkół Samochodowych I Licealnych Nr 2 W Warszawie (Secondary School Of Car Sciences No 2 In Warsaw)	Poland
48	Zespół Szkół Nr 43 In Warsaw	Poland
49	Marshland School	New Zealand
50	Collingwood Area School	New Zealand
51	Natone Park School	New Zealand
52	Bellwood Public School	Canada
53	Junior High School Under The Name Of Ignacy Jan Paderewski In Warsaw	Poland
54	Oxford Area School	New Zealand
55	Porirua School	New Zealand
56	High School No 10 Named After Queen Jadwiga Of Poland	Poland
57	Zespół Szkół Nr 46 W Warszawie	Poland
58	Agrupamento De Escolas De Vouzela	Portugal
59	Timaru South School	New Zealand
60	Villa Maria College	New Zealand
61	Pembroke School	New Zealand
62	Omarama School	New Zealand
63	Woodend School	New Zealand
64	Roslyn School	New Zealand
65	Hornby Primary School	New Zealand
66	Queenstown Primary School	New Zealand
67	Mary Mackillop Catholic College	Australia
68	Upper Moutere School	New Zealand
69	Sacred Heart Timaru School	New Zealand
70	Ashburton Borough School	New Zealand
71	Leonardo Coimbra Filho	Portugal
72	Obchodní Akademie A Hotelová Škola Třebíč (Business Academy And Hotel School Třebíč)	Czech Republic
73	Emirates International School - Meadows	UAE
74	Zespół Szkół Nr 42 In Warsaw	Poland
75	Program Magister Pendidikan Bahasa Indonesia	Indonesia
76	Agrupamento De Escolas De Santa Bárbara- FânZelandeses	Portugal
77	Tarlac College Of Agriculture	Philippines
78	North Loburn School	New Zealand
79	Escola Secundária Dr. Joaquim De Carvalho, Figueira Da Foz	Portugal
80	Gimnazjum Nr 82 Z Oddziałami Integracyjnymi W Warszawie	Poland
81	Remarkables Primary School	New Zealand
82	Motu School	New Zealand

APPENDIX 10
CROSSTABULATION OF THE SCHOOL SYSTEM SURVEY RESPONSES
FOR FREQUENCY AND EFFECTIVENESS

Question Number	Questions on the Use of Benchmarking	Frequency of Use of Benchmarking	Effectiveness of Technique for Performance Improvement					Total
			Ineffective	Not very effective	Moderately effective	Reasonably effective	Highly effective	
Q5-3	Within your own school system, have you encouraged high-performing schools to assist low performing schools to improve their performance?	Once in 5 years	0	0	1	1	0	2
		More than once in 5 years	0	0	0	3	0	3
		Once a year	0	0	2	1	1	4
		More than once a year	0	0	0	0	0	0
		Frequently	0	0	0	1	1	2
Total			0	0	3	6	2	11
Q5-4	Within your own school system, have you encouraged low-performing schools to get assistance from high-performing schools to improve their performance?	Once in 5 years	0	0	1	0	0	1
		More than once in 5 years	0	1	1	1	0	3
		Once a year	0	0	1	1	0	2
		More than once a year	0	0	0	1	0	1
		Frequently	0	0	0	0	2	2
Total			0	1	3	3	2	9
Q6-1	Has your school system learned academic work practices from other school systems?	Once in 5 years	0	0	0	0	0	0
		More than once in 5 years	0	1	1	2	0	4
		Once a year	0	0	4	1	1	6
		More than once a year	0	0	0	2	0	2
		Frequently	0	0	0	2	1	3
Total			0	1	5	7	2	15
Q6-2	Has your school system recommended its schools to learn academic	Once in 5 years	0	0	0	0	0	0
		More than once in 5 years	0	0	1	0	0	1

	work practices from one another?	Once a year	0	0	1	2	0	3
		More than once a year	0	0	2	2	1	5
		Frequently	0	0	0	1	2	3
	Total	0	0	4	5	3	12	
Q7-1	Has your school system learned how holistic learning is provided from other school system(s)?	Once in 5 years	0	0	0	0	0	0
		More than once in 5 years	0	1	1	1	0	3
		Once a year	0	0	1	1	0	2
		More than once a year	0	0	0	0	0	0
		Frequently	0	0	0	0	1	1
	Total	0	1	2	2	1	6	
Q7-3	Has your school system recommended its schools to learn how to improve their holistic learning from one another?	Once in 5 years	0	0	0	0	0	0
		More than once in 5 years	0	0	1	0	0	1
		Once a year	0	0	2	0	0	2
		More than once a year	0	0	0	1	0	1
		Frequently	0	0	0	0	2	2
	Total	0	0	3	1	2	6	
Q8-1	Has your school system learned non-academic work practices from other school system(s)?	Once in 5 years	0	0	0	0	0	0
		More than once in 5 years	0	1	1	2	0	4
		Once a year	0	0	0	2	0	2
		More than once a year	0	0	0	1	0	1
		Frequently	0	0	0	0	1	1
	Total	0	1	1	5	1	8	
Q8-2	Has your school system encouraged its schools to share non-academic work practices with each other?	Once in 5 years	0	0	0	0	0	0
		More than once in 5 years	0	1	1	0	0	2
		Once a year	0	0	1	0	0	1
		More than once a year	0	0	1	1	0	2
		Frequently	0	0	0	0	3	3
	Total	0	1	3	1	3	8	
Q9-1	Has your school system	Once in 5 years	0	1	0	2	0	3

	considered education reforms of other school system(s) while revising and/or formulating its own reforms?	More than once in 5 years	0	0	3	2	0	5
		Once a year	0	1	2	0	0	3
		More than once a year	0	0	0	0	0	0
		Frequently	0	0	0	0	1	1
		Total	0	2	5	4	1	12
Q9-2	Has your school system considered education policies of other school system(s) while revising and/or formulating its own policies?	Once in 5 years	0	0	1	1	0	2
		More than once in 5 years	0	1	4	1	0	6
		Once a year	0	1	1	0	0	2
		More than once a year	0	0	1	0	0	1
		Frequently	0	0	0	0	1	1
Total	0	2	7	2	1	12		
Q9-3	Has your school system encouraged schools within its school system to discuss and share new policies and/or reforms?	Once in 5 years	0	0	1	0	0	1
		More than once in 5 years	1	0	1	0	0	2
		Once a year	0	2	0	0	0	2
		More than once a year	0	0	0	1	1	2
		Frequently	0	0	1	1	1	3
Total	1	2	3	2	2	10		
Q9-4	Has your school system encouraged schools within its school system to discuss and share strategies for implementing new policies and/or reforms?	Once in 5 years	0	0	1	1	0	2
		More than once in 5 years	0	1	1	0	0	2
		Once a year	0	2	0	0	0	2
		More than once a year	0	1	0	2	1	4
		Frequently	0	0	1	0	1	2
Total	0	4	3	3	2	12		
Q10-1	In order to promote learning and improvement has your school system learned work practices of other school systems	Once in 5 years	0	0	0	0	0	0
		More than once in 5 years	0	1	1	1	0	3
		Once a year	0	0	1	1	0	2
		More than once a year	0	0	5	0	0	5

	through media, online sources, teacher exchange and/or visits.	Frequently	0	0	0	2	1	3
Total			0	1	7	4	1	13

APPENDIX 11
CROSSTABULATION OF THE SCHOOL SURVEY RESPONSES FOR
FREQUENCY AND EFFECTIVENESS

Question Number	Questions on the Use of Benchmarking	Frequency of Use of Benchmarking	Effectiveness of Technique for Performance Improvement					Total
			Ineffective	Not very effective	Moderately effective	Reasonably effective	Highly effective	
Q10-1	Has your school encouraged staff at all levels to assist their peers?	Once in 5 years	0	0	0	1	0	1
		More than once in 5 years	0	2	1	1	0	4
		Once a year	0	1	4	1	1	7
		More than once a year	0	1	19	14	3	37
		Frequently	0	0	11	40	40	91
Total			0	4	35	57	44	140
Q10-2	Has your school encouraged staff at all levels to get assistance from their peers?	Once in 5 years	0	0	0	1	0	1
		More than once in 5 years	0	1	0	1	0	2
		Once a year	0	2	4	1	0	7
		More than once a year	0	2	23	12	1	38
		Frequently	0	0	15	37	36	88
Total			0	5	42	52	37	136
Q10-3-1	Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through Regular Meetings?	Once in 5 years	0	0	0	1	0	1
		More than once in 5 years	0	0	1	0	0	1
		Once a year	0	1	3	1	1	6
		More than once a year	0	1	16	15	1	33
		Frequently	0	1	10	34	50	95
Total			0	3	30	51	52	136
Q10-3-2	Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through	Once in 5 years	0	0	0	0	0	0
		More than once in 5 years	0	0	0	1	0	1
		Once a year	0	1	4	2	0	7
		More than once a year	0	1	15	17	2	35
		Frequently	0	0	6	31	53	90

	Collaborative Lesson Planning?							
	Total		0	2	25	51	55	133
Q10-3-3	Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through Demonstration Lesson (i.e. in which a senior teachers how a good class is supposed to be)?	Once in 5 years	1	2	1	0	0	4
		More than once in 5 years	0	1	2	0	1	4
		Once a year	0	2	3	3	0	8
		More than once a year	0	1	24	22	13	60
		Frequently	0	0	0	11	17	28
	Total		1	6	30	36	31	104
Q10-3-4	Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through Seminars?	Once in 5 years	0	0	0	0	0	0
		More than once in 5 years	0	0	2	1	0	3
		Once a year	0	1	12	3	2	18
		More than once a year	0	5	24	30	3	62
		Frequently	0	1	5	7	6	19
	Total		0	7	43	41	11	102
Q10-3-5	Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through Workshops?	Once in 5 years	0	0	0	2	0	2
		More than once in 5 years	0	0	1	0	0	1
		Once a year	0	0	7	7	1	15
		More than once a year	0	5	24	31	7	67
		Frequently	0	0	7	15	11	33
	Total		0	5	39	55	19	118
Q10-3-6	Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through	Once in 5 years	0	1	1	0	0	2
		More than once in 5 years	0	1	2	3	0	6
		Once a year	1	1	6	4	0	12
		More than once a year	0	0	15	30	13	58
		Frequently	0	0	2	16	19	37
	Total		1	2	25	51	55	133

	Observations (i.e. teachers observing senior teachers delivering lesson)?							
	Total		1	3	26	53	32	115
Q10-3-7	Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through Face-to-face training (provided by senior teachers)?	Once in 5 years	0	1	0	0	1	2
		More than once in 5 years	0	1	0	1	0	2
		Once a year	0	1	6	5	1	13
		More than once a year	0	2	9	23	5	39
		Frequently	0	0	5	14	18	37
	Total		0	5	20	43	25	93
Q10-4	Has your school undertaken observations of teachers' lessons by the principal and/or senior teacher(s) for identifying strengths and weaknesses in teaching methodologies , followed by suggestions for improvement?	Once in 5 years	1	2	1	0	0	4
		More than once in 5 years	0	1	3	4	1	9
		Once a year	0	2	6	10	0	18
		More than once a year	0	1	21	29	8	59
		Frequently	0	0	5	18	17	40
	Total		1	6	36	61	26	130
Q10-5	Has your school undertaken observations of teachers' lessons by external teachers (from outside your school) followed by their feedback and suggestions for improvement?	Once in 5 years	1	1	2	4	0	8
		More than once in 5 years	1	4	5	8	2	20
		Once a year	0	1	8	3	1	13
		More than once a year	0	1	10	11	7	29
		Frequently	0	0	0	1	5	6
	Total		2	7	25	27	15	76
Q10-6	Has your school ensured	Once in 5 years	0	0	1	0	0	1

	that teachers participating in sharing sessions (e.g. workshops, seminars etc.) share learned lessons with their counterparts?	More than once in 5 years	0	4	2	2	0	8
		Once a year	1	2	7	3	2	15
		More than once a year	0	4	13	25	6	48
		Frequently	0	0	8	21	14	43
		Total	1	10	31	51	22	115
Q10-7	Has your school appointed experienced teacher(s) as consultant(s), to share knowledge, skills, and experience with in-service teachers?	Once in 5 years	0	2	1	0	0	3
		More than once in 5 years	0	0	2	4	1	7
		Once a year	0	0	3	4	1	8
		More than once a year	1	0	3	20	7	31
		Frequently	0	0	0	10	15	25
Total	1	2	9	38	24	74		
Q10-8	Does the school have a website to facilitate teachers to share work practices and/or learn from each other?	Once in 5 years	0	0	0	0	0	0
		More than once in 5 years	0	1	1	1	0	3
		Once a year	0	0	1	2	0	3
		More than once a year	0	4	3	5	1	13
		Frequently	0	0	8	29	13	50
Total	0	5	13	37	14	69		
Q10-10	Has your school at any point collaborated with a local school (i.e. within your country or school system) to share pedagogical work practices (e.g. teaching methodologies)?	Once in 5 years	0	0	1	0	0	1
		More than once in 5 years	0	0	11	5	1	17
		Once a year	0	0	11	5	1	17
		More than once a year	0	3	16	17	7	43
		Frequently	0	2	2	5	16	25
Total	0	5	41	32	25	103		
Q10-11	Has your school at any point collaborated with an international school(s) (i.e. outside of your	Once in 5 years	0	1	4	1	0	6
		More than once in 5 years	0	1	4	4	2	11
		Once a year	1	3	7	4	1	16
		More than once a year	0	4	1	4	4	13

	own school system) to share pedagogical work practices (i.e. teaching methodologies)?	Frequently	0	0	1	2	3	6
		Total	1	9	17	15	10	52
Q10-12-1	Has your school learned about improvement initiatives at another school(s) through Media?	Once in 5 years	0	0	0	0	0	0
		More than once in 5 years	0	2	1	4	0	7
		Once a year	1	4	8	3	0	16
		More than once a year	3	6	11	8	3	31
		Frequently	0	3	6	7	3	19
		Total	4	15	26	22	6	73
Q10-12-2	Has your school learned about improvement initiatives at another school(s) through Web sources?	Once in 5 years	0	0	0	0	1	1
		More than once in 5 years	0	0	1	1	0	2
		Once a year	0	1	5	1	0	7
		More than once a year	0	5	19	13	1	38
		Frequently	0	2	17	20	9	48
		Total	0	8	42	35	11	96
Q10-12-3	Has your school learned about improvement initiatives at another school(s) through Conferences/Seminars?	Once in 5 years	0	0	0	0	0	0
		More than once in 5 years	0	1	4	1	0	6
		Once a year	1	3	9	6	3	22
		More than once a year	0	5	19	23	3	50
		Frequently	0	0	5	10	6	21
		Total	1	9	37	40	12	99
Q10-12-4	Has your school learned about improvement initiatives at another school(s) through Teacher Exchange?	Once in 5 years	1	0	1	1	0	3
		More than once in 5 years	0	0	1	2	0	3
		Once a year	0	0	7	3	1	11
		More than once a year	0	1	1	3	1	6
		Frequently	0	0	0	2	3	5
		Total	1	1	10	11	5	28
Q10-12-	Has your school	Once in 5	0	2	2	0	0	4

5	learned about improvement initiatives at another school(s) through Visits?	years						
		More than once in 5 years	0	2	6	4	1	13
		Once a year	0	2	5	9	2	18
		More than once a year	0	3	12	22	9	46
		Frequently	0	0	1	5	9	12
Total		0	9	26	40	21	96	
Q11-1	Has your school included provision of holistic learning in its strategy?	Once in 5 years	0	0	1	1	0	2
		More than once in 5 years	0	0	2	0	0	2
		Once a year	0	0	3	2	1	6
		More than once a year	0	1	9	15	1	26
		Frequently	0	0	5	21	29	55
Total		0	1	20	39	31	91	
Q11-2	Has your school compared its holistic learning with other schools?	Once in 5 years	0	0	2	1	0	3
		More than once in 5 years	0	0	2	1	1	4
		Once a year	1	2	8	2	1	14
		More than once a year	0	1	3	12	0	16
		Frequently	0	0	1	2	2	5
Total		1	3	16	18	4	42	
Q11-3	Has your school learned how holistic learning is provided by other schools?	Once in 5 years	0	0	2	0	0	2
		More than once in 5 years	0	1	4	3	0	8
		Once a year	0	1	6	4	0	11
		More than once a year	0	2	6	8	1	17
		Frequently	0	0	2	2	2	6
Total		0	4	20	17	3	44	
Q11-4	Has your school measured the performance of its students holistically (on the whole, including academics,	Once in 5 years	0	0	0	1	0	1
		More than once in 5 years	0	0	1	3	0	4
		Once a year	0	2	8	1	1	12

	social, mental, and physical aspects e.g. extracurricular activities i.e. sports)?	More than once a year	0	2	5	12	4	23
		Frequently	0	0	4	6	9	19
		Total	0	4	18	23	14	59
Q12-1	Has your school at any point collaborated with a local school (i.e. within your country or school system) for sharing and/or exchanging non-academic work practices?	Once in 5 years	1	0	3	0	0	4
		More than once in 5 years	0	0	5	4	0	9
		Once a year	0	3	6	3	1	13
		More than once a year	0	0	10	14	3	27
		Frequently	0	0	4	10	6	20
		Total	1	3	28	31	10	73
Q12-2	Has your school at any point collaborated with an international school (i.e. outside of your own school system) for sharing and/or exchanging non-academic work practices?	Once in 5 years	0	2	1	1	0	4
		More than once in 5 years	0	1	5	2	1	9
		Once a year	0	1	4	3	1	9
		More than once a year	0	1	1	5	2	9
		Frequently	0	0	1	1	2	4
		Total	0	5	12	12	6	35
Q12-3	Has your school at any point encouraged sharing and/or exchanging of non-academic work practices among staff?	Once in 5 years	0	0	0	0	0	0
		More than once in 5 years	0	0	4	2	1	7
		Once a year	0	0	3	1	1	5
		More than once a year	0	1	11	18	3	33
		Frequently	0	0	6	8	13	27
		Total	0	1	24	29	18	72

APPENDIX 12

BENCHMARKING TECHNIQUES USED BY THE SURVEYED SCHOOL SYSTEMS

Questions on the Use of Benchmarking → Benchmarking Technique ↓	Q5-3	Q5-4	Q6-1	Q6-2	Q7-2	Q8-1	Q8-2	Q9-1	Q9-2	Q9-3	Q9-4	Q10-1	Q10-2	Total Number of School Systems that Described the Use of Benchmarking Technique When Providing an Example
Best practice sharing collaborative lesson planning		✓ (1)												1
Performance benchmarking	✓ (2)	✓ (1)												3
Best practice sharing conferences	✓ (1)	✓ (1)	✓ (2)	✓ (2)		✓ (2)	✓ (2)			✓ (1)				11
Best practice sharing exchange programs	✓ (1)	✓ (2)	✓ (2)	✓ (2)		✓ (3)			✓ (1)	✓ (1)				12
Best practice sharing meetings	✓ (2)	✓ (1)					✓ (1)			✓ (1)				5
Best practice sharing observations	✓ (1)	✓ (1)		✓ (2)										4
Best practice sharing seminars	✓ (1)	✓ (1)									✓ (1)			3
Best practice sharing presentations	✓ (1)													1
Best practice sharing special programs	✓ (1)	✓ (1)		✓ (1)			✓ (2)							5
Best practice sharing special projects	✓ (1)							✓ (2)					✓ (1)	4
Best practice sharing through data sharing			✓ (1)											1

Questions on the Use of Benchmarking → Benchmarking Technique ↓	Q5-3	Q5-4	Q6-1	Q6-2	Q7-2	Q8-1	Q8-2	Q9-1	Q9-2	Q9-3	Q9-4	Q10-1	Q10-2	Total Number of School Systems that Described the Use of Benchmarking Technique When Providing an Example
Best practice self-assessment		✓ (1)												1
Best practice sharing through participation in international studies			✓ (2)											2
Partnerships for learning and sharing best practices			✓ (1)											1
Professional Development (PD) plans including options for best practice sharing			✓ (1)						✓ (2)					3
Best practice sharing research projects			✓ (2)											2
Best practice sharing trainings			✓ (2)	✓ (1)	✓ (1)									4
Best practice sharing visits			✓ (5)	✓ (1)		✓ (2)		✓ (1)	✓ (1)					10
Best practice sharing workshops			✓ (3)	✓ (2)										5
Best practice sharing clusters				✓ (1)			✓ (2)							3
Best practice sharing events and competitions					✓ (2)									2

Questions on the Use of Benchmarking → Benchmarking Technique ↓	Q5-3	Q5-4	Q6-1	Q6-2	Q7-2	Q8-1	Q8-2	Q9-1	Q9-2	Q9-3	Q9-4	Q10-1	Q10-2	Total Number of School Systems that Described the Use of Benchmarking Technique When Providing an Example
Best practice sharing online learning and sharing platform							✓ (1)			✓ (2)				3
Best practice sharing through shared Professional Development				✓ (2)										2
Best practice sharing through shared development plans							✓ (1)							1
Best practice sharing curriculum review								✓ (3)	✓ (1)					4
Best practice sharing through research-based reforms								✓ (1)						1
Best practice sharing through review of Professional Development plans								✓ (2)						2
Best practice sharing through review of strategic plans								✓ (2)	✓ (1)					3
International policy review for sharing best practices									✓ (4)					4
Best practice sharing document review									✓ (1)					1

Questions on the Use of Benchmarking → Benchmarking Technique ↓	Q5-3	Q5-4	Q6-1	Q6-2	Q7-2	Q8-1	Q8-2	Q9-1	Q9-2	Q9-3	Q9-4	Q10-1	Q10-2	Total Number of School Systems that Described the Use of Benchmarking Technique When Providing an Example
Sharing of strategic plans										✓ (1)				1
Dissemination of international publications											✓ (1)			1
Best practice curriculum					✓ (2)						✓ (1)			3
Best practice sharing publications												✓ (2)		2
Best practice sharing assessments													✓ (1)	1
Best practices sharing discussions													✓ (1)	1

APPENDIX 13

BENCHMARKING TECHNIQUES USED BY THE SURVEYED SCHOOLS

Questions on the Use of Benchmarking → Benchmarking Technique ↓	Q10-1	Q10-2	Q10-3	Q10-4	Q10-5	Q10-6	Q10-7	Q10-8	Q10-9	Q10-10	Q10-11	Q10-12	Q10-13	Q11-3	Q12-1	Q12-2	Q12-3	Total Number of Schools that Described the Use of Benchmarking Technique When Providing an Example
Best practice sharing	✓ (6)	✓ (4)																10
Best practice sharing clusters	✓ (7)	✓ (2)	✓ (1)						✓ (2)	✓ (19)		✓ (1)	✓ (3)		✓ (1)			36
Best practice sharing collaborative inquiry	✓ (3)	✓ (4)																7
Best practice sharing collaborative lesson planning	✓ (12)	✓ (9)	✓ (13)			✓ (1)			✓ (2)									37
Collaborative teaching including best practice sharing	✓ (15)	✓ (6)	✓ (5)	✓ (2)														28
Best practice sharing conferences	✓ (2)	✓ (1)	✓ (1)			✓ (2)			✓ (1)	✓ (1)		✓ (7)		✓ (1)	✓ (1)	✓ (1)		18

Questions on the Use of Benchmarking → Benchmarking Technique ↓	Q10-1	Q10-2	Q10-3	Q10-4	Q10-5	Q10-6	Q10-7	Q10-8	Q10-9	Q10-10	Q10-11	Q10-12	Q10-13	Q11-3	Q12-1	Q12-2	Q12-3	Total Number of Schools that Described the Use of Benchmarking Technique When Providing an Example
Best practice sharing demonstration lessons	✓ (3)	✓ (3)	✓ (8)															14
Best practices sharing discussions	✓ (8)	✓ (4)																12
Best practices sharing education experts	✓ (3)	✓ (5)	✓ (1)		✓ (13)		✓ (19)		✓ (2)	✓ (1)								44
Best practice sharing exchange programs	✓ (2)									✓ (3)	✓ (10)	✓ (6)			✓ (6)	✓ (8)		35
Hybrid - best practice sharing visits & best practice sharing observations	✓ (2)																	2
Hybrid - best practice sharing visits & best practice sharing special projects	✓ (1)																	1
Best practice sharing job shadowing	✓ (1)	✓ (1)																2
Best practice sharing meetings	✓ (10)	✓ (13)	✓ (7)			✓ (31)			✓ (7)	✓ (7)		✓ (3)		✓ (2)	✓ (5)		✓ (8)	93

Questions on the Use of Benchmarking → Benchmarking Technique ↓	Q10-1	Q10-2	Q10-3	Q10-4	Q10-5	Q10-6	Q10-7	Q10-8	Q10-9	Q10-10	Q10-11	Q10-12	Q10-13	Q11-3	Q12-1	Q12-2	Q12-3	Total Number of Schools that Described the Use of Benchmarking Technique When Providing an Example
Best practice sharing mentoring	✓ (21)	✓ (15)	✓ (15)						✓ (2)									53
Best practice sharing observations	✓ (11)	✓ (19)	✓ (8)			✓ (1)			✓ (2)		✓ (1)							42
Best practice sharing appraisal observations				✓ (37)	✓ (10)													47
Best practice sharing mentoring observations				✓ (5)	✓ (3)													8
Best practice sharing multifaceted observations by the principal				✓ (10)														10
Best practice sharing observations by education expert				✓ (1)														1
Best practice sharing observations of collaborative teaching				✓ (2)														2

Questions on the Use of Benchmarking → Benchmarking Technique ↓	Q10-1	Q10-2	Q10-3	Q10-4	Q10-5	Q10-6	Q10-7	Q10-8	Q10-9	Q10-10	Q10-11	Q10-12	Q10-13	Q11-3	Q12-1	Q12-2	Q12-3	Total Number of Schools that Described the Use of Benchmarking Technique When Providing an Example
Best practice sharing through observations of teaching practice				✓ (5)														5
Best practice sharing observations with curriculum focus				✓ (6)														6
Best practice sharing online learning and sharing platform	✓ (2)	✓ (4)	✓ (4)			✓ (4)			✓ (7)	✓ (1)	✓ (2)	✓ (6)	✓ (1)		✓ (5)	✓ (1)	✓ (3)	40
Best practice sharing school website								✓ (7)										7
Best practice sharing web-based applications								✓ (34)										34
Professional Development (PD) including options for best practice sharing	✓ (10)	✓ (3)	✓ (6)			✓ (2)	✓ (6)		✓ (2)			✓ (2)					✓ (4)	35
Sharing best practices acquired through PD	✓ (3)	✓ (1)																4

Questions on the Use of Benchmarking → Benchmarking Technique ↓	Q10-1	Q10-2	Q10-3	Q10-4	Q10-5	Q10-6	Q10-7	Q10-8	Q10-9	Q10-10	Q10-11	Q10-12	Q10-13	Q11-3	Q12-1	Q12-2	Q12-3	Total Number of Schools that Described the Use of Benchmarking Technique When Providing an Example
Best practice sharing through shared PD										✓ (4)								4
Best practice sharing through peer appraisal	✓ (10)	✓ (8)	✓ (12)						✓ (1)									31
Best practice sharing Professional Learning Communities (PLC)	✓ (11)	✓ (4)	✓ (3)			✓ (2)			✓ (6)						✓ (3)		✓ (3)	32
Best practice sharing seminars	✓ (2)	✓ (1)	✓ (6)						✓ (3)	✓ (2)		✓ (2)		✓ (1)				17
Best practice sharing through media												✓ (4)						4
Best practice sharing through external evaluation												✓ (1)						1
Best practice sharing special projects	✓ (5)	✓ (5)															✓ (1)	11
Best practice resource sharing		✓ (2)																2
Tandem learning	✓ (1)	✓ (1)			✓ (2)													4

Questions on the Use of Benchmarking → Benchmarking Technique ↓	Q10-1	Q10-2	Q10-3	Q10-4	Q10-5	Q10-6	Q10-7	Q10-8	Q10-9	Q10-10	Q10-11	Q10-12	Q10-13	Q11-3	Q12-1	Q12-2	Q12-3	Total Number of Schools that Described the Use of Benchmarking Technique When Providing an Example
Best practice sharing teaching as inquiry	✓ (8)	✓ (6)																14
Best practice sharing trainings	✓ (3)	✓ (1)	✓ (5)							✓ (2)								11
Best practice sharing visits	✓ (2)	✓ (1)	✓ (1)		✓ (1)				✓ (3)	✓ (5)	✓ (3)	✓ (17)	✓ (3)	✓ (2)				38
Best practice sharing walk-throughs	✓ (1)			✓ (10)														11
Best practice sharing workshops	✓ (1)	✓ (1)	✓ (12)			✓ (5)			✓ (3)	✓ (3)		✓ (4)	✓ (1)	✓ (3)		✓ (1)		34
Best practice sharing collaborative learning spaces		✓ (1)																1
Hybrid - best practice sharing observations & best practice sharing conferences			✓ (1)															1

Questions on the Use of Benchmarking → Benchmarking Technique ↓	Q10-1	Q10-2	Q10-3	Q10-4	Q10-5	Q10-6	Q10-7	Q10-8	Q10-9	Q10-10	Q10-11	Q10-12	Q10-13	Q11-3	Q12-1	Q12-2	Q12-3	Total Number of Schools that Described the Use of Benchmarking Technique When Providing an Example
Hybrid - best practice sharing demonstration lessons & best practice sharing observations			✓ (2)															2
Best practice sharing teacher only days			✓ (2)			✓ (2)												4
Best practice teacher inquiry			✓ (5)						✓ (2)									7
Best practice sharing open lessons			✓ (1)															1
Best practice sharing independent external reviewer					✓ (6)													6
Best practice sharing observations by education authority					✓ (9)													9
Best practice sharing informal discussions						✓ (1)								✓ (4)				5

Questions on the Use of Benchmarking → Benchmarking Technique ↓	Q10-1	Q10-2	Q10-3	Q10-4	Q10-5	Q10-6	Q10-7	Q10-8	Q10-9	Q10-10	Q10-11	Q10-12	Q10-13	Q11-3	Q12-1	Q12-2	Q12-3	Total Number of Schools that Described the Use of Benchmarking Technique When Providing an Example
Best practice sharing through sharing feedback from external PD						✓ (5)												5
Best practice sharing District/Ministry appointed consultants							✓ (1)											1
Best practice sharing Ministry funded consultants							✓ (4)											4
Partnerships for learning and sharing best practices							✓ (1)			✓ (4)		✓ (1)						6
Methods for informal learning of best practices									✓ (2)							✓ (2)		4
Best practice sharing Special Interest Groups (SIG)									✓ (3)									3

Questions on the Use of Benchmarking → Benchmarking Technique ↓	Q10-1	Q10-2	Q10-3	Q10-4	Q10-5	Q10-6	Q10-7	Q10-8	Q10-9	Q10-10	Q10-11	Q10-12	Q10-13	Q11-3	Q12-1	Q12-2	Q12-3	Total Number of Schools that Described the Use of Benchmarking Technique When Providing an Example
Hybrid - best practice sharing clusters & best practice sharing Professional Learning Communities (PLC)									✓ (1)									1
Best practice sharing collaboration among teacher associations									✓ (1)									1
Best practices sharing focus group									✓ (1)									1
Best practice sharing professional support										✓ (2)								2
Best practice sharing public lessons										✓ (1)								1
Best practice sharing across-sector collaboration										✓ (1)								1

Questions on the Use of Benchmarking → Benchmarking Technique ↓	Q10-1	Q10-2	Q10-3	Q10-4	Q10-5	Q10-6	Q10-7	Q10-8	Q10-9	Q10-10	Q10-11	Q10-12	Q10-13	Q11-3	Q12-1	Q12-2	Q12-3	Total Number of Schools that Described the Use of Benchmarking Technique When Providing an Example
Best practice sharing subject groups										✓ (2)								2
Best practice sharing inter-school networks										✓ (6)								6
Hybrid - best practice sharing observations & best practice sharing exchange programs											✓ (2)							2
Best practice sharing international projects											✓ (3)		✓ (2)					5
Best practice sharing international networks											✓ (5)							5
Learning best practices through research											✓ (2)	✓ (1)		✓ (4)				7
Cooperation with educational publishers for best practice sharing												✓ (1)						1

Questions on the Use of Benchmarking → Benchmarking Technique ↓	Q10-1	Q10-2	Q10-3	Q10-4	Q10-5	Q10-6	Q10-7	Q10-8	Q10-9	Q10-10	Q10-11	Q10-12	Q10-13	Q11-3	Q12-1	Q12-2	Q12-3	Total Number of Schools that Described the Use of Benchmarking Technique When Providing an Example
Best practice sharing regional networks												✓ (3)						3
Collaboration with relevant organisations for best practice sharing												✓ (1)						1
Best practice sharing inter-school competitions													✓ (1)					1
Best practice sharing principal learning network													✓ (3)					3
Best practice sharing local schools' collaboration													✓ (4)					4
Best practice sharing communities of schools													✓ (3)					3
Best practice sharing events and competitions														✓ (2)	✓ (7)			9

Questions on the Use of Benchmarking → Benchmarking Technique ↓	Q10-1	Q10-2	Q10-3	Q10-4	Q10-5	Q10-6	Q10-7	Q10-8	Q10-9	Q10-10	Q10-11	Q10-12	Q10-13	Q11-3	Q12-1	Q12-2	Q12-3	Total Number of Schools that Described the Use of Benchmarking Technique When Providing an Example
Performance benchmarking														✓ (2)				2
Best practice sharing Professional Learning Groups (PLG)														✓ (2)				2
Best practice sharing shared projects															✓ (3)			3
Best practice sharing special initiatives															✓ (10)			10
Best practices sharing collaboration facilitators																✓ (2)		2
Best practice sharing special networks																✓ (1)		1
Best practice sharing strategic planning																	✓ (3)	3
Best practice sharing special programs																	✓ (3)	3

Questions on the Use of Benchmarking → Benchmarking Technique ↓	Q10-1	Q10-2	Q10-3	Q10-4	Q10-5	Q10-6	Q10-7	Q10-8	Q10-9	Q10-10	Q10-11	Q10-12	Q10-13	Q11-3	Q12-1	Q12-2	Q12-3	Total Number of Schools that Described the Use of Benchmarking Technique When Providing an Example
Best practices sharing staff feedback																	✓ (1)	1

APPENDIX 14

SUMMARY TABLE OF SCHOOL SYSTEMS INDICATING THE FREQUENCY AND EFFECTIVENESS OF BENCHMARKING (N=20)

Question Number	Questions on the Use of Benchmarking	School Systems Using Benchmarking (Total)	School Systems Indicating Frequency ⁶⁰	School Systems Indicating Effectiveness	School Systems Using Benchmarking 'Frequently'	School Systems Obtaining 'Highly Effective' Outcomes from the Use of Benchmarking
Q5-3	Within your own school system, have you encouraged high-performing schools to assist low performing schools to improve their performance?	12	11	10	2	2
Q5-4	Within your own school system, have you encouraged low-performing schools to get assistance from high-performing schools to improve their performance?	11	9	9	2	2
Q6-1	Has your school system learned academic work practices from other school systems?	17	16	15	3	2
Q6-2	Has your school system recommended its schools to learn academic work practices from one another?	15	13	12	3	3
Q7-1	Has your school system learned how holistic learning is provided from other school system(s)?	8	7	6	1	1
Q7-3	Has your school system recommended its schools to learn how to improve their holistic learning from one another?	9	7	6	2	2
Q8-1	Has your school system learned non-academic work practices from other school system(s)?	12	9	8	1	1
Q8-2	Has your school system encouraged its schools to share non-academic work practices with each other?	12	8	8	3	3
Q9-1	Has your school system considered education reforms of other school system(s) while revising and/or formulating its own reforms?	14	13	12	1	1

⁶⁰ Frequency represents extent of use of benchmarking

Q9-2	Has your school system considered education policies of other school system(s) while revising and/or formulating its own policies?	14	13	12	1	1
Q9-3	Has your school system encouraged schools within its school system to discuss and share new policies and/or reforms?	14	11	11	3	2
Q9-4	Has your school system encouraged schools within its school system to discuss and share strategies for implementing new policies and/or reforms?	15	13	12	2	2
Q10-1	In order to promote learning and improvement has your school system learned work practices of other school systems through media, online sources, teacher exchange and/or visits.	16	14	13	3	1

**SUMMARY TABLE OF SCHOOLS INDICATING THE FREQUENCY AND EFFECTIVENESS OF BENCHMARKING
(N=183)**

Question Number	Questions on the Use of Benchmarking	Schools Indicating Frequency	Schools Indicating Effectiveness	Schools Using Benchmarking 'Frequently'	Schools Obtaining 'Highly Effective' Outcomes from the Use of Benchmarking
Q10-1	Has your school encouraged staff at all levels to assist their peers?	143	140	93	44
Q10-2	Has your school encouraged staff at all levels to get assistance from their peers?	139	136	90	37
Q10-3-1	Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through Regular Meetings?	139	136	97	52
Q10-3-2	Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through Collaborative Lesson Planning?	137	133	93	55
Q10-3-3	Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through Demonstration Lesson (i.e. in which a senior teachers how a good class is supposed to be)?	107	104	28	31
Q10-3-4	Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through Seminars?	104	102	19	11
Q10-3-5	Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through Workshops?	120	118	33	19
Q10-3-6	Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through Observations (i.e. teachers observing senior teachers delivering lesson)?	118	115	38	32
Q10-3-7	Has your school encouraged senior teachers to share their teaching experience and work practices with other teachers through Face-to-face training (provided by senior teachers)?	96	93	38	25
Q10-4	Has your school undertaken observations of teachers' lessons by the principal and/or senior teacher(s) for identifying strengths and weaknesses in teaching methodologies, followed by suggestions for improvement?	133	130	40	26
Q10-5	Has your school undertaken observations of teachers' lessons by external teachers (from outside your school) followed by their feedback and suggestions for improvement?	78	76	6	15

Q10-6	Has your school ensured that teachers participating in sharing sessions (e.g. workshops, seminars etc.) share learned lessons with their counterparts?	117	115	44	22
Q10-7	Has your school appointed experienced teacher(s) as consultant(s), to share knowledge, skills, and experience with in-service teachers?	76	74	26	24
Q10-8	Does the school have a website to facilitate teachers to share work practices and/or learn from each other?	69	70	50	14
Q10-10	Has your school at any point collaborated with a local school (i.e. within your country or school system) to share pedagogical work practices (e.g. teaching methodologies)?	105	103	25	25
Q10-11	Has your school at any point collaborated with an international school(s) (i.e. outside of your own school system) to share pedagogical work practices (i.e. teaching methodologies)?	53	52	6	10
Q10-12-1	Has your school learned about improvement initiatives at another school(s) through Media?	76	73	20	6
Q10-12-2	Has your school learned about improvement initiatives at another school(s) through Web sources?	102	96	52	11
Q10-12-3	Has your school learned about improvement initiatives at another school(s) through Conferences/Seminars?	104	100	21	12
Q10-12-4	Has your school learned about improvement initiatives at another school(s) through Teacher Exchange?	29	28	5	5
Q10-12-5	Has your school learned about improvement initiatives at another school(s) through Visits?	99	96	15	21
Q11-2	Has your school compared its holistic learning with other schools?	44	42	5	4
Q11-3	Has your school learned how holistic learning is provided by other schools?	45	44	6	3
Q12-1	Has your school at any point collaborated with a local school (i.e. within your country or school system) for sharing and/or exchanging non-academic work practices?	76	73	20	10
Q12-2	Has your school at any point collaborated with an international school (i.e. outside of your own school system) for sharing and/or exchanging non-academic work practices?	38	35	4	6
Q12-3	Has your school at any point encouraged sharing and/or exchanging of non-academic work practices among staff?	76	72	28	18

APPENDIX 15
MAPPING OF THE THIRD RESEARCH OBJECTIVE, CORRESPONDING
RESEARCH QUESTIONS AND THEMES WITH INTERVIEW QUESTIONS
FOR A SCHOOL

Steps of Structured Interview	Interview Questions	Focus of Interview Questions
Introduction	<p>Introduce self, appreciate participant for their time</p> <p>Introduce the research and its significance for school systems Refer the participant to their survey response</p> <p>Request permission for audio recording</p>	<p>To get the interviewee and interviewer comfortable in talking and listening to each other</p> <p>To prepare the interviewee to talk on the topic</p> <p>Ethical requirement</p>
Question 1	<p>How does your school: learn from other schools; support the learning of its teachers; learn from other sectors and/or organisations; Which learning approaches (or benchmarking techniques) resulted in improved performance?</p>	<p>The purpose of this question is to determine the focus of benchmarking and identify benchmarking techniques producing improved performance. (RQ 5)</p>
Question 2	<p>Can you elaborate on how each effective learning approach is used?</p> <p>The elaboration is prompted through the following sub-questions:</p>	<p>The purpose of this question is to explore implementation detail of benchmarking techniques resulting in improved performance. (RQ 6)</p>
Sub-questions of Question 2 (mapped to themes and research objective 3)	What is the purpose of this learning approach?	Understand the reasons for conducting benchmarking (theme)
	What are the prerequisites for implementing this learning approach?	Develop understanding of the precondition for benchmarking (theme)
	How is the best practice partner(s) selected?	Description of partner selection process (theme)
	How do you plan for this learning approach? How do you implement it? Do you evaluate the outcomes? How?	Understand the adopted benchmarking process (theme)
	How much time, money and people are required?	Understand the resources required for benchmarking (theme)
	What are the barriers/challenges to the implementation of this learning approach? How did you overcome them?	Description of potential obstacles and the propensity of the school system to learn (theme)
	What are the outcomes/benefits of this learning approach?	Description of results achieved from benchmarking (theme)
Question 3	<p>How would you rate the effectiveness of this learning approach on a scale from 1 to 5? Rating: 1 = ineffective; 2 = not very effective; 3 = moderately effective; 4 = reasonably effective; 5 = highly effective</p>	<p>Aids in understanding success of benchmarking</p>

	Which factors enabled you to achieve those outcomes?	The purpose of this question is to comprehend factors that led to successful benchmarking (theme). (RQ 7)
Repeat Questions 1 till 3 for each effective learning approach adopted by a school to: learn from other schools; support learning of its teachers; learn from other sectors and/or organisations		
Closing	Thank the interviewee for their time and information	To end the interview politely and formally

APPENDIX 16

INTERVIEW INVITATION EMAIL TO A SCHOOL SYSTEM (SAMPLE)

Dear Respondent,

A few months ago, you participated in my research by means of a questionnaire.

My research aims to investigate the contribution of benchmarking (learning from others) to the performance of school systems and schools around the world. This research is being conducted at Massey University, New Zealand. To assess the extent of use and impact of benchmarking a questionnaire was administered to your school system. I am thankful for your enlightening feedback. Your responses intrigue me to know some of your benchmarking techniques in detail.

So, I invite you to further support my research by letting me learn some of your benchmarking techniques in detail by means of an interview. I hope to be provided with the opportunity to learn some exciting information from you. In the questionnaire you mentioned your interest for further participation. The standard interview time is one hour however it can be shortened if you are too busy.

Kindly suggest an appropriate date and time from the following. The time options follow Spain's standard time.

Date	Day	Time (Please choose a suitable time)
2 nd May 2016	Monday	9 am to 2 pm
3 rd May 2016	Tuesday	9 am to 2 pm
4 th May 2016	Wednesday	9 am to 2 pm
5 th May 2016	Thursday	9 am to 2 pm
6 th May 2016	Friday	9 am to 2 pm
9 th May 2016	Monday	9 am to 2 pm
10 th May 2016	Tuesday	9 am to 2 pm
11 th May 2016	Wednesday	9 am to 2 pm
12 th May 2016	Thursday	9 am to 2 pm
13 th May 2016	Friday	9 am to 2 pm

Also, please indicate if you prefer to be interviewed through Skype (I prefer skype if it is available to you) or telephone. If you prefer Skype, please provide your Skype address.

I want to explore more with regard to the following:

- How does your school system learn from other school systems and which have been the most beneficial approaches/techniques to do so?
- Does your school system learn from other sectors (or industries)? If so, how?
- How do schools within your school system learn from each other and which have been the most beneficial approaches/techniques to do so?

I look forward to talking to you.

Yours faithfully,

Rubab Malik

INTERVIEW INVITATION EMAIL TO A SCHOOL (SAMPLE)

Dear Respondent,

A few months ago, you participated in my research by means of a questionnaire.

My research aims to investigate the contribution of benchmarking (learning from others) to the performance of school systems and schools around the world. This research is being conducted at Massey University, New Zealand. To assess the extent of use and impact of benchmarking a questionnaire was administered to your school. I am thankful for your enlightening feedback. Your responses intrigue me to know some of your benchmarking techniques in detail.

So, I invite you to further support my research by letting me learn some of your benchmarking techniques in detail by means of an interview. I hope to be provided with the opportunity to learn some exciting information from you. In the questionnaire you mentioned your interest for further participation. The standard interview time is one hour however it can be shortened if you are too busy.

Kindly suggest an appropriate date and time from the following. The time options follow Singapore's standard time.

Date	Day	Time (Please choose a suitable time)
15 th March 2016	Tuesday	9 am to 12 noon
16 th March 2016	Wednesday	9 am to 12 noon
17 th March 2016	Thursday	9 am to 12 noon
18 th March 2016	Friday	9 am to 12 noon
19 th March 2016	Saturday	9 am to 12 noon
20 th March 2016	Sunday	9 am to 12 noon
21 st March 2016	Monday	9 am to 12 noon
22 nd March 2016	Tuesday	9 am to 12 noon
23 rd March 2016	Wednesday	9 am to 12 noon
24 th March 2016	Thursday	9 am to 12 noon

Also, please indicate if you prefer to be interviewed through Skype (I prefer skype if it is available to you) or telephone. If you prefer Skype, please provide your Skype address.

I want to explore more with regard to the following:

- How does your school learn from other schools and which has been the most beneficial approach/technique to do so?
- Does your school learn from other sectors (or industries)? If so, how?
- How do teachers at your school learn from other teachers and which has been the most beneficial approach/technique to do so?

I look forward to talking to you.

Yours faithfully,

Rubab Malik

APPENDIX 17
VALIDATION QUESTIONNAIRE
A QUESTIONNAIRE TO VALIDATE THE SIGNIFICANCE OF ‘FACTORS
LEADING TO EFFECTIVENESS’



MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA
UNIVERSITY OF NEW ZEALAND

Consolidation Questionnaire

Dear respondent,

You have been very supportive throughout my research journey. I appreciate the time dedicated from your busy schedule to assist and support my research. Without your participation, it would have not been possible to successfully achieve the purpose of this study.

Now, I hope you can provide a little more support in helping me to develop a framework of effective benchmarking strategies with guidelines for their effective implementation. You are kindly requested to answer the following questionnaire. It is a short questionnaire and will not take more than 2 minutes of your time. The prime purpose of this questionnaire is to collect your views on factors leading to the effective use of benchmarking. These factors have been contributed by the research respondents.

At the completion of the study, I would be happy to share the benchmarking framework as an acknowledgment of your unconditional support.

I look forward to receiving your responses soon.

Yours sincerely,
Rubab Malik

Next

Consolidation Questionnaire

1. What is name of your school and/or school system? 

2. The following factors have been identified by the interviewed schools and school systems as essential for successful benchmarking. Which factors according to you are integral to successful learning from other schools/school systems? 

	Critical	Very important	Important	Of little importance	Not important
Involvement of senior leadership	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Culture of trust and collaboration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teachers' commitment to excellence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teachers' competency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Positive work environment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Commitment of the school/school system for continuous improvement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Innovative practices / trying new things (Continuous improvement)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Willingness to change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Relationship between benchmarking partners	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Learning from a school/school system that had similar issues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Making benchmarking an integral element of school's/school system's strategy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Knowing your learners	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A structured approach to learning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Consistent use of benchmarking strategy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Resources (people, time and money)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please specify in case of others. Also mention the importance.

3. Please indicate if you would like the name of your school/school system to be mentioned in the thesis and/or relevant publications. 

Yes

No

Prev

Done

APPENDIX 18

PORTFOLIO OF BENCHMARKING TECHNIQUES

TECHNIQUE NAME: BEST PRACTICE SHARING EDUCATION EXPERTS

Purpose:

A learning approach in which a school system or school enables its teachers to develop and strengthen their teaching skills under the guidance of an expert teacher. A significant component of learning from an expert is demonstration lessons through which the expert shares their best practices. For example, a school may appoint an expert mathematics teacher to support the teaching of mathematics.

Explanation:

A best practice sharing education expert can support teachers both formally and informally. The formal appointment of an expert follows steps 1 to 5 of the Benchmarking Implementation Approach depicted in Figure 6.3. An informal appointment, on the other hand, may not adhere to all these steps and/or may conduct them less comprehensively.

Ideally, the appointment of an expert is in line with the teachers' development plan or agenda and follows a purpose and objectives so that best practices are learned in an efficient manner. A school system or school may provide an opportunity to their teachers to develop and strengthen their teaching skills under the guidance of an expert. An expert is someone who has an extensive teaching experience and supports teachers in improving their teaching. An expert is known by a variety of names, such as Expert Teacher, Facilitator, Mentor and Mister Teacher. An expert can either be a subject (i.e. literacy) or skill (i.e. positive behaviour for learning) specialist. The concept of education expert is growing across school systems and schools. Some of the school systems that have introduced education experts effectively are those of Singapore, New Zealand and South Korea; while the list of schools is endless. In order to obtain the support of an expert, teachers should be cognizant of the role of an expert in their Professional Development.

An education expert can be identified and trained by the Ministry of Education/School Board and dispatched to schools. Alternatively, an expert can also be appointed by the

senior management of a school to support the development of teachers. Appointing an expert can be expensive for schools, and funding can either be provided by the Ministry of Education/School Board or has to be organised from the school's annual budget. Sometimes, the appointment of an expert may also be included in the strategic plan of a school system or school.

Typically, an expert follows an agenda and works alongside teachers and mentors them for improving and refining of their teaching practices relating to a specific area. An expert can support teachers in a number of ways; they can work one-to-one or in groups with teachers to resolve their specific challenges or they may conduct observations, discussions, trainings and mentoring. Sometimes, an expert demonstrates best practices to a group of teachers. In addition, a school system or school may organise expert led seminars, workshops and training programs. However, all these activities follow a predeveloped agenda.

The duration for which an expert leverages the development of teachers varies; however, these sessions should end with evaluation to ensure the achievement of expected improvements.

Benefits:

- Appointing an expert is extremely useful for teachers' Professional Development
- An expert teacher shares best practices with teachers and enables them to embed learnings from those practices in their teaching
- An expert teacher enables teachers to improve their teaching practices by observing and critiquing their teaching and providing feedback and constructive suggestions
- Relationship development between the expert and teachers

An Example of Best Practice Sharing Education Experts (Informal):

A Primary School in New Zealand ensures the Professional Development of its teachers by providing them with a mathematics expert teacher to support the teaching of mathematics (Interviewee S-7, personal communication, August 19, 2016). The expert teacher discusses the teaching challenges and possible methodological solutions for each teacher and develops an improvement agenda. The expert supports teachers by

sharing best practices for teaching mathematics through observation, demonstration lessons, co-teaching and sharing structured methods for developing lesson plans and goals. Sometimes, if a teacher finds a lesson challenging, the expert teacher demonstrates the lesson; on other occasions, they may even co-teach a lesson. In particular, the expert teacher observes teachers during class and provides feedback on the lesson and suggests ways to improve the lesson. The feedback for the lesson is kept in Google Docs and is shared between the expert and the teacher being observed. The Google Docs elaborates on: what was done and how, the suggestions made by the expert teacher, and the action taken by the observed teacher to address those suggestions. Finally, the Google Docs becomes part of teacher's appraisal.

TECHNIQUE NAME: BEST PRACTICE SHARING EXCHANGE PROGRAMS

Purpose:

A learning approach in which a school system or school learns best practices during an exchange of teachers and/or students with another school system or school. For example, a school system participating in an exchange of principals provides a platform for principals to learn international best practices.

Explanation:

A *best practice sharing exchange program* can be implemented both formally and informally. A formal exchange program follows steps 1 to 5 of the Benchmarking Implementation Approach depicted in Figure 6.3. An informal exchange program, on the other hand, may not adhere to all these steps and/or may conduct them less comprehensively.

Preferably, an exchange program follows an exchange plan or agenda, creates an exchange team and briefs the team about the purpose and objectives of exchange so that best practices are learned in an efficient manner.

A school system or school may provide an opportunity to its teachers and/or students and/or staff members to learn best practices from counterparts (belonging to other school systems or schools) by enabling them to participate in an exchange program. Typically, an exchange program can be between national (local) or international school systems or schools. An exchange between school systems is international if the exchange partner is another country or a school system in another country, and local if the exchange partner is another school system within the same country/state/district. Likewise, an exchange program can also be initiated between national (local) and international schools.

The number of exchange partners (school systems or schools) and their respective participants depend upon the purpose and scope of exchange. The purpose and scope of an exchange program, exchange partners, participating team, the resources required and exchange duration are decided before initiating an exchange.

For the success of an exchange program, it is paramount that all exchange partners follow a shared purpose, and all exchange participants are informed about the purpose and objectives of exchange beforehand. Typically, an exchange program promoted

between and/or by school systems is funded by the Ministry of Education/School Board. On the other hand, an exchange program between schools can either be funded by the Ministry of Education/School Board or participating schools.

During an exchange program, best practices may be acquired through a variety of methods, such as a visit to a best practice school system or school, organisation of workshops, observations and meetings between exchange participants and also by the appointing an expert who is able to work with the exchange participants to develop and/or disseminate best practices.

At the end of an exchange program, the participants return to their respective school systems or schools, reflect on the acquired best practices and then implement them. It is important to evaluate the benefits of an exchange for the improvement of future exchange programs. Typically, the implementation and evaluation of learnings is conducted independently by each of the exchange partners.

Benefits:

- Provides an opportunity to share ideas and knowledge, as well as learn educational practices from different school systems or schools
- Participating teachers learn new teaching practices to share with their colleagues and students
- Provides opportunities to enhance teaching practice
- Relationship development between exchange partners and participants
- Relationship development with local and international cultures and communities

An Example of Best Practice Sharing Exchange Programs (Informal):

This is an example of an international exchange program from Poland. The exchange was between Polish and Irish schools and was funded by the European Union (Interviewee S-9, personal communication, February 28, 2016). The purpose of this exchange program was to improve language proficiency of a foreign language (English) in a foreign context. During the exchange, two English teachers from a Polish school went to Ireland to learn English. During the exchange period, the teachers engaged in professional conversation with English teachers from Ireland. In addition, all the exchange teachers were taught together by an expert teacher with a focus on pronunciation. This program lasted for two weeks during which teachers participated in various activities and exercises related to pedagogy and also visited historical places in

Ireland. The exchange program served as a platform for sharing of teaching expertise and best practices. On their return, the teachers adapted and incorporated the learned best practices in their regular teaching and also shared the learned ideas, material and best practices with other English teachers at their school. The exchange program enabled teachers to improve language skills, exchange expertise and develop contacts.

TECHNIQUE NAME: BEST PRACTICE SHARING VISITS

Purpose:

A learning approach in which representatives of a school system or school learn best practices by visiting another school system or school. For example, a school principal might plan for the teachers to visit another school to learn its literacy program.

Explanation:

A *best practice sharing visit* can be conducted both formally and informally. A formal visit follows steps 1 to 5 of the Benchmarking Implementation Approach depicted in Figure 6.3. An informal visit, on the other hand, may not adhere to all these steps and/or may conduct them less comprehensively.

A visit should follow a plan or agenda so that best practices are learned in an efficient manner. A visit can serve as an excellent opportunity to learn new and improved methods of teaching and learning, and other areas of a school system or school i.e. administrative system. Besides, it can also provide an opportunity to discuss shared challenges and problems.

Before conducting a visit, a detailed plan has to be developed that encompasses the purpose and scope of visit, the partner school system or school, the number of people involved and their roles, and the time and finance required for the visit. While planning a visit, consideration has to be given to the selection of school system or school having best practices in the area of learning. A visit can be planned to a local or international school system or school by representatives of the senior management of a school system or school, or teachers. A relief teacher may be required if the visit is conducted by a teacher(s) during school time. An international visit usually requires greater resources, and could be funded by the Ministry of Education/School Board or arranged from the school's budget. In addition, the duration of a visit may range between a few hours (in case of a local school) to several days or weeks (in case of a local school system, and international school system and school).

During a visit, the representatives can learn best practices from the partner school system or school through a variety of mechanisms, such as observation of teaching and seeing learning through students' lens, meetings, engaging in discussion with communities of practice and by watching videos of best practices.

After a visit, the representatives may reflect on the learnings acquired from the visit to determine how to incorporate them into the regular teaching and learning in order to obtain expected improvements.

Benefits:

- In-depth learning of best practices by actually seeing them in action
- Opportunity to learn programs and best practices in place at other school systems or schools
- Opportunity to engage in professional dialogue with equivalent partners
- Relationship development between visit partners and participants
- Relationship development between local and international cultures and communities

An Example of Best Practice Sharing Visits (Informal):

A Montessori School in New Zealand has a unique learning strategy in place called ‘Meeting in the Middle’ (Interviewee S-4, personal communication, March 21, 2016). Every year, the Principal plans for and sends 3 to 4 staff members (teachers) from the school to an Australian Montessori School due to their close proximity and the lack of Montessori Schools in New Zealand. The purpose of these visits is to share best practices for the successful handling of student learning issues, effective ways of engaging students, teaching methodologies and to talk about common problems and their solutions; with a focus on pedagogy, student achievement, depth and breadth of curriculum, its related strategies and the enhancement of student engagement. The visit spans over three days and consists of face-to-face meetings, followed by further online correspondence, and enables to meet people who are undertaking similar challenges. These visits are important to meet people having similar challenges and for learning their best practices. Every visit is followed-up by reflection and revision of school plans to ensure even more successful visits in future. After a visit, the visiting teachers share learnings with their colleagues.

Links to other Examples of Best Practice Sharing Visits (Informal):

See more examples of Best Practice Sharing Visits through the following reference:

Tan, J., & Gopinathan, S. (2000). Education reform in Singapore: Towards greater creativity and innovation. *NIRA review*, 7(3), 5-10.

TECHNIQUE NAME: LEARNING BEST PRACTICES FROM COMMUNITIES OF PRACTICE

Purpose:

A learning approach in which a school system or school supports teachers in strengthening their pedagogy by learning best practices from their counterparts within the school system or school, through engaging in a process of collective learning. For example, a school may hold weekly meetings for teachers to engage in collaborative learning and sharing.

Explanation:

Learning best practices from communities of practice can be implemented both formally and informally. A formal community of practice follows steps 1 to 5 of the Benchmarking Implementation Approach depicted in Figure 6.3. An informal community of practice, on the other hand, may not adhere to all these steps and/or may conduct them less comprehensively.

Learning from communities of practice is a powerful tool that can be used within school systems and schools to promote sharing and collaboration between teachers to ensure learning of best practices. A community of practice should follow an agenda that reflects the shared interest and goals of teachers. A community of practice operates in a variety of ways, such as collaborative teaching and lesson planning, Teacher Only Days and meetings. The success of these collaborative sessions depends largely on the openness between teachers. A community of practice can be created between teachers within a school system or school and may involve the whole teaching staff and/or certain groups of teachers on the basis of subject and/or year level.

During a community of practice session, teachers may share their problems and concerns and collaboratively find solutions in the form of best practices by following the agenda of the session. A summary of findings may be developed with an implementation plan to ensure that best practices are implemented. Following the implementation, an evaluation of implemented best practices may be conducted to assess their effectiveness.

Benefits:

- Issues are resolved
- Participating teachers share their best practices
- Development of relationship between teachers
- Fosters trust and a sense of common purpose

An Example of Learning Best Practices from Communities of Practice (Informal):

A Primary School in Singapore promotes Professional Learning Communities (PLC) for learning and development of teachers. The PLC are initiated and funded by the Ministry of Education with the purpose of enhancing collaborative learning and planning among teachers (Interviewee S-6, personal communication, March 16, 2016). However, the challenge is to encourage teachers to participate effectively so as to enjoy the benefits of this approach. As part of the PLC, all teachers work together in Learning Teams, with 4 and 8 teachers in each team. The teams are created on the basis of shared interest (subject or year level). These teams meet regularly at scheduled times throughout the year and work interdependently to bring about positive change in student learning. The teachers in the Learning Teams collaborate in areas, such as refining lesson plans and materials, as well as teaching strategies and assessment practices. They collectively engage in an ongoing cycle of feedback and reflection through which their learning gets translated into students' learning and engagement.

Links to other Examples of Learning Best Practices from Communities of Practice (Informal):

Other examples of Learning Best Practices from Communities of Practice can be accessed through the following reference:

OECD. (2012). *Singapore-strong performers and successful reforms in education*. Retrieved from <https://www.youtube.com/watch?v=Km25TAnPbI4> (accessed 13 September 2014)

TECHNIQUE NAME: BEST PRACTICE SHARING OBSERVATIONS

Purpose:

A learning approach used by a school system or school in which teachers improve their teaching methodologies through observation of lesson by an expert, a teacher, a senior teacher or a member of the senior management team. Typically, observations are followed on with feedback. Sometimes, observations are supported with a demonstration by the observer. For example, a school might promote observations for identifying opportunities for improvement to structure the annual Professional Development plan for the entire school.

Explanation:

A best practice sharing observation can be conducted both formally and informally. A formal observation follows steps 1 to 5 of the Benchmarking Implementation Approach depicted in Figure 6.3. An informal observation, on the other hand, may not adhere to all these steps and/or may conduct them less comprehensively.

Observations are important for the improvement of teaching practices and should ideally be promoted as part of the strategic plan of a school system or school. Observations promoted by a school system may have a standard approach that is followed across the entire school system, whereas, school initiated observations may be flexible. An observation should follow an agenda describing the objectives and indicators for assessing the achievement of objectives. An observation is taken by an observer, who can be a teacher, a senior teacher, an expert or a member of the senior leadership team. Typically, there is only one observer involved; however, sometimes there can be multiple observers.

Observations should be conducted for all teachers and can take place from one to few times a year, with duration usually ranging between 1 to 2 hours. More importantly, observations should be promoted as an opportunity for improvement and should therefore not be considered a threat. Observations by a senior teacher or an expert may be followed by a demonstration by the observer for the sharing of best practices. To obtain improved outcomes from an observation, it is important that the observation follows a structured process and is promoted by the school system or school. Observations may also be conducted for performance appraisal of teachers.

During an observation, the observer(s) identifies strengths and weaknesses in the lesson and discusses them with the observee. The observer may provide suggestions for improvement and together with the observee devise an implementation plan. The observee may implement suggested best practices and report the results to the observer. The progress can be shared in the form of written feedback submitted after an agreed time and can also be assessed through student work.

Benefits:

- Enables teachers to engage in professional learning to improve teaching
- Enhances students' learning through reflective practice
- Celebrates excellent teachers by organising peer observations
- Gathers evidence of teaching quality to support career progression
- Enhances a culture of teaching and learning
- Forms a community around teaching and learning
- Relationship development between observer and observee
- Promotes learning of best practices from colleagues
- Promotes Professional Development of teachers
- Demonstrates leadership by observing and supporting other teachers

An Example of Best Practice Sharing Observations (Informal):

A Primary School in New Zealand follows a unique approach to observations. The observations are based on an agenda. During an observation, two teachers observe another teacher in class and reflect on the lesson (Interviewee S-5, personal communication, August 9, 2016). These observations roll-out every 5 to 6 weeks and are considered a great opportunity to learn and improve. The school has a teaching matrix in place that represents a teacher's journey from novice to expert, and is on a continuum. Teachers who have attained 'expert' level on the teaching matrix become the observers, whereas teachers at any other level on the matrix are the observee. The whole process of observation takes around 1.5 hours and includes observation and reflection. After an observation, the observers reflect on the lesson; they begin with positive comments about the lesson and then gently suggest the areas for improvement. Due to this positive approach, teachers consider observations an opportunity and not a threat. It is an expensive approach because the observers and observee have to be released from their classes for the time of observation. The School's Board of Trustees

are cognizant of the power and importance of this approach for student learning and spend \$20,000-\$30,000 each year to release teachers for observations. The observers also share feedback of the observation with the Principal, who can then personally appreciate the strengths of the observed teacher. This creates a feeling of recognition among the observed teachers and inspires them to perform to their very best. Such an environment serves as a catalyst for teacher improvement.

Links to Other Examples of Best Practice Sharing Observations (Informal):

The structure of Best Practice Sharing Observations in Singapore can be learned from the following reference:

OECD. (2012). *Singapore-Strong performers and successful reforms in education*.

Retrieved from <https://www.youtube.com/watch?v=Km25TAnPbI4> (accessed 13 September 2014)

TECHNIQUE NAME: PARTNERSHIPS FOR LEARNING AND SHARING OF BEST PRACTICES

Purpose:

A learning approach in which associations are established between school systems or schools to fulfil a shared purpose. The partnerships are loosely structured and last until the purpose and objectives of the partnership are achieved. For example, a partnership may be developed between schools to improve the visible learning of students.

Explanation:

A partnership for learning and sharing of best practices can be developed both formally and informally with other school systems or schools. A formal partnership follows steps 1, 3, 4 and 5 of the Benchmarking Implementation Approach depicted in Figure 6.3. Steps 1 and 3 are followed during the partnership, while steps 4 and 5 are followed independently by each partner. An informal partnership, on the other hand, may not adhere to all these steps and/or may conduct them less comprehensively.

A school system or school can develop partnership with another school system(s) or school(s) based on a shared learning focus. Partnerships can be established between school systems or schools having common objectives and learning can take place in a number of ways, such as meetings, workshops, seminars and conferences. Sometimes experts may be appointed to support learning and visits may also be planned to learn best practices of partners. In addition, teachers can be exchanged between partner school systems or schools for learning and sharing of best practices related to the aim of the partnership.

The number of partner school systems or schools and the duration of a partnership depend upon the shared agenda and the learning focus. Partnerships can be expensive, as resources may be required for partnership activities, such as appointing an expert, organising sharing sessions (i.e. workshops) and visits. Partnerships can either be funded by the Ministry of Education/School Board or partnering schools.

The best practices acquired during a partnership are likely to be implemented independently by all partners by following an implementation plan. The partners can then individually monitor performance to measure the effectiveness of partnership.

Benefits:

- Relationship development between partners
- Learning of best practices related to the objectives of partnership
- Partnership provides an opportunity to share ideas, knowledge and best practices operating in different school systems and schools

An Example of Partnership for Learning and Sharing of Best Practices (Informal):

A Primary School in New Zealand had been in partnership with seven other schools with a focus on the teaching of writing. The Principal of the school initiated this project and involved six other schools (Interviewee S-5, personal communication, August 9, 2016). The schools appointed and shared a consultant (expert) who worked with each of the seven schools' literacy leaders. The partnership remained for 2 years and its associated activities costed \$30,000/year, which was divided between the partner schools. The partnership involved lead teachers from seven schools and a consultant. Sometimes, teachers from all seven schools came together at one of the partner schools to discuss and share teaching strategies.

During the partnership, collaboration between schools took place through presentations and workshops. The consultant visited and delivered presentations to participants from each of the 7 schools during Teacher Only Days. The presentations were related to the shared learning focus and were delivered once a term. After the presentation, the participants (lead teachers) from each of the schools organised workshops for sharing the learned best practices with their counterparts. Besides visits and presentations, the consultant also spoke with the lead teachers to identify best practices. The idea was that after 2 years, the literacy leaders would be sufficiently skilled and knowledgeable to drive their own writing enhancement program. After the project, the literacy leaders from each of the 7 schools took the lead and began driving the literacy programs of their own schools, which turned out to be extremely beneficial for improving literacy practices.

TECHNIQUE NAME: BEST PRACTICE SHARING MENTORING

Purpose:

A learning approach in which teachers within a school system or school learn best practices from a senior staff member. A significant feature of mentoring is demonstration lessons by the senior teacher to present their best practices. For example, a school may develop novice teachers by attaching them with senior teachers to guide them through the profession.

Explanation:

Best practice sharing mentoring can be conducted both formally and informally. A formal mentoring follows steps 1 to 5 of the Benchmarking Implementation Approach depicted in Figure 6.3. An informal mentoring, on the other hand, may not adhere to all these steps and/or may conduct them less comprehensively.

A school system or school should have a well-devised mechanism for mentoring in which senior teachers are assigned the responsibility to support the learning and development of teaching staff. A mentor is a teacher having extensive teaching experience and/or has reached the highest level of mastery in teaching. Mentoring should be provided for in-service and novice teachers, who may be called mentees. The mentoring of novice teachers usually spans between 6 months to a year.

Mentoring should follow a plan in order to achieve the results expected. During mentoring, the mentor and mentee engage in an ongoing process of discussion, collaborative lesson planning, observation and reflection. Observations can be two way, that is - the mentor observes the mentee and vice versa. Mentoring highlights the strengths and weaknesses in the teaching approach of a mentee, which are discussed later and solutions are suggested for overcoming weaknesses. The mentee is expected to put those solutions into practice and update the mentor with the outcome.

Sometimes, the mentor may demonstrate best practices to the mentee. During a demonstration, the best practices for teaching and learning and class management may be demonstrated. Mentoring is an expensive approach as money is needed for providing resources to develop the mentee, including study material and dedicating the mentor to the development of mentee. Typically, mentoring programs promoted by a school

system are funded by the Ministry of Education/School Board; otherwise a school is required to organise the required funds from its annual budget.

Note that mentoring can also be done in the form of seminars and workshops for the dissemination of best practices.

Benefits:

- Best practices learned and implemented
- Mentees are introduced to new ideas and ways of thinking
- Profound advice on developing strengths and overcoming weaknesses
- Opportunity to develop new skills and knowledge
- Development of a better trained and engaged teaching staff
- Development of relationships between mentor and mentee
- High level of job satisfaction for the mentor and mentee
- More engaged teaching staff

An Example of Best Practice Sharing Mentoring (Informal):

A Primary School in New Zealand has a structured induction program for new teachers. It is a one year program in which a new teacher is attached to a senior teacher for professional support and assistance (Interviewee S-2, personal communication, March 18, 2016). It is a systematic induction process in which short-term learning objectives are developed term by term, i.e. in the first term the new teacher learns about the systems and procedures by reading about them and seeing them happen. The program is heavily supported by discussion; therefore, an open and friendly environment is created so that the new teacher feels sufficiently comfortable to communicate effectively. Many resources go into the induction program for purchasing teacher learning handbooks and the systems and procedures of teaching. The learning and development of the novice teacher takes place through reading, observation, discussion and reflection. It is important for the novice to be an effective communicator to obtain maximum advantage from induction.

Links to Other Examples of Best Practice Sharing Mentoring (Informal):

Examples of Best Practice Sharing Mentoring from Singapore can be accessed through the following reference:

OECD. (2012). *Singapore-Strong performers and successful reforms in education*. Retrieved from <https://www.youtube.com/watch?v=Km25TAnPbI4> (accessed 13 September 2014)

TECHNIQUE NAME: BEST PRACTICE SHARING TRAININGS

Purpose:

A learning approach in which a school system or school organises training sessions to promote best practice learning of teachers. For example, a school may ensure participation of teachers in national training programs to enhance their skills.

Explanation:

A best practice sharing training can be conducted both formally and informally. A formal training follows steps 1 to 5 of the Benchmarking Implementation Approach depicted in Figure 6.3. An informal training, on the other hand, may not adhere to all these steps and/or may conduct them less comprehensively.

Typically, training is provided by a senior teacher or an expert in a specific area. A school system or school can arrange trainings for the senior leadership, teachers, other staff members and/or students. Trainings are typically one-to-one and their time may range from a few hours to days or even months. During training, the trainee and senior/expert (trainer) together plan the objectives of the training and engage in activities for achieving those objectives.

A trainer shares and/or demonstrates best practices to the trainees with the expectation to adjust and embed those best practices in their work practices to achieve the objectives of training. Eventually, the trainee and trainer together evaluate the effectiveness of training.

Benefits:

- Relationship development between trainee and trainer
- Professional Development of trainee
- Development of trust through collaboration between trainee and trainer
- Development of shared vision
- Motivate trainee to perform at a higher level

An Example of Best Practice Sharing Trainings (Informal):

A School District in the USA organises training programs three to four times a year for its entire teaching staff. Trainings are conducted by an expert at the beginning of each school year; and are provided in an area of teaching and learning needing improvement

(Interviewee SS-2, personal communication, May 25, 2016). During training, teachers are grouped on the basis of schools and the ideas that each school group generates are discussed and shared among all groups to promote sharing and collegiality.

After training, teachers make plans on how to use those ideas for lesson planning. They develop structured plans called PIER (Plan, Implement, Evaluate and Refine) plans, on the basis of learnings from the training. An integral element of PIER is reflection, so the district goes through a period of reflection at the end of each school year to evaluate the effectiveness of trainings. Reflection focuses on the outcomes of training-based planning, such as: What was expected to happen? Did it happen? What changes were made to the lesson and how were they made? The district goes through reflective questions to evaluate the effectiveness of training on the basis of subsequent planning.

Trainings are conducted during teacher training days and take place 3 to 4 times a year with duration ranging from 10 to 30 days. Most of the trainings take place during summer when the schools are closed. Participation in trainings is voluntary and teachers are not paid for the training time. However, a large number of teachers choose to participate because they are aware of the effectiveness of trainings for improving students' learning experience.

TECHNIQUE NAME: BEST PRACTICE SHARING WORKSHOPS

Purpose:

A learning approach through which a school system or school provides an opportunity to their staff members to improve their skills through participation in workshops. For example, a school may organise a mathematics workshop in which teachers share and learn strategies for teaching Algebra.

Explanation:

A *best practice sharing workshop* can be conducted both formally and informally. A formal workshop follows steps 1, 3 and 5 of the Benchmarking Implementation Approach depicted in Figure 6.3. An informal workshop, on the other hand, may not adhere to all these steps and/or may be conducted less comprehensively.

A workshop can be planned for the development of teachers and/or other staff members within a school system or school. Before organising a workshop, a plan is developed that primarily includes the purpose, scope, expectations and resources required for the workshop. In addition, an expert or team of experts that will be responsible for carrying out the workshop and the number of workshop attendees have to be agreed upon. Workshops can be related to an area of teaching and learning and may be organised by school systems, schools, principal and teacher associations, educational research organisations and Professional Development institutes. A workshop promoted by a school system is usually funded by the Ministry of Education/School Board, whereas a workshop organised by a school can either be funded by the Ministry of Education/School Board or the school itself. In case of a workshop arranged by other organisations, the organisation is responsible for the arrangement.

During a workshop, attendees learn best practices from experts and through networking. A workshop can be conducted on a variety of topics that are useful for teachers. Typically, at the end of a workshop, attendees complete a feedback survey. The survey enables the workshop organisers to assess the effectiveness of a workshop. In addition, the attendees may carry out an informal evaluation by discussing the usefulness of workshop.

Benefits:

- Opportunity to network with workshop participants
- Development of relationships between workshop attendees
- Skill and learning enhancement by learning from an expert
- Learning through networking with other workshop attendees
- Learning best practices related to the workshop topic
- Becoming cognizant with best practices in the field

An Example of Best Practice Sharing Workshops (Informal):

A Primary School in Poland participates in workshops organised for English teachers by educational bodies at regional and national level. These workshops are funded by the European Union, and English teachers from different schools participate in them to learn new pedagogies and teaching methodologies (Interviewee S-9, personal communication, February 28, 2016). The workshops are conducted by experts in English to share effective teaching techniques and exercises. The shared information and strategies help the attending teachers in lesson planning and delivery. During a workshop, teachers also get an opportunity to network with other workshop participants (teachers) and reflect on their learning. On their return to school, teachers share their learnings, ideas, information, exercises and material with colleagues to support them in their learning.

TECHNIQUE NAME: BEST PRACTICE SHARING CONFERENCE

Purpose:

A learning approach in which a school system or school provides an opportunity to their staff members to improve their teaching skills by participating in a conference. For example, a school might organise a conference to share best practices for teaching geometry.

Explanation:

A *best practice sharing conference* can be conducted both formally and informally. A formal conference follows steps 1, 3 and 5 of the Benchmarking Implementation Approach depicted in Figure 6.3. An informal conference, on the other hand, may not adhere to all these steps and/or may conduct them less comprehensively.

A conference can be organised for the sharing and learning of best practices with teachers and/or other staff members within a school system or school. A conference is related to an area of learning and conference speakers may include local and/or international educational researchers and/or experts. A conference can be organised by the Ministry of Education/School Board or associations promoting research in education. They usually last from a day to a week. As a conference is generally organised on a large scale it requires huge resources, which can be organised through the participation fee. The participation fee can either be paid on an individual basis or funded by the Ministry of Education/School Board or the school. The participants may include representatives of school systems and/or schools, researchers and/or teachers.

During a conference, the attendees select best practices from the information shared by conference speakers and can later utilise these best practices at work. A conference may end with an assessment survey to evaluate how beneficial it was for the participants.

Benefits:

- Opportunity to network with conference attendees
- Relationship development with conference attendees and speakers
- Learn best practices related to the conference topic
- Learn and share best practices with fellow attendees
- Become cognizant with developments in the field

An Example of Best Practice Sharing Conferences (Informal):

The Principal of a Primary School in New Zealand actively participates in conferences. Some of these conferences are led by local principals' association and are related to the common learning issues of member schools; others are organised by the school itself and are related to the particular needs of the school community (Interviewee S-13, personal communication, May 20, 2016). Sometimes, the principals' association sponsors the Principal to attend local and international conferences by partially funding them. The Principal has attended international conferences held in Australia, Canada, the UK and the USA and found the acquired best practices extremely useful for improving student learning.

Links to Other Examples of Best Practice Sharing Conference (Informal):

The New Zealand Association for Research in Education holds an annual conference to share research in education. Refer to the link for details: <http://www.nzare.org.nz/>.

TECHNIQUE NAME: PERFORMANCE BENCHMARKING

Purpose:

An approach used by a school system or school in which performance benchmarks are collected and compared and performance gaps identified. Typically, a process of brainstorming solutions and implementation follows. Performance benchmarking is performed for school systems, schools and teachers, and encompasses measurement/comparison of performance. For example, a school system might compare its PISA assessment results with other school systems to identify potential areas for improvement.

Explanation:

Performance benchmarking can be conducted both formally and informally. A formal performance benchmarking follows step 2 of the Benchmarking Implementation Approach depicted in Figure 6.3. An informal performance benchmarking, on the other hand, may conduct this step less comprehensively.

Performance benchmarking means performance measurement/comparison, in the form of staff appraisal and comparison of student outcomes; it can take place at national (or local) and international level between school systems and/or schools. A national performance comparison can be conducted between school systems within a country/state/district, schools within a school system and teachers within a school system. Conversely, an international performance comparison can be conducted between school systems and schools belonging to different countries. International assessments are a means of international performance comparison between school systems and schools.

A national performance comparison may take place annually or a few times a year, whereas, an international performance comparison follows a cycle that is repeated after a certain number of years. Examples of national performance comparison in New Zealand are National Assessments and ERO (Education Review Office) reports that inform on the quality of education provided by schools. The international performance comparison programs (or international assessments) have existed since 1995 and include the Program for International Students Assessment (PISA), the Trend in International Mathematics and Science Study (TIMSS) and the Progress in International

Reading Literacy Study (PIRLS). Some of the top performing school systems in these international performance comparison programs include Singapore, Hong Kong and Japan.

A school system or school committed to continuous improvement should compete on an international level through participation in international assessments. For school systems, these assessments provide aggregated national results for international comparison and inform policymakers for the interpretation of the reasons for performance variation. For schools, these assessments provide an opportunity to compare performance with other schools (national and international) and also with other school systems to recognise performance variations and the reasons for those variations. Consequently, the assessment result provides an opportunity for school systems and schools to identify performance gaps and devise methods for closing those gaps. Ideally, performance comparisons are followed on with best practice learning for closing the performance gaps.

Benefits:

- Enables school systems and schools to compare performance on national and international level
- Helps to measure performance, identify performance gaps and their reasons
- Results in the identification of good performers for learning their best practices
- Performance benchmarking acts as a strategic prioritisation tool to identify the major challenges and opportunities for school systems and/or schools and/or teachers, and thus recognises areas to be addressed and resources to be allocated

An Example of Performance Benchmarking (Informal):

The international assessments act as a source of performance benchmarking and enable a school system and/or school to learn where they are positioned with respect to other school systems and/or schools. The Program for International Student Assessment (or PISA) is one of the widely used international performance benchmarking programs and has been introduced by the Organisation for Economic Cooperation and Development (OECD). The PISA assessments are administered every 3 years to measure the skills and knowledge possessed by 15 year-old-students to compete globally (OECD, 2016b). The PISA was introduced for school systems in 2000 (OECD, 2016b) and for schools in 2013 (Lewis *et al.*, 2016). Seventy-two school systems participated in the latest PISA

assessment for school systems administered in 2015 (OECD, 2016a). On the other hand, the PISA for schools is currently available only to schools in Spain, the United States and the United Kingdom (OECD, 2017c). This assessment program supports school systems and schools in improving their position internationally by enabling them to strategically identify performance gaps and reasons behind those gaps. It further enable school systems and schools to establish relationships with good performing school systems and schools on these assessments to learn their best practices for closing the performance gaps.

Links to Other Examples of Performance Benchmarking (Informal):

Information on PISA assessment for school systems can be accessed through the following link:

OECD. (2017). *What is PISA*. Retrieved from <http://www.oecd.org/pisa/aboutpisa/>

Information on PISA assessment for schools can be accessed through the following link: OECD. (2013). *International benchmarking for school improvement*. Retrieved from

<http://www.oecd.org/pisa/aboutpisa/OECD%20Test%20for%20Schools%20Brochure.pdf>

Note: Other performance benchmarking programs for school systems include TIMSS and PIRLS. Information on these programs can be accessed through:

IEA. (2017). *Studies*. Retrieved from <https://www.iea.nl/our-studies>

TECHNIQUE NAME: FORMING PARTNERSHIPS WITH OTHER SECTORS/ORGANISATIONS IN ORDER TO LEARN FROM THEM

Purpose:

A learning approach in which a school system or school establishes relations with relevant sectors (tertiary institutes) and/or organisations to assess the efficacy of their education system for meeting future needs. For example, a school may restructure its business studies curriculum based on the feedback from entrepreneurs.

Explanation:

A partnership with other sectors or organisations can be developed both formally and informally. A formal partnership follows steps 1, 3, 4 and 5 of the Benchmarking Implementation Approach depicted in Figure 6.3. An informal partnership, on the other hand, may not adhere to all these steps and/or may conduct them less comprehensively.

A school system or school can establish partnership with other sectors or organisations. A partnership can be created between primary and/or intermediate and/or high schools and/or tertiary institutes, as well as between tertiary institutes and industries (or employers) to comprehend their expectations from the incoming students or young professionals. A partnership can be developed based on the learning targets and/or strategic goals of a school system or school. A partnership enables a school system or school to involve relevant sectors or organisations in the process of curriculum development, so that students are well-prepared to meet future expectations. The feedback obtained from the partner enables a school system or school to revise their strategic plan to meet future expectations.

Benefits:

- Relationship development with other sectors and organisations
- Expectations of other sectors and organisations identified in order to effectively prepare students
- Effective student preparation for further education and/or professional life

An Example of Forming Partnerships with Other Sectors/Organisations In Order To Learn From Them (Informal):

A Food and Catering School in Poland is part of a cluster established between the School, local food and catering authorities and companies related to the business of

food and catering, such as bakeries, restaurants and hotels. The name of this cluster is 'National Culinary Cluster' and it began operating in November 2015 with biannual meetings (Interviewee S-17, personal communication, March 11, 2016). The School is the only food and catering school in Poland that is part of such a cluster. The purpose of this cluster is to inform the school of the future needs of the food and catering industry and to develop a curriculum that is aligned with industry requirements. The cluster enables the creation of uniform policies for the food and catering sector, so that they are beneficial to all cluster participants. This cluster is expected to guide the School to prepare graduates according to industry requirements. The benefits of this cluster are twofold, ensuring jobs for graduates and meeting industry needs. The cluster is in its initial stages; however, all the participants are keen to make it a source of development and growth for the food industry. During the first cluster meeting there were 20 representatives from all the stakeholder groups. The cluster is considered to be a platform for a rigorous review and revision of curriculum between school authorities and representatives of the food industry.

TECHNIQUE NAME: LEARNING BEST PRACTICES THROUGH RESEARCH

Purpose:

A best practice learning approach in which a school system or school learns new knowledge from research in education. For example, a school's Principal might refer to educational research to develop resilience among students.

Explanation:

Learning best practices through research is a benchmarking technique for learning best practices and follows step 3 of the Benchmarking Implementation Approach depicted in Figure 6.3.

It is recommended that a school system or school keeps in touch with the latest research in the field of education. Research can be accessed in the form of findings of relevant research, staying in touch with research consultancies, and by reading journal articles and researches that are available online. Reading about latest research enables a school system or school to learn advancements in the field and adapt the learned lessons to strengthen teaching and learning. Some of the eminent educational researchers include John Hattie, Andy Hargreaves, Kath Murdoch, Guy Claxton, James Nottingham and Carol Dweck. Apart from this, numerous researches are also being carried out in universities around the world. In addition, Education Ministries also have dedicated research teams to explore and find answers to specific concerns. Several researchers and research institutes around the world are painstakingly exploring the unknown avenues in the field. Some research institutes also provide consultancy and develop research-based tests, journals and books. Authentic educational research is also disseminated in the form of publications. School systems and schools can consider all these options to learn from research in order to support teaching and learning and for the development of soft skills among students.

Benefits:

- Cultivation of research-based approaches for developing teaching
- Implementation of the advancements in the field keeps school systems and schools committed to continuous improvement

An Example of Learning Best Practices through Research:

The Principal of a Primary School in New Zealand is cognizant of the importance of research for continuous improvement in education. The Principal constantly learns advancements in education by studying the latest researches. A number of strategies on visible learning have been learned from John Hattie, from Andy Hargreaves on uplifting leadership, Kath Murdoch on Inquiry Learning, Guy Claxton on skills and knowledge, Michael Fullan on pedagogies for deep learning, James Nottingham on the learning pit and Carol Dweck on growth mind-sets (Interviewee S-2, personal communication, March 18, 2016). To obtain maximum benefits from these researches, learnings from them have been embedded into the school improvement plan.

Links to other Examples of Learning Best Practices through Research:

An earlier example of learning best practices from research coming from Singapore can be learned through the following reference:

OECD. (2011). *Strong performers and successful reformers in education: lessons from PISA for the United States*. Retrieved from <http://www.oecd.org/pisa/46623978.pdf>

Some of the organisations carrying out research on school systems and schools are:

- The Organisation for Economic Cooperation and Development (OECD)
- The International Association for the Evaluation of Educational Achievement (IEA)
- The International Education Research Foundation (IERF)
- The New Zealand Centre for Educational Research (NZCER)
- The New Zealand Association for Research in Education (NZARE)

In addition, education journals publish latest research in education. A list of education journals can be accessed through the following reference:

SJR. (2017). *Scimago Journal and Country Rank*. Retrieved from <http://www.scimagojr.com/journalrank.php?category=3304> (accessed 16 October 2017)

TECHNIQUE NAME: LEARNING BEST PRACTICE THROUGH ONLINE SOURCES

Purpose:

A best practice learning approach in which a school system or school learns and/or shares best practices related to the learning agenda through the use of online sources. The use of online sources ranges from web searches to connecting with another school system or school through the use of the internet. For example, a school may share best practices with partner schools through a web portal.

Explanation:

Learning best practices through an online source is a benchmarking technique for learning best practices and follows step 3 of the Benchmarking Implementation Approach depicted in Figure 6.3.

A school system or school may use online sources to learn and/or share best practices with another school system(s) or school(s), and also among teachers. The use of online sources includes learning about a school system or school through their website, sharing best practice lessons with partner school system(s) or school(s) through video conferencing and/or Skype, sharing best practices of teachers on school system's/school's website and accessing best practice reports of other school systems or schools through the use of internet.

The learning of best practices through online sources may be promoted by a school system or school and may also be initiated by a group of schools. The frequency and duration of online learning sessions depends on need. It is an inexpensive approach as the only requirement is an internet connection; however, the benefits achieved could be immense.

Benefits:

- Convenient way to learn about educational advancements and updates
- Convenient way to learn best practices from around the world
- Inexpensive as only an internet connection is required
- Fast learning of best practices

An Example of Learning Best Practices through Online Sources:

The Principal of a Public School in Ontario organised a collaborative online lesson with its first Nations sister school in Kashechewan, which is a flying nation. In 2015, some scientists were invited to the school to deliver a lesson on a rare scientific topic (Interviewee S-10, personal communication, May 20, 2016). The Principal planned to share the lesson with the sister school as it did not have access to the same level of teaching resources. Thus, a Skype lesson was organised for the students of the sister school. The collaboration did not require additional resources; however, proper equipment was required for smoother delivery of lessons.

Links to Other Examples of Learning Best Practices through Online Sources:

An example of online collaboration between schools in Singapore can be accessed through the following reference:

OECD. (2012). *Singapore-strong performers and successful reforms in education*. Retrieved from <https://www.youtube.com/watch?v=Km25TAnPbI4> (accessed 13 September 2014)

In 2008, in Shanghai, a web-based platform for sharing of good practices for curriculum design, development and implementation was developed. Refer to the following reference for details:

OECD. (2011a). *Strong performers and successful reformers in education: lessons from PISA for the United States*. Retrieved from <http://www.oecd.org/pisa/46623978.pdf> (accessed 13 September 2014)

In 2010, Singapore introduced an online platform, *Academy of Singapore Teachers*, to encourage teachers to continuously share best practices. Refer to the following reference for details:

Ministry of Education. (2017). *Academy of Singapore Teachers*. Retrieved from <https://www.moe.gov.sg/about/org-structure/academy> (accessed 21 November 2016)

TECHNIQUE NAME: BEST PRACTICE SHARING WEBINARS

Purpose:

A best practice learning approach in which representatives of a school system or school learn new knowledge by participating in educational webinars. For example, a school principal might participate in webinars conducted by education experts to expand their knowledge.

Explanation:

Best practice sharing webinars is a benchmarking technique for learning best practices and follows step 3 of the Benchmarking Implementation Approach depicted in Figure 6.3.

The representatives of a school system or school can learn innovations and advancements in education by attending webinars organised by education experts, researchers and research organisations. Webinars are useful for keeping abreast of advancements in the field. A webinar can be in the form of a presentation, discussion or seminar conducted over the internet. Typically, a webinar can be attended at a much lower cost than participating in a physical event. However, it is important that the representatives of a school system or school are cognizant with upcoming webinars in their area of learning.

Benefits:

- Fast learning of best practices
- Learning best practices related to the area of learning
- Learning best practices from an expert in the area
- Less expensive and time consuming than a physical event

An Example of Best Practice Sharing Webinars:

The Principal of a Primary School in New Zealand learns new research and advancements by participating in international webinars hosted by educational experts; learnings from which are later embedded in the teaching system (Interviewee S-2, personal communication, March 18, 2016). The participation in webinars enables the Principal to resolve queries and to expand learning through discussions with experts. The learnings acquired from webinars helped to improve pedagogy and student learning.

Links to Other Examples of Best Practice Sharing Webinars:

Corwin is a provider of professional learning resources to equip educators with innovative tools they need in order to improve teaching and learning. Corwin organises webinars for the development of teachers and school leaders. The following reference is to the webinars promoted through Corwin:

Corwin Connect. (2016). *The big ideas behind visible learning*. Retrieved from <http://corwin-connect.com/2016/03/john-hattie-big-ideas-behind-visible-learning-webinar-archive/> (accessed 10 November 2017)

The Organisation for Economic Cooperation and Development (OECD) organises webinars on performance improvement within school systems and schools. Refer to the following reference for details:

OECD. (2017). *Webinars*. Retrieved from <http://www.oecd.org/pisa/webinars/> (accessed 10 November 2017)

Webinars by an educational expert, Michael Fullan, can be accessed through:

Michael Fullan. (2017). *International school leadership webinars*. Retrieved from <http://michaelfullan.ca/international-school-leadership-webinars/> (accessed 8 November 2017)

TECHNIQUE NAME: BEST PRACTICES FOR LEARNING INDUSTRY PERSPECTIVE

Purpose:

A best practice learning approach in which a school system or school develops links with industry representatives to learn industry perspective to better prepare students for future challenges. For example, a school may develop contacts with entrepreneurs for advancing practical business knowledge of students and for acquainting them with market expectations.

Explanation:

Best practices for learning industry perspective is a benchmarking technique for learning best practices and follows step 3 of the Benchmarking Implementation Approach depicted in Figure 6.3.

A school system or school could follow a well-devised mechanism for learning industry expectations to better prepare their students for professional life. This approach can be used for students across all levels, especially high school students as they are close to stepping into professional life. A school system or school may invite industry representatives to talk to student to inform them about industry expectations and to share best practices for preparing to enter the profession. Industry expectations can be learned and disseminated on a large scale by organising conferences or symposiums in which experts from across the industry may be invited to talk about demands in their specific areas and how to fulfil those demands. Such programs can be organised by a school system or school, and would enable them to revise the curriculum to better prepare students for their future.

Benefits:

- Provide students with essential knowledge for a smooth transition to professional life
- Relationship development between school system/school and industry

An Example of Best Practices for Learning Industry Perspective:

A Montessori School in New Zealand has developed a distinctive relationship with industry for student learning. This relationship is developed for high school students, aged 12 to 15 (Interviewee S-4, personal communication, March 21, 2016). As a large

portion of high school education is oriented around business, the school has developed links with entrepreneurial 'business round tables' to help students learn the practical knowledge and skills needed to start a business. This approach enables students to see different pathways available to them. Under this program, entrepreneurs visit the campus and talk to student; sometimes students also go to visit business sites. The frequency of such sessions varies; however, there is usually one such session per term. The students also attend symposiums and meet business managers and marketing personnel. They meet with business experts and share their business ideas and get feedback on them. This activity is organised and funded by the school itself. However, the entrepreneurs usually participate on voluntary basis. This approach enables students to learn practical business knowledge through interaction with entrepreneurs.

TECHNIQUE NAME: LEARNING BEST PRACTICES THROUGH VIDEOS

Purpose:

A best practice learning approach in which teachers within a school system or school share videos of their teaching practice. These videos are typically based on certain components of teaching and learning. For example, a school may have a system of observations in which videos of teaching practice are shared among teachers for review and reflection.

Explanation:

Learning best practices through videos is a benchmarking technique for learning best practices and follows step 3 of the Benchmarking Implementation Approach depicted in Figure 6.3.

A school system or school may provide an opportunity to its teachers to learn best practices by watching/sharing videos of teaching practices. There can be several reasons for the videoing of teaching practices. Typically, videoing can be undertaken for an area of teaching and learning under improvement. The idea is to share a videoed lesson with colleagues and obtain recommendations for improvement. Videoing can also be used for observation. In addition, videos can be developed to share best practices of expert or senior teachers in order to support the Professional Development of teachers. It is important to note that teachers might not be comfortable with being videoed; therefore, it is the responsibility of the senior leadership to promote it as an opportunity for learning and improvement.

Benefits:

- Teachers learn best practices by watching and sharing videos of teaching practices
- Strengthens relationship between teachers as they all sit together to assess the effectiveness of a videoed teaching practice
- Opportunity to reflect on one's own practice

An Example of Learning Best Practices through Videos:

A Primary School in New Zealand has a unique system for performance appraisal of teachers. As part of performance appraisal, teachers have to record their teaching practice and share the videoed practice with colleagues (Interviewee S-3, personal

communication, March 15, 2016). The videos can be shared among groups or with the whole staff. Since the appraised teacher also watches their video of practice with colleagues, they get an opportunity to self-assess their practice. After watching the video, the teaching practice is discussed and recommendations are formally reported to the team leader. Videoing is undertaken twice a year and is effective for improving teaching practice. Although the teachers are not comfortable with videoing, they consider it to be a part of school's appraisal system that is helpful in the improvement of their teaching practices.

Links to Other Examples of Learning Best Practices through Videos:

Learn an example of videoing from Singapore through the following reference:

OECD. (2012). *Singapore-Strong performers and successful reforms in education*.

Retrieved from <https://www.youtube.com/watch?v=Km25TAnPbI4> (accessed 13 September 2014)

TECHNIQUE NAME: BEST PRACTICE SHARING SEMINARS

Purpose:

A best practice learning approach in which a school system or school provides an opportunity to teachers to improve their teaching skills by attending seminars. For example, a school might organise a literacy seminar in which teachers learn best practices for teaching non-native speakers.

Explanation:

Best practice sharing seminars is a benchmarking technique for learning best practices and follows step 3 of the Benchmarking Implementation Approach depicted in Figure 6.3.

A school system or school may organise seminars for staff members. A seminar can be conducted by a specialist(s), such as a researcher and/or a senior teacher. Seminars enable teachers to learn best practices from specialist(s) related to teaching and learning of content and/or soft skills. Seminars also provide an opportunity to network, as participants may have discussions amongst themselves after the seminar. Seminars organised by a school system are funded by the Ministry of Education/School Board. Whereas, seminars organised by a school can either be funded by the Ministry of Education/School Board or from the school budget. The number of seminars each year and their duration depends on need; however, they are usually organised for one day's duration. In addition, seminars can also be organised by education research organisations and/or principal and teacher associations.

Benefits:

- Best practices learned
- Promotes relationship development between expert and attendees
- Professional Development of attendees

An Example of Best Practice Sharing Seminars:

A school in Poland organises seminars for teachers, in which an outside expert teacher is invited to share his/her experience related to a particular area of teaching and/or learning (Interviewee S-11, personal communication, March 22, 2016). Such sessions are organised at least once a year to support teachers. The expert teacher can be a retired

teacher or a teacher from another school. A seminar is usually held for a whole day, and is funded and organised by the school.

TECHNIQUE NAME: DISSEMINATION OF BEST PRACTICES

Purpose:

A best practice learning approach through which a school system or school ensures learning of best practices by schools and/or teachers by disseminating best practices related to an area of learning. For example, a school system may distribute best practices of other school systems among its schools.

Explanation:

Dissemination of best practices is a benchmarking technique for learning best practices and follows step 3 of the Benchmarking Implementation Approach depicted in Figure 6.3.

A school system or school can promote learning of schools and/or teachers through the distribution of best practices. Best practices may be learned from other school systems or schools and can be related to the strategic focus or an area of improvement, and can be identified by reading the curriculum, reforms, policies, strategic goals, reports, documents and publications. A school system may encourage its schools to develop reports on their best practices which can later be shared across the entire school system. In addition, a school system/school may promote sharing of pedagogical best practice among teachers through the publication of their best practices.

Benefits:

- Best practices learned
- Development of an open and collaborative culture
- Development of relationship between school systems, schools and teachers

An Example of Dissemination of Best Practices:

The Icelandic Ministry of Education supports the learning and improvement of its schools through the identification and distribution of best practices (Interviewee SS-1, personal communication, May 2, 2016). The school system identifies and records international best practices in the form of reports and distributes them among schools. In addition, the Ministry of Education publishes evaluation reports of schools and disseminates them throughout the entire school system. This is a unique method for learning about local and international best practices.

Links to Other Examples of Dissemination of Best Practices:

An example of a web portal developed in Singapore for sharing best practices among teachers can be accessed through the following reference:

Academy of Singapore Teachers. (2012d). *Academy of Singapore teachers*. Retrieved from <https://www.academyofsingaporeteachers.moe.gov.sg/> (accessed 20 August 2017)

APPENDIX 19
VALIDATION OF THE BENCHMARKING FRAMEWORK AND
BENCHMARKING GUIDELINES

Dear Research Participant,

I am thankful for your constant support and valuable contribution to my research on benchmarking, that is, ‘How school systems/schools learn from other school systems/schools?’ and ‘How school systems/schools support learning of their schools and/or teachers?’. Your perspective enabled me to develop a Benchmarking Framework.

The Benchmarking Framework is developed to assist school systems and schools in the learning and implementation of best practices, and is supported by the Benchmarking Guidelines to maximise the benefits obtained from the implementation of best practices. The Benchmarking Guidelines have three components: the Benchmarking Implementation Approach, the Portfolio of Benchmarking Techniques and the Factors Leading to Effective Benchmarking.

The Framework and Guidelines are now developed, so I would like you to provide your ultimate support by advising the degree to which the Benchmarking Framework fulfils the needs of your school system or school. If you can help please review the Benchmarking Framework and Benchmarking Guidelines described in Sections 1 and 2 of the attached document and then complete a simple survey. The link to the survey is <https://www.surveymonkey.com/r/HS5MDLD>. The survey would only take 2 minutes to complete. I will be most grateful for your support and of course I will send you the final copy of the Benchmarking Framework.

I look forward to receiving your feedback soon.

Yours faithfully,

Rubab Malik

Validation of the Benchmarking Framework

Dear participant,

You are kindly requested to answer the following questions regarding the **Benchmarking Framework** and the **Benchmarking Guidelines**.

1. Kindly state the name of your school system/school.

2. Is your school system's/school's approach to learning of best practices similar to the provided **Benchmarking Framework**?

- To a great extent
 To some extent
 Not at all

3. How helpful would the provided **Benchmarking Framework** be to achieve improved results?

- Extremely helpful
 Moderately helpful
 Not at all helpful

4. How helpful would the provided **Benchmarking Implementation Approach** be to obtain improved results from the implementation of best practices?

- Extremely helpful
 Moderately helpful
 Not at all helpful

5. How helpful would the provided **Portfolio of Benchmarking Techniques** be while learning best practices?

- Extremely helpful
 Moderately helpful
 Not at all helpful

6. How helpful would the provided **Factors Leading to Effective Benchmarking** be to achieve improved results from the implementation of best practices?

- Extremely helpful
 Moderately helpful
 Not at all helpful

7. In future, would you consider using the **Benchmarking Framework** and the **Benchmarking Guidelines** for learning of best practices within your school system/school?

- Very likely
 Likely
 Neither likely nor unlikely
 Unlikely
 Very unlikely

8. Please share your thoughts about the **Benchmarking Framework** and the **Benchmarking Guidelines**.

Done