AN EVALUATION STUDY OF EFFECTIVENESS OF CONTINUOUS PROFESSIONAL DEVELOPMENT IN ETHIOPIA

by

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A Dissertation Presented to the
FACULTY OF THE USC ROSSIER SCHOOL OF EDUCATION
UNIVERSITY OF SOUTHERN CALIFORNIA
In Partial Fulfillment of the
Requirements for the Degree
DOCTOR OF EDUCATION

August 2019

DEDICATION

This dissertation is dedicated to Chip and Shannon Wilson, who generously supported my longtime dream to earn my doctorate degree in education as well as my mentor and coach Susanne Conrad, who encouraged me to dream big and made a bold request on my behalf to make this dream possible. I would also like to thank to Dr. Mary Anna Noveck, who inspired and envisioned this possibility for me, and has been a great supporter in providing me with the encouragement I needed during this journey including editing my dissertation.

Additionally, would also dedicate this dissertation to my wife Rabiya Dawud, who was behind every success that I had. Without her encouragement and support, I would not have completed this study. My children Fatra, Soreti, Abdurezak, and Aman; this work is dedicated to you for your patience while you needed my attention and I was not available to you.

ACKNOWLEDGEMENTS

First, my praise is to the almighty Allah for giving me the strength and courage to complete this dissertation. I would like to especially thank my dissertation chair, Dr. Robert Filback for his encouragement, constructive feedback, and support during my dissertation journey. I would also like to thank my dissertation committee members, Dr. Jenifer Crawford and Dr. Heidi Harju-Luukkainen for their precious time in providing me with constructive feedback that helped me to improve my dissertation. I would also like to thank Dr. Mark Robison and Dr. Sabrina Chong for allowing me to join this amazing program and for supporting me to the end.

I also acknowledge; Brett Conrad, Peg Peters, and Scott Elliott for the positive energy and encouragement they offered me. I am also grateful to all Imagine1day staff who supported me during my studies. I particularly want to thank Daniel Ataklti, Halefom Gezaei, and Umer Limu for taking care of my role in my absence during my studies and Hawi Alemu for sacrificing her weekends to transcribe all of my interviews. I also want to thank Muktar Abdi for his kind support in translating my interview and survey instruments.

Lastly, I would like to thank the Barbare District Education Office for allowing me to conduct this study in their schools. I am so grateful to all teachers who participated in my study and provided me with so much valuable information for this study. I believe that your dedication and support to your students paired with effective professional development could ultimately transform the learning for every child in your school.

TABLE OF CONTENTS

Dedication 2
Acknowledgements 3
List of Tables 7
List of Figures 9
Abstract 10
Chapter One: Introduction 11
Background of the Problem 12
Importance of Addressing Teacher Quality Gap 17
Organizational Context and Mission 18
Organizational Performance Goal 19
Description of Stakeholder Groups 20
Stakeholder' Performance Goals 21
Stakeholder Group for the Study 22
Purpose of the Project and Questions 23
Conceptual and Methodological Framework 23
Definitions 24
Organization of the Project 24
Chapter Two: Review of the Literature 26
History of Education in Ethiopia 26
Teacher Education in Ethiopia 29
Teacher Professional Development 31
Continuous Professional Development 34
Function and Purpose of CPD 35
The Context for CPD in Africa 37
Different Perspectives on CPD 39
Models of CPD 40
Strategies for Delivery of CPD 43
Characteristics of Effective CPD 44
Impact of CPD on Teachers' Effectiveness and Student Learning 45
Evaluating CPD 46
Teachers' Knowledge, Motivation, and Organizational Influences 49
Knowledge and Skills 49
Motivation 55
Organizational Influences 57
Chapter Three: Methods 62
Participating Stakeholders 62
Survey Sampling Strategy and Rationale 66
Survey Sampling Criteria and Rationale 66
Interview Sampling Strategy and Rationale 67
Interview Sampling Criterion and Rationale 67
Data Collection and Instrumentation 68
Surveys 68
Interviews 70
Document Review 71

Data Analysis 73
Credibility and Trustworthiness 73
Validity and Reliability 75
Ethics 75
Limitations and Delimitations 77
Chapter Four: Results and Findings 79
Report of the Findings 80
Research Question 1 80
Research Question 2 85
Results and Findings for Knowledge Influences 85
Declarative Knowledge Influences 87
Procedural Knowledge Influences 99
Metacognitive Knowledge Influences 107
Synthesis of Results and Findings for Knowledge Influences 108
Results and Findings for Motivation Influences 110
Value 111
Self-Efficacy 119
Synthesis of Results and Findings for Motivation Influences 121
Results and Findings for Organizational Assumed Influences 123
Collaborative Learning Culture Influence 123
Supportive Leadership Influences 127
Resource Influences 131
Professional Development Influences 134
Synthesis of Organizational Results and Findings 137
Conclusion 139
Chapter Five: Solutions, Implementation, and Evaluation 144
Validated Influences and Solutions 144
Solutions for Knowledge Influences 147
Develop and provide relevant and quality CPD materials 147
Providing Training and Coaching 149
Utilizing Models and Modeling 152
Solutions for Motivation Influences 152
Teachers Working towards Challenging but Achievable Goals 153
Show Relevance of Action Research 154
Provide Targeted Feedback 154
Link Intangible Incentives with CPD performance 155
Modeling Passion and Enthusiasm for the Action Research 155
Solutions for Organization Influences 156
Creating a Professional Learning Communities 156
Aligning the Organizational Structures and Processes with CPD Goals 158
Active Leadership Involvement and Support 160
Implementation Plan 161
Key Implementation Action Steps 164
Solution 1: Creating and Nurturing Effective Professional Learning Communities 164
Solution 2: Develop and provide relevant and quality CPD materials 168
Solution 3: Aligning the Organizational Structures and Processes with CPD Goals 170

Solution 4: Link CPD with Teachers' Incentives 172
Evaluation Plan 178
Level 1: Reaction 179
Level 2: Learning 180
Level 3: Organization Support and Change 180
Level 4: Behavior 181
Level 5: Results 181
Future Research 188
Conclusion 188
References 191
Appendix A: Survey Items 205
Appendix B: Interview Participant Recruitment Sheet 215
Appendix C: Interview Protocol 216
Appendix D: Document Review Checklist 219
Appendix E: University of Southern California Information Sheet for Research 220
Appendix F: Recruitment Letter 221
Appendix G: Influencer and Protocol Table 222
Appendix H: Map of the District for the Study 230

LIST OF TABLES

Table 1: Organizational Mission, Global Goal and Stakeholder Performance Goal 21

Table 2: Assumed Knowledge Influences 54

Table 3: Assumed motivation influences 57

Table 4: Assumed Organizational Influences 61

Table 5: The gender of survey respondents (%) 64

Table 6: Age category of survey respondents (%) 65

Table 7: Years of teaching experience of survey respondents (%) 65

Table 8: Survey respondents qualification by gender (in %) 66

Table 9: Knowledge influences validated, partially validated, and new influences 87

Table 10: Validated assumed declarative knowledge influences 88

Table 11: Assumed procedural knowledge influence validated 99

Table 12: Assumed procedural knowledge influences partially validated 102

Table 13: CPD methods experienced by teachers (%) 106

Table 14: Validated assumed metacognitive knowledge influences 107

Table 15: Summary of validated assumed knowledge influences 109

Table 16: Motivation influences validated, not validated. 111

Table 17: Motivational value influences not validated 112

Table 18: Motivational Self-efficacy influence validated 120

Table 19: Motivational influences validated 122

Table 20: Organizational influences validated and partially validated 123

Table 21: Partially validates collaborative learning culture 123

Table 22: Validated supportive leadership assumed influence 127

Table 23: Validated assumed resource influences 131

Table 24: Validated assumed professional development influence 135

Table 25: Summary of validated and partially validated assumed influences 138

Table 26: Summary of validated knowledge, motivation, and organizational influences and response to research questions 141

Table 27: Validated influences and proposed solutions 145

Table 28: Solution ranking criteria 162

Table 29: Solutions ranked according to selection criteria 162

Table 30: Summary of solutions and implementation plan 175

Table 31: Evaluation plan 183

LIST OF FIGURES

Figure 1. Survey results: CPD framework as a focus area of teachers' CPD 90

Figure 2. Survey results: Teachers knowledge of maintaining professional portfolio 95

Figure 3. Survey results: Impact of engaging in CPD activities 114

Figure 4. Survey results: Teachers perceived effectiveness of CPD activities 115

Figure 5. Survey results: Teachers' perceived value of collaborative learning 116

Figure 6. Survey results: Teachers who value engaging in action research 119

Figure 7. Survey results: Confident in ability to conduct action research 121

Figure 8. Survey results: Supportive district leadership/cluster supervisor 130

Figure 9. Survey results: Adequate resource allocated, and Sufficient time provided 134

Figure 10. Survey results: Received professional development opportunity 137

Figure 11. Teacher inquiry and knowledge-building cycle. 152

Figure 12. Core conceptual framework for studying the effects of professional development. 182

ABSTRACT

The ineffectiveness of professional development programs in improving teacher practices and student learning has been a major concern worldwide. A national survey conducted by the Ethiopian Ministry of Education reports that less than 30% of teachers find Continuous Professional Development a valuable program. The purpose of this study is to evaluate the degree to which the Barbare District Education Office (BDEO) in Oromia region of Ethiopia is meeting its goal of all its teachers successfully engaging in effective CPD practices. This study adapted the Clark and Estes' (2008) gap analysis model, which helps to identify performance gaps and its root causes. This study examined teachers' knowledge, motivation and organizational influences related to successfully engaging in effective CPD practices. In this mixed method study, both quantitative and qualitative data were collected from teachers in 10 randomly selected Grade 1 – 8 schools in BDEO. Quantitative data was collected from 82 teachers through survey questionnaires and qualitative data was collected from 16 teachers through interviews and document reviews. The main findings that emerged from the data analysis were that teachers have a limited knowledge of the CPD program and effective instructional practices. Additionally, the study found that teachers have low self-efficacy, experience unsupportive leadership and a limited collaborative culture in the schools they work, shortage of time, and inadequate funding and supplementary resources to effectively practice CPD. This study suggested evidence-based solutions that are believed to close identified performance gap with its' implementation and evaluation plan such as building effective professional learning communities, providing relevant and quality CPD materials, aligning the organizational structures and processes with CPD goals, and linking CPD performance with teachers' incentives.

CHAPTER ONE: INTRODUCTION

Effective professional development opportunities have a significant positive influence on teaching practice and student learning, particularly in a context where a substantial proportion of the teacher workforce is unqualified for their work (Villegas-Reimers, 2003). Several studies have also shown evidence that teacher professional development has a positive impact on education quality (Bubb & Earley , 2007; Yoon, Duncan, Lee, Scarloss, & Shapley, 2007). Although useful in general, research indicates that traditional forms of professional development such as workshops, seminars, symposiums and conferences are often inadequate, unrelated to the needs of teachers, and ineffective in terms of desired results (Darling-Hammond, 2000; Whitworth & Chiu, 2015). This is a significant problem, especially when one considers that approximately 250 million children are not learning basic skills, even though half of them have spent at least 4 years in school (UNESCO, 2014). Therefore, investing in effective teacher professional development strategies is critical to improve the quality of education. Research shows that effective models include school-embedded ongoing professional development in which teachers collaborate with their colleagues and focus on problems of practice (Organization for Economic Co-operation and Development [OECD], 2015).

In this regard, teachers' Continuous Professional development (CPD) has received a great deal of attention from policy makers, teachers, and school administrators throughout the world (Bubb & Earley, 2007; Day & Sachs, 2004). According to Bubb and Earley (2007), CPD is an ongoing learning opportunity for teachers with the aim to improve the quality of students' education. Introduced by countries around the world, CPD's function is to align teachers' practice with national education reforms, raise the status of the teaching profession, and increase student learning outcomes (Day & Sachs, 2004). It became a predominant mechanism to retool

and retain teachers for successful educational reforms (Bubb & Earley , 2007). CPD has been found to be the most effective process of learning which promotes teachers' commitment to their professional development (Bubb & Earley , 2007). As a result, many countries, including Ethiopia, have introduced CPD as one of the key components of their educational reform initiatives. In Ethiopia, the first phase of CPD was introduced in 2005. In 2008, Haramaya University (as cited in MOE, 2009) evaluated this first phase of CPD. The study found that there was no CPD structure in 80% of schools in Ethiopia and 97% of cluster resource centers (CRCs) surveyed were not appropriately resourced to run effective CPD. All schools in Ethiopia are organized into clusters with CRCs being schools tasked with the responsibility to capacitate teachers in their cluster. On average, a cluster consists of five to seven schools. Recognizing the importance of effective CPD in improving teachers' competency, the Ethiopian government developed a new framework for CPD (Ministry of Education, 2009). Due to lack of rigorous studies in the area, the effectiveness of the program remains unknown. This study will examine the effectiveness and successful implementation of CPD from lived experience of selected teachers in primary schools located in the Barbare District of Ethiopia.

Background of the Problem

The ineffectiveness of professional development programs in improving teachers practices and student learning has been a major concern worldwide (Barber & Mourshed, 2007; Darling-Hammond, Hyler, & Gardner, 2017; Villegas-Reimers, 2003). Teacher quality is considered one of the most important factors in student achievement (Abebe & Woldehanna, 2013; Darling-Hammond, 2000; Gemeda, Fiorucci, & Catarci, 2014; Muijs, Day, Harris, & Lindsay, 2004). Teacher quality effect on student learning is much bigger than other factors such as classroom size, education expenditure, and teacher salaries (Darling-Hammond, 2000).

Signifying the effect of teacher quality, the 2007 McKinesy & Company report stated that, “the quality of an education system cannot exceed the quality of its teachers” (Barber & Mourshed, 2007, p. 40). According to Barber and Mourshed (2007), the main factors behind the success of high-performing schools are that they create a better system that attracts competent people to teach, develop those recruited into better teachers, and guarantee reliable delivery for all children. While there is almost a universal consensus on the central role of teachers in promoting education quality, the quality of education remains a major challenge globally (Geldenhuys & Oosthuizen, 2015). The United Nations’ (2017) sustainable development goals progress report indicated that education quality is globally hindered by a teacher quality gap. Ethiopia, as in many sub-Saharan African countries, is challenged by quality of teachers (Barber, 2017). Teacher quality has been operationalized using inputs, processes, and outcomes in different types of studies; this study used measures that focus on teachers’ knowledge, skills, and attitude to engage in collaborative learning, action research, and reflection.

Geldenhuys and Oosthuizen (2015) argue that CPD plays a key role in improving teacher quality. By doing so, effective professional development could result in improved student achievement (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009; Garet, Porter, Desimone, Birman, & Yoon, 2001; Guskey, 2002; Yoon et al., 2007). Though a considerable number of studies have found the positive effects of professional development on teaching practice, little research exists on its connection to student learning outcomes (Desimone, 2009). Available literature indicates that, when attributes of effective professional development are present, student achievement can be improved (Desimone, 2009; Yoon et al., 2007).

Ethiopia is the second most populous country in Africa with an estimated population of 100 million people. The country is among one of the poorest countries in the world. However, in

recent years, Ethiopia has registered one of the fastest growing economies in Africa. As a result, the proportion of the population living below the national poverty line fell from 38.7% in 2003–2004 to 29.6% in 2010–2011. In line with its vision to become a middle-income country by 2025, the country has made a significant investment in creating access to education, health coverage and infrastructural development (National Planning Commission, 2016). Ethiopia has been investing over 20% of the federal government budget on education, with the goal to achieve universal primary education and education for all. Due to this national commitment, significant strides have been made in the education system. Between 1996 and 2016, primary school enrollment increased from 3.7 to 19.98 million students, and the number of schools increased from 11,000 to 34,867.

Despite this encouraging achievement in access, the issue of quality remains a challenge. This is seen in the declining trend in student learning outcomes. In Ethiopia, the National Learning Assessment is conducted every four years in Grades 4, 8, 10 and 12. At Grade 4, the composite learning outcomes, as measured in 2008 and 2012, indicate a large proportion of students moving out of basic and into below basic proficiency. In 2008, 47% of students were found to have below basic proficiency compared to 57% in 2012 (Ministry of Education, 2015). In addition, a significant increase in enrollment forced the government to hire unqualified teachers (Ministry of Education, 2015). For instance, nationally 28% of teachers of Grades 1 through 4 are unqualified based on the national standard (Ministry of Education, 2016). Per the current national requirement, primary school teachers should have a 3-year teaching diploma from a regional teacher's college. Secondary teachers are required to have a 3-year degree from a public university. The absence of or ineffectiveness of teacher professional development,

coupled with inadequately trained teachers, contributed to the decline in student learning outcomes (Ministry of Education, 2015).

To address this education quality issue, the government of Ethiopia has been taking measures including the implementation of a World Bank financed program called the General Education Quality Improvement Package. Since 2008, the government has been implementing this World Bank program to support quality improvements for all primary and secondary schools. The program received funding of almost $1 billion over the 8 years and two phases of its implementation. Teachers Development Program (TDP) is one of the six key components of the package (Ministry of Education, 2008). As part of TDP, Ethiopia designed a national CPD framework as one strategy to tackle the deeply-rooted quality problem (Ministry of Education, 2009).

The education and training policy of 1994 (Ministry of Education and the United States Agency for International Development, 1994) has set high standards for teachers and described a new approach to education. At the heart of this new approach was the promotion of more active learning, problem solving, and student-centered teaching methods. However, a study conducted by the World Bank indicated that Ethiopian classrooms are predominantly chalk, talk and teacher-centered, with passive learners (World Bank, 2013b) Only 45.9% of teachers achieved the minimum standard of teaching effectiveness measured as an index of average scores of school inspection standards on teachers' knowledge, lesson planning, teaching and assessment practices (World Bank, 2017). The absence of appropriate pedagogical skills among teachers hindered the effective implementation of the education quality improvement reforms (Ministry of Education, 2015).

Providing adequate number of teachers is not a sufficient condition to ensure education quality (UNESCO, 2014). With this understanding, the Ethiopian Ministry of Education introduced CPD with the goal of improving teacher effectiveness and student learning (Ministry of Education, 2009). As indicated in the CPD framework, it is mandatory for all teachers to undertake CPD throughout their career. The performance goal is that 100% of teachers will successfully engage in effective CPD practices as per the national framework, as CPD is one of the five teachers' professional competencies (Ministry of Education, 2015). However, a Ministry of Education report indicated that "Continuous Professional Development (CPD) is not given enough attention by a significant number of school leaders and teachers" (Ministry of Education, 2010, p. 21).

A national survey conducted on CPD implementation status reported that only 29.8% of teachers believed that the program was valuable. As a result, schools face challenges in raising student achievement through the provision of CPD (Gemeda & Professor, 2015). This is evident from the three national learning assessments conducted in 2008 and 2012, which revealed a declining trend in student achievement (Ministry of Education, 2010). This situation is corroborated by my own personal experience of the current context of CPD, which could be described as a program that is alive, but not thriving.

Though several studies reported the value of teacher professional development in school performance improvement, an extensive number of studies also argued that teachers' professional development has failed to deliver its promise throughout the world (Akalu, 2014; Cole, 2004; Darling-Hammond et al., 2009; OECD, 2009). In many countries, teacher professional development is not fulfilling the needs of teachers (OECD, 2009). Gemeda et al. (2014) found that CPD in Ethiopia was narrowly perceived as traditional training, disregarding

school-based informal and non-formal learning. Gemeda et al. (2014) also indicated utilization of a defective model with a top-down approach in which teachers were passive implementers of the reform with unsupportive leadership and intensified workload. The research also uncovered that teacher needs and motivation were not considered, thus making teachers leave the profession. Currently, the country has the highest attrition rate of 4.4%. Of the attrition, 36% is due to teachers leaving the profession for a different job (Ministry of Education, 2016). An important factor in effective professional development is connecting the right professional development with the teachers' professional needs. Teachers can make little or no effort to apply learning in the classroom when their professional development programs miss this link to their needs (Muijs et al., 2004).

Importance of Addressing Teacher Quality Gap

The problem of low teacher quality is important to solve for a variety of reasons. Several scholars indicated that teachers are the key to improving student performance (Abebe & Woldehanna, 2013; Darling-Hammond, 2000; Guskey, 2000; Hattie, 2003; Muijs et al., 2004). Ethiopia's education and training policy recognized that teachers were the key to improving student learning outcomes. Therefore, all teachers are called on to engage in CPD experiences to enhance their school-based practice (Ministry of Education, 2009). Teachers need well-designed programs and activities to be able to update their knowledge and skills, change their teaching practice, and educate students to high standards. Educational leaders need to identify effective CPD to improve the quality of teaching. For this purpose, educational leaders need evidence of the knowledge and skills, motivational and organizational structures influencing the successful implementation of CPD. By understanding these factors and characteristics of effective CPD, educational leaders can improve the effectiveness of professional development which meets both

teacher and school needs. If teachers' learning quality improves, the ultimate goal of CPD, which is improved student learning outcomes, will improve. This will be achieved when what is learned from CPD is put into practice by teachers.

According to the national CPD framework, there are four steps in the CPD cycle: analyzing the need, planning, doing and evaluating. However, these steps are rarely undertaken due to assumed inadequate knowledge, motivation and required organizational support. For instance, there is no proper evaluation of the program, and, as a result, there is no empirical evidence of CPD effectiveness in terms of improving teachers' classroom practice and students' learning outcomes. Therefore, this evaluation study will explore teachers' perception on the effectiveness of CPD in improving teaching and learning. This study will contribute to the national teacher quality improvement effort by identifying the gaps in knowledge and skills, motivation, and organizational structures challenging the successful implementation of CPD and recommending evidence-based solutions.

Organizational Context and Mission

The Barbare District Education Office (BDEO) is one of 817 district education offices in Ethiopia. Its mission is to expand access to educational opportunity for all citizens with enhanced quality, equity and internal efficiency. It is a semi-pastoral district where the livelihood of the people is dependent on subsistence farming and animal rearing. Per the 2007 census, the population of the district was estimated to be 117,616. The district has 45 primary schools, 457 teachers, 45 principals, 10 cluster supervisors, one teacher development expert and 29,461 students enrolled in Grades 1 through 8. The school principals report to district cluster supervisors who report to the district education office. Girls are 45% of the student population. This indicates a low gender parity index of 0.82 (BDEO, 2016). Based on the current number of

students and teachers, the pupil-to-teacher ratio is 64, indicating large class size. In line with its mission, the district has made a commendable achievement in increasing net enrollment from less than 20% in early 1990 to 64% in 2017 (Imagine1day, 2018).

Despite success gained in access, the district has the highest number of out-of-school children in the region, as there are many barriers preventing children from enrolling and completing primary school. The districts are among the lowest performing in the Oromia region, with an overall average of 16% of primary school-aged children not enrolled in school as compared to the national average of 7%. Two-thirds of the out-of-school children are estimated to be girls. Due to high drop-out and repetition rates, only half of those who are enrolled into Grade 1 complete primary school without interruption. Further, student attainment and learning outcomes have not improved in line with the national targets. According to a national study conducted by Research Triangle International, the early grade education system failed to equip most of the students with basic literacy and numeracy skills (Piper, 2010). According to this study, 34% of students in Grade 2 were unable to read a single word of a grade-level relevant story, and 48% of students were unable to answer a single comprehension question on a reading comprehension test. The issue is worse in pastoralist districts like Barbare District due to the low quality of the teaching and learning environment. Therefore, enhancing education quality through improving teachers' pedagogical skills became a priority for the district. In this regard, high priority was given to CPD in the policy framework as demonstrated by the fact that it forms one of the five teacher professional competencies.

Organizational Performance Goal

The Ministry of Education mandated BDEO's goal that, by 2019–2020, 70% of Grade 2 students will achieve basic or higher reading proficiency. To achieve this goal, it is critical to

implement an effective CPD program. The ultimate purpose of CPD is to improve teachers' classroom practice and student learning outcomes. Engagement in CPD is mandatory and one of the five Ethiopian teachers' professional competencies (Ministry of Education, 2009). The successful and effective implementation of CPD contributes to the achievement of BDEO's goal of improving students' reading proficiency.

Evaluation is essential to ensure continued effectiveness of the program in delivering its promises. The effectiveness of CPD will remain vague without proper evaluative approaches. In absence of proper evaluations, investment in CPD that have little or no impact on the teacher and learner will continue to be seen as a priority (Muijs et al., 2004). Failure by the Barbare District to ensure that teachers and schools are effectively implementing CPD could negatively affect teachers' effectiveness and student learning outcomes. In a district where many teachers are not qualified for their role or ill-qualified due to poor pre-service preparation, the effective practice of CPD is mandatory to improve teaching pedagogy and students' learning outcomes.

Description of Stakeholder Groups

The national CPD framework presented key stakeholder contributions for the successful implementation of the program. According to this framework, key stakeholders include teachers, school principals and cluster supervisors, district education offices, regional education bureaus, and the Ministry of Education (Ministry of Education, 2009). CPD is mainly influenced by teachers, school principals, cluster education supervisors, and the district teacher development program expert. Each stakeholder makes a unique contribution in the successful implementation and practice of CPD.

Teachers contribute to the goal by identifying personal needs based on the school CPD plan, along with carrying out 60 hours of CPD, collaborating with colleagues to improve

teaching and learning, putting CPD into practice in the classroom, reflecting on their CPD and maintaining a professional portfolio to record their activities. School principals and supervisors play a crucial role in facilitating the annual school CPD needs analysis, identifying school priorities, ensuring departments produce an annual CPD plan, allocating resources, and regularly monitoring and providing constructive feedback to ensure quality engagement of teachers in CPD activities. The district teacher development program expert's role is to oversee and provide support to schools through the cluster supervisor.

The district education office contributes by providing training on CPD for schools, ensuring that schools have a CPD plan, monitoring, evaluating and reporting about schools' activities. The Regional Education Bureau contributes by identifying regional priorities, producing modules and conducting training for stakeholders to implement them. The Ministry of Education is a policy issuing body that plays an important role in designing and reviewing the National Framework for CPD and guiding documents. The ministry also contributes in conducting research and sharing findings with stakeholders with the aim to improve the effectiveness of the CPD framework.

Stakeholder' Performance Goals

Table 1

Organizational Mission, Global Goal and Stakeholder Performance Goal

BDEO's Mission
To expand equitable access to quality educational opportunity with enhanced quality of teacher and other educational inputs
BDEO's Performance Goal
By 2019/2020, 70% of Grade 2 students will achieve basic or higher reading proficiency

Table 1, continued

Teachers Goal	School Principals Goal	Cluster Supervisors Goal	Teacher Development Program Expert Goal
By 2019/2020, 100% of teachers will successfully engage in effective CPD practices aimed at improving the quality of teaching performance and student learning outcomes.	By 2019/20, 100% of school principals will provide effective support for teachers' CPD practice by creating management strategy, facilitating effective CPD needs analysis, setting priorities, creating annual school CPD plan, and regularly monitoring the effectiveness of the changes to teaching and learning.	By 2019/20, 100% of school Cluster Supervisors help schools identify their CPD priorities, ensure that schools have annual CPD plan, and regularly monitor the effectiveness of the changes to teaching and learning.	By 2019/20, The district's teacher development program expert provides effective support by ensuring that schools have annual CPD plans, monitoring and evaluating the CPD activities at schools, and provide training to clusters and schools.

Stakeholder Group for the Study

While the joint efforts of all stakeholders will be needed to accomplish the goal that 70% of Grade 2 students will achieve basic or higher reading proficiency, this study will focus on teachers. As indicated in the fifth Education Sector Development Plan (ESDP V), the present pedagogical skills of teachers are largely inadequate for quality teaching (Ministry of Education, 2015). Teachers' pedagogical skill and practice have direct influence on students. Furthermore, these are the most important factors affecting students' learning outcome (Darling-Hammond, 2000). To address this issue, Ethiopia introduced CPD for primary and secondary teachers, principals, and supervisors. The 2009 National CPD framework clearly indicates that CPD is a compulsory, civic and professional duty of all teachers. As per the framework, BDEO's goal is that all of teachers in BDEO will be engaged in effective CPD practice with the ultimate objective of improving their teaching capacity and students' learning outcomes. Hence, it is

important to evaluate teachers' current performance in their CPD engagement and challenges encountered in the implementation process.

Purpose of the Project and Questions

The purpose of this study is to evaluate the degree to which BDEO is meeting its goal that all teachers successfully engage in effective CPD practices. The analysis will focus on teachers' knowledge, motivation and organizational influences related to successfully engaging in effective CPD practices in achieving the intended organizational goals. While a complete performance evaluation would focus on all stakeholders, teachers are directly impacted and significantly contribute to the effectiveness of CPD. For this reason, the stakeholder to be focused on in this analysis are teachers. Three research question will guide this study:

1. To what extent is BDEO meeting its goal of 100% teachers successfully engaging in effective CPD practice?
2. What are the knowledge, motivation, and organizational challenges for BDEO's teachers to successfully engage in effective CPD practice?
3. What are the potential knowledge, motivation, and organization solutions to enable all BDEO's teachers to be actively engaged in effective CPD practice?

Conceptual and Methodological Framework

Clark and Estes' (2008) gap analysis, a systematic, analytical method that helps to clarify organizational goals and identify the gap between the actual performance level and desired performance level, and determine causes, was adapted for evaluation analysis as this study's conceptual framework. Assumed knowledge, motivation and organizational influences were generated based on personal knowledge and related literature. These influences were then

validated using surveys, interviews, and document review. Finally, research-based solutions were recommended and evaluated in a comprehensive manner.

Definitions

Continuous professional development: It is a

> professional development consisting of all-natural learning experiences and those conscious and planned activities which are intended to be of direct or indirect benefit to the individual, group or school and which contribute, through these, to the quality of education in the classroom. It is the process by which, alone and with others, teachers review, renew and extend their commitment as change agents to the moral purposes of teaching; and by which they acquire and develop critically the knowledge, skills and emotional intelligence essential to good professional thinking, planning and practice with children, young people and colleagues through each phase of their teaching lives. (Day, 1999, p. 4)

Student learning outcomes: The desired learning objectives or standards that schools and teachers want students to achieve. This includes students acquiring basic literacy and numeracy skills (Great Schools Partnership, 2014).

Collaborative learning: two or more people learn or attempt to learn something together.

Organization of the Project

Five chapters are used to organize this study. This chapter provides the key concepts and terminology commonly found in discussions about the effectiveness of CPD. The organization's mission, goals and stakeholders and the gap analysis conceptual framework were introduced. Chapter Two provides a review of current literature surrounding the scope of the study. The first part of Chapter Two discusses topics about the history of education in Ethiopia, teachers'

education, professional development in general, models and characteristics of effective CPD, the impacts of professional development on student learning and evaluation methods. The second part of Chapter Two details the knowledge, motivation and organizational influences to be examined as well as the research design for the study. Chapter Three presents research design and methods that will be used for data collection and analysis, ethical considerations, limitations and delimitations of the study. In Chapter Four, the data and results are assessed and analyzed. Chapter Five provides solutions, based on data and literature, for closing the perceived gaps as well as recommendations for an implementation and evaluation plan for the solutions.

CHAPTER TWO: REVIEW OF THE LITERATURE

This chapter contains a review of the literature about Ethiopia's history of education, teacher education, and teachers' professional development. The chapter also reviews CPD and its function and purposes along with its historical context. Additionally, different perspectives and models of CPD, along with strategies for delivery are reviewed. Characteristics of effective CPD, and the impact on teachers' effectiveness and student learning outcomes are examined. A review of CPD evaluation is also conducted. This chapter, in its final section, reviews the literature related to stakeholders' knowledge and skills, as well as motivation, and organizational factors affecting effective implementation of CPD.

History of Education in Ethiopia

Ethiopia is the second most populous country in Africa with an estimated population of over 105 million (Central Intelligence Agency, 2018) in more than 90 ethnic and linguistic groups (Ministry of Education, 2015). Ethiopia is one of the ancient civilizations that has a history of education dating back to the fourth century (Semela, 2014). Modern education was introduced in early 1908 with the opening of the Minilk school (Negash, 1996, 2006). According to Negash (1996), the opening of this secular school faced a strong opposition from the church, who, by then, was a dominant provider of religion-based education. Emperor Minilk countered the church's resistance with a firm belief in the importance of foreign language proficiency to maintain the country's independence. Due to church opposition, it was impossible to increase the number of schools until 1925 when the Taffari Mekonnen school opened as the second school. In addition to foreign language, the school also included bible teaching to address the concerns of the church (Negash, 1996). In the 1940s, the purpose of these schools

changed with the growing interest in producing trained nationals to replace expatriates serving in government offices (Negash, 2006).

Since the 1940s, Ethiopia has experienced three ruling regimes, each characterized by its own education policy. The first regime was the imperial regime that started after World War II and lasted until 1974, the second was the socialist regime that lasted until 991 and the current federal system of governance became fully operational after 1994. During the first two regimes, there was no clear education policy and the systems used education as a means of political indoctrination. The education systems were also characterized by limited and inequitable access, lack of quality and relevance, and continuous decline in quality and standard. Access to educational opportunity was largely limited to urban areas and failed to benefit rural people constituting over 85% of the population of Ethiopia (Ministry of Education, 2002). Like in many other developing countries, the education system, policies and reforms are largely influenced by foreign aid.

In recognition of the complex problems of relevance, quality, accessibility and equity in the education systems, the current federal government, ruled by the Ethiopian People's Revolutionary Democratic Front enacted a new education and training policy in 1994 (Ministry of Education, 2002). Following this policy, the landscape of the education system changed radically with the government's commitment to enroll all school-aged children in school. The major feature of this policy includes the decentralization of the education system, introduction of mother tongue as medium of instruction for primary education and structuring at all levels of education. This involves restructuring primary education to comprise Grades 1 to 8, divided into first cycle of Grades 1 to 4 and second cycle of Grades 5 to 8, and secondary education to

comprise Grades 9 to 12 divided into first cycle of Grades 9 to 10, and higher education preparatory school of Grades 11 to 12 (Ministry of Education, 1994).

The decentralization of the education system made the education service provision the duty of federal, regional and district governments. The federal government is responsible for post-secondary education and establishing standards and guiding policies for the entire sector. Regional governments are responsible for overseeing the College of Teacher Education, providing primary textbooks and contextualizing the national primary syllabus to the region. District governments are responsible for recruitment, supervision and training of primary and secondary teachers (Ministry of Education, 2008).

A series of five Education Sector Development Programs (ESDP I-V) were launched to serve the general objectives set under the 1994 education and training policy. The first four ESDPs were completed, and ESDP V is currently under implementation serving as a strategic document in educational development from 2014–2015 to 2019–2020 (Ministry of Education, 2015). Since 1996, the government has invested an average of 20% of the federal budget on education with the goal of achieving universal primary education and education for all. Between 2003 and 2012, public spending increased 70% (Ministry of Education, 2015). Due to this national commitment, significant achievements occurred in the education system. Between 1996 and 2016, primary school enrolment increased from 3.7 to 19.98 million students, and the number of schools increased from 11,000 to 34,867 (Ministry of Education, 2016).

Despite this encouraging achievement in access, quality remains an issue. For instance, the 2010 Early Grade Reading Assessment reported that 34% of students in Grade 2 were unable to read a single word of a grade-level relevant story, 48% of students were unable to answer a single comprehension question on a reading comprehension test, and at least 80% of

children are not reading at the Ministry of Education's expected oral reading fluency benchmark. Only about 5% of students scored at or above the benchmark (Piper, 2010).

Teacher quality is one of the key issues challenging Ethiopia's effort to improve early grade reading (Barnes, Zuilkowski, Mekonnen, & Mattoussi, 2017; Ministry of Education, 2015; World Bank, 2013a). Teachers are unable to create literate students as they themselves lack foundational literacy skills and knowledge (Barnes et al., 2017). If students fail to acquire basic knowledge and skills, the nation will be challenged to compete in the knowledge-based global economy. Therefore, improving teacher quality is critical to improving students' early grade reading and education quality at large (Ministry of Education, 2010).

Teacher Education in Ethiopia

Teacher education in Ethiopia has undergone several reforms aimed at addressing educational crisis related to teacher shortage and quality issues. Among these are the 1994 education and training policy, Teacher Education System Overhaul Program, and Teacher Development Programs (TDPs; Gemechu, Shishigu, Michael, Atnafu, & Ayalew, 2017). The 1994 education and training policy presented teacher education and training as an area of special attention and action priority. This policy articulated that "the criteria for the professional development of teachers will be continuous education and training, professional ethics and teaching performance" (Ministry of Education, 1994, p. 21).

In 2015, there were 37 Colleges of Teacher Education (CTEs) enrolling 211,734 through regular, extension and summer programs. Among those enrolled, 60% are male (Ministry of Education, 2016). The entrance requirement for CTE is completion of Grade 10 marked by writing the Ethiopian General School Leaving Certificate Examination (EGSLCE). Those who earn a high score on the EGSLCE are able to attend preparatory school (Grades 11–12) to be

prepared for higher education. Meanwhile, those who fail to score a preparatory school entrance grade join CTEs or technical and vocational education and training. This implies that CTEs admit low academic achievers (Semela, 2014). CTEs provide a 1-year and a 3-year diploma which qualify graduates to teach at pre-primary and primary school, respectively (Ministry of Education, 2015).

Over 20 different departments or streams operate in most CTEs under both linear and cluster modalities. The linear modality prepares teachers for the second cycle primary (Grades 5–8). In this modality, teachers specialize in specific subjects. The cluster modality prepares teachers for the first-cycle primary (Grades 1–4) in which they attend language, social science, natural science, mathematics, and aesthetics classes to ensure broad knowledge (Ministry of Education, 2010). Since 2016, new modalities were introduced, including specialist and generalist. The specialist modality prepares teachers for the second-cycle primary in which teacher candidates choose to specialize in social science or natural science streams in their second year of study. The generalist modality prepares first-cycle primary teachers, and it is the same as the cluster modality. Novice primary and secondary school teachers are encouraged to continue their education through CPD following a 2-year induction program (Barnes et al., 2017).

Overall, the government created a fertile ground for expansion of teacher training institutions and the number of teachers doubled between 1995 and 2015 (Ministry of Education, 2017). However, many primary schools remain without adequate qualified teachers (Method et al., 2010). High expansion of primary education combined with relatively high teacher attrition rate lead to a shortage of teachers in some regions (Ministry of Education, 2016). Due to this, teacher candidates are hired after their second year at the CTE or from Grade 10 students in an

extreme teacher shortage situation (Barnes et al., 2017). For example, in the 2014–2015 academic year, over 2,200 teachers were within the official high school age range (Ministry of Education, 2016). The government makes arrangements for these teachers to attend and complete their CTE diploma through a summer program.

Both pre-service and in-service professional development programs were ineffective to prepare and equip teachers with the necessary skills in active learning and child-centered approaches (Ministry of Education, 2008; Semela, 2014). Ethiopian classrooms predominantly remain chalk and talk, teacher-centered learning environments with passive learners (Abebe & Woldehanna, 2013; Ministry of Education, 2009; World Bank, 2013b). Only 45.9% of teachers achieved the minimum standard of teachers' effectiveness measured as an index of average scores of school inspection standards on teachers' knowledge, lesson planning, teaching and assessment practices (World Bank, 2017). As a result, students' learning outcomes have been deteriorating with many lacking basic reading fluency (Barnes et al., 2017). Improvement in these areas requires teachers' engagement in apprenticeship, quality pre-service training, an induction program and CPD (Ministry of Education, 2009).

Teacher Professional Development

Research indicates that a major factor in improving students' achievement is teacher performance and quality (Darling-Hammond & McLaughlin, 1995, 2000; Geringer, 2003; Muijs et al., 2004; Zepeda, 2008). Geringer (2003) argued that the influence of the teacher is greater than that of standards, class size or money. Hattie (2009) confirmed Geringer's argument based on over 800 meta-analyses conducted by researchers all over the world, which included over 50,000 individual studies with over 250 million student participants. In additional to the meta-analyses, Hattie determined "effect sizes" for each practice. "Effect size is the magnitude of the

impact that a given approach has" (Fisher, Frey, & Hattie, 2016, p. 6). Though any practice with over zero effect size could result in a positive outcome, it may not be worth the investment as it could be achieved naturally as a child develops. Hattie indicated that practices with effect size of above 0.40 could result in a higher impact and, hence, be worth the investment. According to Hattie, the teacher credibility effect size on student learning outcomes on a 5-point scale for teacher is 0.90 compared to 0.21 for class size. Teacher credibility includes competence, trust, dynamism and immediacy. Several other researchers also indicated that the success of many education reforms ultimately relies on teacher quality (Desimone, 2011; Patton, Parker, & Pratt, 2013).

Teacher professional development is one of the important methods for improving schools, classroom instruction, and student learning outcomes (Darling-Hammond & McLaughlin, 2011; Desimone, 2011). Professional development consists of both formal and informal activities (Desimone, 2009), and improving teacher quality requires effective professional development which creates meaningful learning for teachers (Colbert, Brown, Choi, & Thomas, 2008). The 2015 WISE education survey results showed 75% of education experts indicated that providing more professional development is the most successful strategy for attracting and retaining high-quality teachers (WISE, 2015). According to this same survey, other strategies are selected by far a smaller number of experts: higher salaries (57%), performance-based salaries (42%), better technology in the classroom (37%), smaller class sizes (34%), and fewer standardized assessments (17%). Cognizant of this fact, most governments emphasize professional development to improve their teachers and education quality (Abebe & Woldehanna, 2013). Although there is an increased demand for effective professional development, impactful professional development programs are scarce (Yoon et al., 2007).

Desimone, Porter, Garet, Yoon and Birman (2002) conducted a 3-year longitudinal study on the effect of teachers' professional development on instruction. A purposively selected sample of 207 teachers in 30 schools participated in the study. Desimone et al. (2002) found that professional development opportunities increase teachers' use of learned teaching practices in the classroom and, ultimately, teachers' instructional practice. Continuous and rigorous professional development is associated with improved student learning outcomes (Darling-Hammond et al., 2009). A review of over 1,300 studies found that teachers with adequate professional development can increase their students' learning outcomes by 21 percentile points (Yoon et al., 2007). Based on a review of research evidence, Yoon et al. (2007) found that teachers should receive an average of 49 hours of professional development in a year to improve their skills and their students' learning. Hattie (2009) confirmed that any educational intervention with over an average of 0.4 effect size extends the student achievement beyond what is normally expected from attending a school for a year. According to Hattie, professional development has a moderate effect size of 0.51. Professional development involves both learning and unlearning classroom instructional practices. Teachers should unlearn the instructional practices that are not improving their students' learning outcomes and learn new practices that could improve their students' achievement (Darling-Hammond & McLaughlin, 2011). Teachers learning of their own classroom practice has the highest impact on student outcomes (Hattie, 2015).

Guskey (2003) reviewed literature that identified effective professional development and concluded there is no consensus among researchers and practitioners on the characteristics of effective professional development. The literature provides widely varying, inconsistent and sometimes contradicting characteristics of effective CPD (Guskey, 2003). The most cited

characteristics of effective professional development include enhancement of teachers' content and pedagogical knowledge (Borko, 2004; Desimone, 2011; Garet et al., 2001), ongoing and provision of sufficient time (Cochran-Smith & Lytle, 1999; Garet et al., 2001), collegiality and collaborative learning (Hord & Tobia, 2012; Stoll, Harris, & Handscomb, 2012), using action research and inquiry as key tools (Stoll et al., 2012), school or site based training (Garet et al., 2001), job-embedded learning (Borko, 2004), active learning (Desimone, 2011), and coherence with other school goals and policies (Desimone, 2011). Some of these characteristics are refuted by other researchers. For instance, it is found that amount of time spent on professional development is not significantly related to student learning outcomes (Wenglinsky, 2002). According to Guskey (2003), what matters is not the amount of time but how it is organized and used.

It has been a long time since researchers and practitioners established principles of effective professional development. These principles are mostly ignored and became a reason for the failure of professional development activities (McCann, Jones, & Aronoff, 2012). Though the traditional one-size-fits all workshops and conferences have been criticized for decades, they have remained a dominant approach both in developing and developed nations (Colbert et al., 2008; Darling-Hammond et al., 2009; McCann et al., 2012).

Continuous Professional Development

The term CPD has been widely used to express ongoing education and training of professionals (Bubb & Earley , 2007). The term CPD is often confused with in-service training and on-the-job learning concepts. However, CPD is a broader concept consisting of both formal and informal approaches both within and outside of a school setting (Muijs et al., 2004). Bubb and Earley (2007) argue that continuing to learn is the indicator of being considered a

professional. Hence, CPD is widely acknowledged to be of great importance in schools, contributing to professional and personal development for staff and to improvement in teaching and learning. The concept is broad, and there are a variety of definitions of CPD across the professions. Some define it as a mode of education and/or learning, some as an activity, and some as an approach (Friedman & Phillips, 2004). The concept of CPD in education is often vague, with the separate concepts of formal in-service training and on-the-job learning confusing it further. Most researchers reached a consensus in that CPD includes both formal and informal learning that enables professionals to improve their effectiveness (Bubb & Earley, 2007; Day, 1999; Day & Sachs, 2004).

The Ethiopian policy document defines CPD as "anything that makes a better teacher. It is a career-long process of improving knowledge, skills and attitudes, centered on the local context and particularly classroom practice" (Ministry of Education, 2009, p. 16). It includes both formal and informal activities aimed at improving teachers' practice. The two forms of CPD in Ethiopia are *updating* and *upgrading*. While updating focuses on subject and pedagogy knowledge, upgrading focuses in teachers' advanced study to earn a diploma or degree in education (Ministry of Education, 2009).

Function and Purpose of CPD

To maintain the professional competence of teachers in a fast-changing society wherein pre-service training is insufficient, CPD became a focus (Craft, 1996; Luneta, 2012; Muijs et al., 2004). Pre-service teacher education and induction are only the foundation on which CPD will be built (Bubb & Earley, 2007). Steyn (2010) highlights that CPD is a means to improve the quality of teachers who are the necessary condition for the successful implementation of education reforms. According to Earley and Bubb (2007), human resource development is the

most effective factor to improve educational performance, compared to any other factors. Therefore, for schools committed to improve their performance, they must give due attention and invest on teachers' professional development (Bubb & Earley, 2007).

The globalization effect compounded by the need to provide efficient, effective and economical education programs shaped education policies, including CPD (Day & Sachs, 2004). Soler, Craft, and Burgess (as cited in Geldenhuys & Oosthuizen, 2015) argued that well-trained and high-quality teachers are required to meet the needs of students and teachers during social change. The context within which CPD has been implemented varies widely with some commonality among countries in similar stages of economic development.

The overall function of CPD seems to be one of three necessities: to connect teachers' practice with educational policies, to improve student learning outcomes, or to elevate the status of the teaching profession (Day & Sachs, 2004). This implies that teachers need to continuously learn to remain competent in their teaching, and CPD has become part of the professional lives for many professionals in many countries. In some countries, it was introduced to fill the gap of teaching where pre-service teacher education programs were inadequate to produce enough competent beginning teachers. In Ethiopia, 60 hours of CPD engagement are mandatory for all teachers. Engagement in CPD is one of the five professional competencies of teachers. The other four competencies are facilitating student learning, assessing, mastery of education policies and curriculum, and forming partnerships with the school community (Ministry of Education, 2009).

CPD has three interrelated core purposes: to introduce new knowledge and skills, develop deep knowledge, and completely transform existing knowledge and practice (Day & Sachs, 2004). According to the Ethiopian CPD framework, the purpose of CPD is to improve teachers'

knowledge, skills and attitude in order that they become more effective classroom practitioners and improve student learning (Ministry of Education, 2009). The national framework requires teachers to take responsibility for their own professional development and contribute to that of their peers.

The Context for CPD in Africa

The context for CPD in Africa varies markedly from those in developed countries (Christie, Harley, & Penny, 2004). Therefore, what works in western countries may result in limited impact in developing countries (Akalu, 2014). Professional development in any nation is influenced by history and traditions, culture, education policies, and school conditions (Avalos, 2011). Thus, the design, implementation, and evaluation of professional development of teachers in developing countries need to consider the specific local contexts within which schools are located and teachers are working and how schools are governed (Akalu, 2014**).** Christie et al. (2004) argued that "a discussion on CPD in Africa is as much about the context of CPD as it is about the nature of CPD itself" (p. 169). By paying attention to these contexts, it is possible to recognize the specificity of the African CPD experience.

In many developing countries, teachers' CPD has been overlooked due to financial constraint and significant emphasis on pre-service education (Ono & Ferreira, 2010). In these countries, the shortage of financial resources resulted in competing interests for funding within the education system. As a result, CPD is mostly displaced as a priority area. Thus, CPD in the Sub-Saharan is highly contingent on foreign aid, which is often unpredictable. Though donor funding has enabled important initiatives to be started, sustainability of these programs remains a challenge (Christie et al., 2004). A study conducted in Ethiopia concluded that multilateral agencies and NGOs play a significant role in educational policy making and service provision

(Thashika, 2010). The case study conducted in South Africa confirmed that good policy framework could not guarantee successful implementation of CPD in a context of limitations in strategic implementation and fiscal capacity (Christie et al., 2004).

In 2009, Ethiopia introduced the national CPD policy framework with the aim of improving teachers' effectiveness and student achievement (Akalu, 2014). According to the national policy framework, CPD engagement was made to be mandatory for all teachers (Ministry of Education, 2009). According to the framework, teachers must be actively engaged:

> In understanding what is meant by good teaching, in their own learning process, in identifying their own needs, in sharing good practices with their colleagues, in a wide range of activities, formal and informal, that will bring about improvement of their own practice and the practice of others. (Ministry of Education, 2009, p. 16)

To promote teachers' CPD, the framework requires collaborative working among teachers through mentoring, coaching, experience sharing, team planning, peer observation, and team teaching. The Ministry of Education claims that key stakeholders were consulted in the development of the policy framework (Ministry of Education, 2009). Other researchers rejected this claim (Gemeda et al., 2014; Thashika, 2010). Moreover, other researchers consider it a top-down prescribed policy.

As stated in the policy framework, there are two categories of CPD programs: updating and upgrading. Updating is ongoing professional development of teacher-focused content and pedagogy to improve classroom practice. Upgrading is earning a diploma or degree in teaching at a university or college. This study will focus on the updating category.

Institutional supports are critical to ensure effective implementation of CPD. These supports include providing time for CPD, identifying and empowering expert teachers, providing

leadership and technical support, dissemination of best practices, reports of action research, research articles, and other related materials. The policy indicated that there will be identified *CPD days* in which students would not be present and teachers being engaged in CPD activities based on school and teachers need (Ministry of Education, 2009).

As per the CPD framework, novice teachers participate in 2-year induction courses created at the national level and supported by mentors. All other teachers are expected to be engaged in CPD throughout their career. The policy framework suggested several CPD methods among which are peer observation, planning lessons together, action research, sharing or showing best practices, team teaching, mentoring and reflecting using professional portfolio. Like other sub-Saharan African countries, the CPD program in Ethiopia has limited resources, and is funded mainly through the General Education Quality Improvement Program, which is supported by a donor group and managed by the World Bank (Ministry of Education, 2008).

Different Perspectives on CPD

Managerial professionalism versus democratic professionalism. Both models aim to improve student achievement by capacitating teachers (Day & Sachs, 2004). Managerial professionalism is system driven and influenced by state education policies and goals set from the top. This is centrally mandated and standards-based accountability driven professionalism. In this model, the success of the professional is measured based on the effectiveness and efficiency in meeting the set standards both for students and teachers. Democratic professionalism advocates for collaboration between teachers and other key stakeholders. In this model, teachers actively participate in the education process, including in the policy formulation and designing their professional development (Day & Sachs, 2004). Policymakers advocate for managerial professionalism, while teachers and unions advocate for democratic professionalism.

Voluntary versus mandatory CPD policies. There is a continued debate on the appropriateness of mandatory or voluntary CPD. Many countries, including Ethiopia, introduced CPD legislation making it compulsory (Ministry of Education, 2009). An argument in favor of mandatory CPD is to assure the public that professionals are updated and maintain or improve their competence. However, the counterargument is that there is no clear evidence that mandatory CPD improves professional competence or changes teachers' practice. There is also an argument that mandatory CPD ignores teachers' choices in deciding their own educational needs and contradicts with adult education concepts of self-direction and self-motivation (French & Dowds, 2008).

Measuring based on input versus outputs. There is also an argument about how to measure and recognize teachers' CPD participation, whether based on the input or the outputs of CPD activities (Cheetham & Chivers, 2005). Time spent on CPD and counting of modules completed are the common input-based measurement approaches (Friedman & Woodhead, 2008). This approach is easy to quantify. However, input-based measurements are considered inadequate as they do not indicate whether teachers learned and changed their practice. Output-based approach has an advantage in that it can measure the change in learning outcomes and classroom practice as a result of CPD. The disadvantage of output-based approach is that it is complex to measure and requires more resources and time (Friedman & Woodhead, 2008). The approach used depends on the purpose of CPD as provided in the policy document. In line with its purpose, the national CPD framework emphasizes output-based measurement (Ministry of Education, 2009).

Models of CPD

Kennedy (2005) identified nine key models of CPD, presented circumstances in which each model might be adopted and explored the forms of knowledge that can be developed through each specific model. The nine key models identified are training, award-bearing, deficit, cascade, standards-based, coaching/mentoring, community of practice, action research, and transformative. According to Kennedy, the first four of these models were transmission methods with limited room for teachers to take control of their learning. The next three are more transformational models. They better provide capacity for professional autonomy, with action research and transformative models granting the highest autonomy and giving teachers the opportunity to make decisions in their learning.

The training model of CPD focuses on skills. It is based on the policymakers' view of CPD as an opportunity for teachers to update their skills and remain competent (Kennedy, 2014). The training is usually delivered by an expert who also sets the agenda. Teachers are passive recipients of the information from the expert. It is also criticized for being commonly conducted outside school and being disconnected from the teachers' classroom context. (Kennedy, 2014). Hoban suggests (as cited in Kennedy, 2014), regardless of its drawbacks, this training model is appropriate to introduce new knowledge. Nevertheless, the training model fails to affect the application of learned knowledge (Kennedy, 2005, 2014).

The award-bearing model of CPD is one in which teachers take award-bearing courses commonly accredited by universities. However, there is an argument that such models are less practical and more intellectual and academic. According to Kennedy (2014) this discourse of anti-academic programs resulted in a shift of emphasis from academic courses offered by universities to the practice-based element of teaching.

A deficit model is designed to address the perceived teachers' performance gaps (Kennedy, 2005, 2014). It puts the blame for education systems' poor performance on individual teachers and attempts to rectify the same weakness. This model ignores the fact that teachers' poor performance is also caused by organizational and management practices (Rhodes & Beneicke, 2003).

The cascade model provides training of trainers and assumes that those who receive training will replicate with their colleagues. It is a widely used model in low-resource settings (Kennedy, 2014). Though it is cost effective, it is found ineffective as the information dilutes as it trickles down (Ministry of Education, 2009).

A standard-based model assumes that there is a system of effective teaching that every teacher should practice. It creates a common language among the teaching force but lacks flexibility and is very narrow and limiting (Kennedy, 2014). This model assumes one size fits all and promotes a research-based teaching strategy. Even if a selected strategy is research-based, its success depends on the context.

The coaching/mentoring model is a form of CPD in which a one-to-one relationship is created between a novice teacher and an experienced teacher (Kennedy, 2014). The success of the coaching/mentoring model depends on the quality of relationship and participants' interpersonal communication skills (Rhodes & Beneicke, 2003). Sometimes, it becomes a hierarchical relationship as the expert teacher tries to make novice teachers accountable for meeting standards.

The community of practice model is similar to the coaching/mentoring model except that it involves more than two participants (Kennedy, 2014). Per Kennedy (2014), the members of community of practice collaborate to enhance the sum-total of individual knowledge and

experience. Eastwood and Louis (as cited in Muijs et al., 2004) argued that the presence of collaborative professional learning is the single most important factor to improve the effectiveness of teaching and learning. Despite the benefits of collaborative professionalism, it is very common to see schools with great teachers who are habituated to working in isolation with little peer interaction (WISE, 2015). The opponents of this model argue that collaboration may inhibit active and creative innovation of practice due to group-thinking influence.

In the action research model, teachers and other members of the learning community are the researchers (Zepeda, 2008). This is the most useful model of CPD directly related to practice (Craft, 1996). Zepeda (2008) indicated that conducting "action research promotes dialogue, reflection, and inquiry" (p. 263). By engaging in action research, teachers can investigate their practices with data guiding informed decision to transform their classroom practice. Action research solves problems and promotes change in teachers' practice through intentional systematically collecting, analyzing, and reflecting on data (Zepeda, 2008).

The transformative model is an integration of several of the models described above (Kennedy, 2014). Training, standards-based, mentoring, community of practice, and action research are common models of CPD in Ethiopia and promoted by the national CPD framework (Ministry of Education, 2009). In this study, the emphasis will be on the collaborative learning and action research models of CPD.

Strategies for Delivery of CPD

There are three common strategies of delivering CPD aimed at improving teacher performance and student learning. These are school-based, through partnerships and through networks (Day & Sachs, 2004). These strategies are complementary, and a combination of these strategies could create a better impact in delivering on the intended purpose.

School-based. In this approach, a group of teachers meets periodically to discuss teaching methods, produce learning materials, develop curriculum and exchange experience. These meetings could include all teachers in the school or teachers in a specific department who teach the same subjects. There is a varying degree of success of school-based CPD among countries.

Partnerships. CPD could be delivered through collaborative and complementary partnership between schools, universities and teacher colleges. This is particularly common to see between teacher colleges and primary schools. In Ethiopia, teacher colleges are expected to create partnerships with schools in their geographic area.

Networks. In this approach, teachers and schools come together to identify and solve common problems and to address shared classroom concerns. A network of teachers and schools across a district or state is an effective strategy to deliver CPD. In Ethiopia, relatively better equipped schools are designated to serve as CRC for five to seven schools in their catchment. These CRCs are expected to facilitate a professional learning community and in-service trainings. However, they are not giving such service and mostly limited to serve as a warehouse for textbook distribution (Barnes et al., 2017).

Characteristics of Effective CPD

Effective CPD is essential to meet the current and future demand of the education system that needs to equip students with 21st century skills (Darling-Hammond et al., 2009). CPD is effective when it addresses the professional development needs of the teacher, is relevant to their working conditions and is linked to organizational goals (Goodall, Day, Lindsay, Muijs, & Harris, 2005; Muijs et al., 2004). CPD which is not aligned with teachers' needs results in little impact on teachers or their pupils (Day, 1999). Effective CPD comprise activities that mainly

increase student learning achievement and support the improvement of teaching practice (Bubb & Earley , 2007). Nevertheless, it is common for teachers to complain about the ineffectiveness of professional development in improving their practice. This complaint causes some teachers to feel that it is not worth their time (Guskey, 2000).

The characteristics that influence the effectiveness of professional development are multiple and highly complex. It may be unreasonable, therefore, to assume that a single list of characteristics leading to broad brush policies and guidelines for effective professional development will ever emerge, regardless of the quality of professional development research. Still, by agreeing on the criteria for "effectiveness" and providing clear descriptions of important contextual elements, sure and steady progress in the efforts can be guaranteed to improve the quality of professional development endeavors (Guskey, 2003).

Impact of CPD on Teachers' Effectiveness and Student Learning

Several studies reported that professional development results in positive gains for teachers, students, and institutions (Sydow, 2000; Villegas-Reimers, 2003; Yoon et al., 2007). Gains included increased collaboration among colleagues, greater student engagement, improved curricula, increased subject knowledge and updated skills for teachers as well as new classroom materials (Sydow, 2000). These gains are reported to result in changes in teaching practice and student learning outcomes.

A considerable amount of research found the positive effects of professional development on teaching practice (Boyle, Lamprianou, & Boyle, 2005; Darling-Hammond, 2000; Shepardson & Harbor, 2004). Shepardson and Harbor (2004) reported on the effectiveness of the ENVISION professional development model and indicated that professional development programs that involve teachers as active learners can enhance teachers' knowledge and changes

in teaching practice. Moreover, professional development could have a beneficial impact by improving teachers' self-efficacy and developing a sense of professionalism (Boyle et al., 2005). Available literature indicates that, when attributes of effective professional development are present, student learning and achievement can be improved (Desimone, 2009; Yoon et al., 2007).

Evaluating CPD

According to the operational definition by Guskey (2000), "evaluation is the systematic investigation of merit or worth" (p. 41). In the education setting, evaluation determines the effectiveness and value of initiatives (Zepeda, 2008). Evaluation is as important to professional development as it is to any other program. The more comprehensive definition by Killion (2008) indicates evaluation as "a systematic, purposeful process of studying, reviewing, and analyzing data gathered from multiple sources in order to make informed decisions about a program" (p. 8).

Though complex, professional development evaluation is valuable when it examines the impact on teacher, school and student. It helps educators and policymakers to make sound decisions (Killion, 2008). However, the use of evaluation to measure impact on teachers, schools, and students has not been given due attention by professional development providers (Guskey, 2000). In many cases, evaluation is considered too costly, time-consuming, and less useful compared to other engagements in education. There is also a claim that there is limited capacity to conduct meaningful evaluation. Due to these reasons, evaluations are either disregarded or left to external evaluation consultants to evaluate at the end of the program. Hence, systematic evaluation of professional development is rarely conducted, and millions of dollars are invested without practically examining its quality (Muijs et al., 2004). Those

evaluations that exist are a simple documentation of process and not measuring impact and are very brief covering only a short time span (Guskey, 2000).

According to Guskey (2000), interest in evaluation has grown for four reasons. The first reason is to gain a better understanding of the effective professional development and replacing the traditional view of professional development that is something done to teachers with a new perspective of being an ongoing and continuous process. This process created an opportunity for teachers to reflect, inquire, experiment, and refine new practices. Therefore, this continued desire for experimentation and improvement required emphasis on evaluation. The second reason is the recognition of CPD as an intentional process to bring meaningful change. Teachers want to measure their efforts and success by documenting and presenting key information. The third reason is the need for quality information to inform improvement and reform efforts. The fourth reason is to increase professional accountability to deliver the promises of the program including student learning outcomes.

There are several program evaluations models, including Kirkpatrick's model, Guskey's model, and Killion's model (Zepeda, 2008). Kirkpatrick's and Guskey's evaluation models contain similar evaluation levels. Kirkpatrick's evaluation model includes four levels of evaluation namely; reactions, learning, transfer and results (Zepeda, 2008). Killion's eight step evaluation model assumes linear interrelated steps ranging from planning to actual evaluation phase. Guskey (2000) suggests that evaluation of CPD impact takes place at five different levels.

According to Guskey's model, the first level is about participants' reactions on the CPD content, process and context. This is easy to conduct, but it is also least revealing and highly subjective. The second level involves evaluating participants' learning from CPD in terms of gaining new awareness, knowledge, skill, motivational and attitudinal outcomes. The third level

is to evaluate the organizational support, especially leadership and resource supports since CPD cannot be effective without organizational support. The fourth level is to evaluate the participants' use of learned knowledge and skills. The fifth level is to measure impact on students, including both cognitive and non-cognitive outcomes. This is the most important, but the least conducted level evaluation (Muijs et al., 2004). Muijs et al. (2004) argue that the issue of cost-effectiveness is missing in all five levels advocated by Guskey. According to Muijs et al., CPD should not be practiced if its cost is higher than the benefits.

To ensure efficiency of scarce resources being invested on effective and impactful professional development, it is critical to conduct regular evaluations of the program (Guskey, 2000; Muijs et al., 2004; Zepeda, 2008). However, CPD evaluation should not be burdensome for schools and teachers. It should be naturally occurring and built into the program from the beginning (Guskey, 2002; Zepeda, 2008).

Per the CPD framework, evaluation is an integral part in the CPD cycle. It is clearly stated in the framework that evaluation of the program should focus mostly on the effectiveness of the program in improving students' learning. The framework also requires planned evaluation during and after program implementation. It emphasizes the need for regular evaluation with the aim to continuously improve the outcomes of the program (Ministry of Education, 2009). In Ethiopia, other than assessments of teacher satisfaction about CPD, no systematic impact evaluation studies were found by the researcher.

Over the last 25 years, several teacher education reforms were made in Ethiopia with high expectations to improve education quality. Ensuring higher quality education demands teachers who are highly motivated, knowledgeable and skillful throughout their careers (Day & Sachs, Professionalism, Performativity and empowerment: discourses in the politics, policies and

purposes of continuing professional development, 2004). It was for the same reason that the government introduced CPD. Clark and Estes' (2008) framework of analysis is used in this study to evaluate the knowledge, motivation, and organizational influences supporting or hindering teachers' engagement in effective CPD practice.

Teachers' Knowledge, Motivation, and Organizational Influences

Knowledge and Skills

This section reviews literature that focuses on knowledge-related influences related to teachers' successful CPD practice as per the national framework. Rueda (2011) indicated that many educational problems are caused by stakeholder learning and knowledge gaps required to perform a task effectively. Clark and Estes (2008) argue that knowledge and skill improvement are needed only when people lack the know-how to achieve their performance goals and when it is anticipated that future challenges will require new solutions. In this fast-changing world, individuals need knowledge and skills to solve new problems and adapt to changing conditions (Clark & Estes, 2008). Therefore, the examination of teachers' capacity to engage in effective CPD practice will start by exploring whether they are equipped with the necessary knowledge to do so.

In the instructional setting, learners apply their own prior knowledge, goals, and experience to make sense of the information they encounter (Anderson & Krathwohl, 2001). Anderson and Krathwohl's (2001) framework of teaching, learning and assessing identifies four different types of knowledge, all of which are needed for effective performance outcomes: factual, conceptual, procedural, and metacognitive knowledge. Factual knowledge is the foundational knowledge of facts, definitions, details or elements specific to a discipline or topic area of interest. It contains the basic elements that learners must know if they are to function

effectively or solve a problem in their discipline (Anderson & Krathwohl, 2001). In the context of this dissertation, an example of factual knowledge needed for a teacher to successfully carry out CPD is knowledge of the meaning of the term "action research."

Conceptual knowledge is a more complex form of knowledge that includes inter-related knowledge of principles, theories, models, categories, and classifications relevant to a specific discipline (Anderson & Krathwohl, 2001). While factual knowledge is knowledge of disconnected pieces of information, conceptual knowledge is for organized knowledge forms. Distinguishing between factual and conceptual knowledge is important both for teachers and students. For students, it will enable them to create connections between their factual knowledge and broader concepts in their discipline and, ultimately, gain a deeper understanding of their subject matter. It also helps teachers in their classroom instruction and assessment. Instead of only teaching factual knowledge, teachers could also teach for their students' deep understanding of conceptual knowledge (Anderson & Krathwohl, 2001). As an example of conceptual knowledge, teachers need to understand the characteristics, models and concepts of effective CPD.

Procedural knowledge is knowledge of how to do something. It includes a knowledge of series of steps, procedures, techniques, methodologies and skills required to accomplish a specific task. It also includes knowledge of criteria for deciding when to apply suitable procedures. In this study, an example of teachers' procedural knowledge is their ability to conduct action research and collaborate with other teachers.

Metacognitive knowledge is awareness and knowledge about one's own cognition, essentially knowledge of the self while engaged in performing tasks. In addition, Mayer (2011) defines metacognition as "learners' knowledge of how they learn and control of their learning

process" (p. 43). Metacognitive processes involve assessing the task at hand, identifying one's strengths and weaknesses in completing the task, planning an approach to address current situation, applying strategies and monitoring progress, and reflecting on what worked and not of the current approach (Ambrose, Bridges, Lovett, DiPietro, & Norman, 2010). Ambrose et al. (2010) indicated that metacognitive skills are learnable and do not necessarily happen naturally. Metacognitive knowledge is important for teachers, as it makes them aware about their current practice and how they could effectively learn and teach, and ultimately enables them to be reflective practitioners. Reflection plays a critical role in helping teachers attend to and respond to students' learning (Rodgers, 2002). According to Rodgers (2002), reflection helps a teacher to differentiate between what they contemplate they are teaching and what students are, in fact, learning. Skills of attending to and responding to student learning are learnable. Teachers can do this by being present to see the students' learning and describing the component of that learning, to analyze the learning and to respond wisely (Rodgers, 2002).

In this study, the knowledge types framework provided by Anderson and Krathwohl (2001) is used to categorize each of the knowledge influences. Simply because a teacher has factual and conceptual knowledge of CPD does not mean that he or she can demonstrate it in his or her teaching (Rodgers, 2002). In order to apply the factual and conceptual knowledge, they need to have procedural knowledge. In addition, if somebody has the necessary factual, conceptual and procedural knowledge, but lacks metacognitive skills, they may apply incorrect CPD knowledge, strategies or fail to adjust performance goals as needed. For this reason, it is important to explore teachers' knowledge related to successful engagement in CPD from the perspective of all four distinct knowledge categories.

Knowledge of the national CPD framework, toolkit and portfolio. In 2009, the

Ethiopia Ministry of Education adopted the CPD policy framework with its toolkit and teachers' portfolio and instructed all primary and secondary schools to implement it (Ministry of Education, 2009). The toolkit is a guiding document with tools allowing teachers to plan and implement CPD. The teacher professional portfolio is a document prepared by a teacher to demonstrate his or her professional development. It contains school and CPD priority, self-reflection, professional development activities undertaken, improvements in teaching, and student learning outcomes (Ministry of Education, 2009). Though the CPD framework indicates the ineffectiveness of the cascade model, it is the current approach in practice (Gemeda et al., 2014) to orient teachers on the framework, toolkit, and portfolio preparation. In a cascade model, there is a high chance that information becomes diluted or very little of the original information is transmitted to the end user. Teachers need to have comprehensive declarative knowledge of the CPD policy framework to be effective in improving their teaching and, ultimately, students' learning. Some examples of declarative knowledge are knowledge of the CPD cycle, conducting action research, and developing a CPD portfolio.

Knowledge of the characteristics of effective CPD. Several studies describe the characteristics of effective professional development from different perspectives (Casale, 2011; Ministry of Education, 2009; Muijs et al., 2004; Patton, Parker, & Tannehill, 2015). Though researchers and practitioners did not reach consensus about the characteristics of effective professional development, the following criteria are the most cited ones: collaborative learning (Hord & Tobia, 2012), coherence (Desimone et al., 2002), a focus on instructional practice (Borko, 2004), ongoing (Cochran-Smith & Lytle, 1999), and based on subject content matter (Garet et al., 2001). Further, the CPD framework indicated that effective CPD is based on real situations and classroom practice, job-embedded, ongoing, deals with subject content and

teaching strategies, need based, and involves active learning (Ministry of Education, 2009).

Knowledge of peer collaboration. A key strategy to any successful education reform is an increase in teacher collaboration (Little, 2001). Collaboration is an effective method of professional development to improve teacher efficacy and student learning (Borko, 2004; Colbert et al., 2008; Desimone, 2011; Little, 2001; Patton et al., 2015). Collaboration in CPD can take many forms. This includes teachers planning lessons together, observing each other, critiquing each other, coaching and mentoring novice teachers, and preparing common assessments (Casale, 2011; Ministry of Education, 2009). Collaborative school culture enables teachers to seek assistance, share best practices, ask questions, and receive feedback from their colleagues. Despite these values, implementing a collaborative culture in a school setting remains a challenge mostly due to underestimating its value, lack of trust and respect among teachers, and resistance by teachers (Casale, 2011; Hargreaves & Fullan, 2012). Thus, procedural knowledge of how to collaborate with peers creates a meaningful learning experience for teachers. Expected competencies in this area include reflecting on their teaching through peer classroom observation, learning with and from each other, and sharing best practices. This study probed into the degree to which the participating teachers have the necessary knowledge to succeed in peer collaboration.

Knowledge of conducting action research. The action research model of CPD is an inquiry-based knowledge practice aimed at solving teaching and learning problems (Villegas-Reimers, 2003; Zepeda, 2008). The procedural knowledge of how to conduct action research enables teachers to collaborate with others to solve their problem of practice (Zepeda, 2008). To conduct action research, teachers need procedural knowledge of how to identify their problem of practice, develop research questions, systematically collect, analyze and interpret their data, and

finally, how to share their findings with the school community and parents (Zepeda, 2008).

Reflective practice. Reflection is a metacognitive skill which enables a teacher to reflect on his or her personal classroom experiences. By reflecting on teaching strategies, students' learning, and curriculum, a teacher could identify his or her own learning needs and adjust their teaching strategies (Villegas-Reimers, 2003). A teacher needs knowledge and skill to reflect in action or reflect on action (Hargreaves & Fullan, 2012). For instance, a teacher is reflecting in action when he or she considers whether to speed up or slow down a presentation in class, and a teacher is reflecting on action after the fact. A teacher could also reflect on why some students performed poorly on reading compared to the class average. A more systematic reflection becomes action research. One secret behind the success of high-performing countries like Finland and Canada is that teachers can engage in inquiry through collective reflective practice and action research (Hargreaves & Fullan, 2012). Table 2 presents assumed knowledge influences categorized by knowledge types.

Table 2

Assumed Knowledge Influences

Assumed Knowledge Influence	Knowledge Type
Teachers need more knowledge of the national CPD framework, toolkit and portfolio.	Declarative
Teachers need to understand the characteristics of effective CPD for them to put into practice.	Declarative
Teachers need to know how to collaborate with other teachers via observation and reflection to improve their own teaching effectiveness and that of others.	Procedural
Teachers need to know how to engage in conducting action research.	Procedural
By reflecting on their learning and teaching, teachers need to be able to identify key needs and engage in planning to meet these needs	Metacognitive

Motivation

Clark and Estes (2008) indicated that many organizational performance gaps are caused by a lack of motivation, and not a lack of knowledge and skills. Similarly, in explaining the importance of motivation, Rueda (2011) stated that "just because someone knows how to do something doesn't mean they want to do it or will do it" (p. 38). People need a stimulus to energize them to move towards goal-oriented direction. This section reviews literature on motivation-related influences that are relevant to teachers' engagement in successful CPD practice via conducting action research and collaboration.

There are several definitions of motivation provided by different authors. A prominent educational psychologist, Mayer (2011), define motivation as "an internal state that initiates and maintains goal directed behavior" (p. 39). According to Clark and Estes (2008), motivation is "what gets us going, keeps us working, and informs us how much mental effort to spend on a task" (p. 80). Consistent with these definitions, most researchers provide three common motivational indexes: active choice, persistence, and mental effort (Clark & Estes, 2008). Psychological theories are useful in understanding why an individual or a group of individuals starts, persists and invests mental effort. The next section discusses expectancy value theory and self-efficacy theory, as they are relevant in understanding teachers' level of motivation. These two theories were used as a framework to present the motivational influences which are assumed to be the underlying causes for motivation indexes.

Expectancy value theory. According to expectancy value theory, learning achievement and related choices are influenced by two factors: expectancies for success and the perceived value of the task (Ambrose et al., 2010; Eccles, 2010). According to Ambrose et al. (2010), expectancies refer to how confident an individual is in his or her ability to succeed in a task

whereas task values refer to how important, useful, or enjoyable the individual believes the task to be. Research indicates that the perceived value of a task has four dimensions: the enjoyment one expects in undertaking the task, consistency of the task with one's self-image, the value of a task in facilitating one's long-term goal and external rewards, and the perceived cost of engaging in the activity. These dimensions are referred to as intrinsic value, attainment value, utility value, and cost value, respectively (Eccles, 2010).

Teacher expectations and values. Several studies in Sub-Saharan Africa reported presence of low teacher motivation due to unmet teachers' expectations and values (Abebe & Woldehanna, 2013). Abebe and Woldehanna (2013) indicated lack of opportunities for effective professional development as one of the many factors that resulted in low teacher motivation in Ethiopia. Teachers' professional development effectiveness is highly dependent on the values that teachers place on it. This study particularly explores whether teachers in BDEO see engaging in collaborative learning and action research as a critical component of effective CPD practice and ultimately, in supporting students in achieving at least basic proficiency. The study also explores the value teachers place on their CPD practice.

Self-efficacy theory. Self-efficacy is defined as "people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives" (Bandura, 1994, p. 1). Dembo and Seli (2016) indicated that self-efficacy beliefs are influenced by four factors: one's own past successes and failures performing the task, seeing similar people to oneself undertaking the same task, social persuasion and physiological responses. Self-efficacy beliefs should not be confused with self-esteem or self-worth, which is people's overall assessment of their worth (Dembo & Seli, 2016). Self-efficacy predicts the degree to which individuals engage with tasks as well as persist at them and invest the necessary

mental effort to complete them successfully (Pajares, 2010).

Teacher self-efficacy. One study confirmed that teachers' collective self-efficacy is strongly and positively related to students' reading and mathematics achievement (Goddard, Hoy, & Hoy, 2000). According to this study, a one-unit standard deviation in collective self-efficacy of teacher results in over 40% increase in standard deviation of student achievement. Teachers' self-efficacy is context-specific and varies with time, school, classroom, and subject. Goddard et al. indicated that one approach to increase student achievement is to enhance teacher self-efficacy through carefully designed professional development programs that fosters collaborative culture and promotes action research and vicarious learning. In this study, teachers' perceptions of their capability to effectively engaging in action research aimed at improving their effectiveness and student reading proficiency was the focus. Table 3 presents assumed motivation influences and the underlying psychological constructs.

Table 3

Assumed motivation influences

Motivation Construct	Assumed Motivation Influence
Utility Value	Teachers need to see the value of engaging in collaborative learning as a critical component of effective CPD practice and in supporting students in achieving at least basic proficiency. Teachers need to see the value of engaging in action research as a critical component of effective CPD practice and in supporting students in achieving at least basic proficiency.
Self-Efficacy	Teachers need to believe they are capable of effectively engaging in action research and collaborative learning.

Organizational Influences

Clark and Estes (2008) argued that, no matter how motivated, knowledgeable and skillful individuals may be, they may fail to succeed in achieving their performance goals due to

organizational factors. In looking at organizational influences, culture needs to be considered. Schein (2004) defined organizational culture as commonly embraced norms that are accumulated through experience and found effective in resolving external and internal issues and, therefore, are a reliable way to operate in connection to similar issues. Schein argued that culture enhances and hinders organizational performance through shared norms that are held by the members. For this reason, cultural analysis is a critical component to understand group circumstances, processes and performance issues (Gallimore & Goldenberg, 2001; Schein, 2004).

According to Gallimore and Goldenberg (2001), the concept of culture can be presented more essentially in educational study and practice by introducing two important concepts: cultural settings and cultural models. Cultural models are collective patterns of thought of how the universe operates or should operate (Gallimore & Goldenberg, 2001). Cultural models are mostly invisible and unconscious to those who embrace them. Cultural models influence organizational structure, principles, rules, procedures, operation, compensation structures and other elements of organizational settings (Rueda, 2011). Cultural settings are instances where individuals meet to undertake joint activity resulting in something that they care about (Gallimore & Goldenberg, 2001). For instance, classroom interaction, staff meetings, professional development workshops, sports activities, and lunch at the faculty cafeteria are typical cultural settings for teachers. In summary, analysis of cultural models and settings helps educational researchers and practitioners to understand what contributes to and inhibits performance and ultimately, to design appropriate solutions to educational problems related to organizational influences. In the context of this study, organizational influences including collaborative culture, supportive leadership, resources, and professional development will be reviewed next.

Collaborative culture. Several studies have documented evidence of the value of collaborative culture in school settings (Hargreaves & Fullan, 2012; Zepeda, 2008). In schools with a collaborative culture, teachers seek peer support and engage in ongoing learning to continuously improve their teaching (Hargreaves & Fullan, 2012). Data demonstrates that teachers working collaboratively outperform teachers working alone. In the context of a collaborative culture, teachers are more confident to share their failures, and knowledge and skill gaps with the aim to get help and support from colleagues. Schools with a collaborative culture create committed, empowered and motivated staff. Establishing trust, respect and relationships is a pre-requisite to promote a culture of collaboration among teachers and school leadership. In this regard, district and school leaders play a central role in building and nurturing a sustained collaborative culture (Hargreaves & Fullan, 2012). This study probed into the degree to which teachers feel that there is a value and a leadership supported collaborative learning culture at their school.

Supportive leadership. Supportive school leadership positively influence teachers' motivation, dedication, and working conditions with the aim of improving teaching and learning (Gemeda et al., 2014; Leithwood, Harris, & Hopkins, 2008). Leithwood et al. (2008) found that school leadership is second only to classroom teaching in relation to the impact of student learning outcomes. Effective district and school leaders create supportive school environments in which teachers can learn and grow as change agents. Supportive school leaders lead with a clear vision, focus on learning and development, engage teachers in designing their professional development, challenge teachers to be engaged in complex tasks, provides teachers with frequent feedback, and makes them accountable (Zepeda, 2008). This study explores whether the participating teachers perceive their school leaders as supportive in their CPD efforts.

Resources. Adequate resources are imperative inevitable to support effective teachers' professional development. Resources include time, personnel, educational materials and financial support. European and Asian countries with high-performing schools allow teachers more time to collaborate and share best practices as compared to the rest of the world (Casale, 2011). Some studies in Ethiopia show that teachers' workload has been intensified often on non-teaching and conflicting goals (Gemeda et al., 2014). Teachers need to have enough time to be engaged in their CPD activities, particularly in collaborative learning and action research. Teachers need to be also provided with adequate instructional materials which enables them to effectively practice their CPD. In numerous occasions, absence or inadequate materials are causes for performance gaps, even in a situation where people are highly motivated, knowledgeable and skilled (Clark & Estes, 2008). This study explored whether teachers' engagement in effective CPD has been critically affected by shortage of resources.

Professional development. Instead of simply waiting for people to prove themselves and their capacity, organizations should equip their people to succeed (Clark & Estes, 2008). If teachers are given the capacity to be effectively engaged in collaborative learning and action research, their ability to impact their students' reading proficiency could increase. It makes no sense to expect a teacher to practice collaborative learning and action research without capacitating them in this area. These aforementioned skills are not acquired in pre-service teacher preparation programs. Hence, the need for professional development in collaborative learning and action research is necessary and unquestionable to have a meaningful impact on teachers practice and ultimately student learning outcomes. Table 4 below presents assumed organizational influences.

Table 4

Assumed Organizational Influences

Organizational Influences Category	Assumed Organizational Influences
Cultural Model Influence 1	The school needs to cultivate and embrace a culture of collaborative learning.
Cultural Model Influence 2	The district and school leadership need to be supportive of teachers' engagement in action research and collaborative learning as examples of CPD.
Cultural Setting Influence 1	The district needs to allocate adequate resources and provide sufficient time to facilitate and encourage teachers to be engaged in action research and collaborative learning.
Cultural Setting Influence 2	The district needs to provide appropriate training in the area of collaborative learning and action research.

CHAPTER THREE: METHODS

This chapter presents research design and methods used for data collection and analysis, ethical considerations, limitations and delimitations of the study. The purpose of this project is to evaluate the degree to which BDEO is meeting its goal of having all teachers successfully engage in effective CPD practices to achieve its organizational goal of 70% of Grade 2 students achieve basic or higher reading proficiency. The research questions that guide this study are as follows:

1. To what extent is BDEO meeting its goal that 100% of teachers successfully engage in effective CPD practice?
2. What are the knowledge, motivation, and organizational challenges for BDEO's teachers to successfully engage in effective CPD practice?
3. What are the potential knowledge, motivation, and organization solutions to enable all BDEO's teachers to be actively engaged in effective CPD practice?

This chapter presents stakeholder sampling and recruitment strategies, methods of data collection and analysis. This chapter also presents reliability and validity as well as the trustworthiness and credibility of quantitative and qualitative components of the study. This chapter also presents the ethical issues considered while designing and conducting the study. Finally, the chapter discusses the limitations and delimitations of the study.

Participating Stakeholders

Primary school teachers in the Barbare District are the focus for this study. One school from each of the 10 school clusters was randomly selected to participate in the study. All teachers participating in the study from the 10 randomly selected schools had with more than 2 years of teaching experience and voluntarily agreed to participate. Teachers with fewer than 2

years of teaching experience were excluded from the study, as the policy does not require them to practice CPD. The researcher recruited the participants by asking them if they have more than 2 years of teaching experience. There are 457 teachers in 45 schools in the district. There are approximately 100 teachers in those 10 randomly selected schools. Among them, 91 teachers met the sampling criteria and 82 agreed to be surveyed. Twelve teachers among those who took the survey and volunteered to participate in the interview were purposively selected for interview. The researcher used sites from all 10 clusters to allow maximum variation in terms of geographic remoteness and size of the schools. The school principal supported the researcher in identifying teachers meeting the study participant criteria.

The study took place in ten randomly selected primary schools in the BDEO district of Ethiopia. Following an explanation of the study, permission was granted by the BDEO head and the principals of the schools to conduct the research within the district and schools; respectively. Teachers meeting study criteria of over two years of teaching experience were identified with the support of school principals. All 82 teachers with over two years of experience and willing to participate in the survey were invited to respond to a self-administered survey. The surveys were provided in person to all teachers who were willing to participate in the survey. In total, all the 82 teachers completed the survey and returned to the researcher, indicating a response rate of 100%. The response rate is extremely high due to the fact that the questionnaire were close-ended and written clearly using participants working language. And among those who completed the survey and volunteered for interview, 16 information rich participants were interviewed. These 16 teachers were purposively identified by looking into their response to the survey question asking how knowledgeable they are about the CPD practices in Ethiopia. Based on their responses, those who indicated having relatively more knowledge about CPD practices

were selected and interviewed. To complement and triangulate the data from interviews, participant portfolio and action research documents were reviewed and availability of CPD resources to teachers were verified.

The section below provides statistics for the characteristics of the survey respondents in terms of gender, age, years of teaching experience, and subject taught. Information on characteristics of the survey sample helps to better understand the nature of individual teachers with respect to their CPD experiences.

Tables 5 - 8 shows the demographic data of the survey respondents. The total respondents were 82 of which 51% are male and 49% are female (Table 5).

Table 5

The Gender of Survey Respondents (%)

Gender	% Total (n=82)
Male	51%
Female	49%

The gender balance varied across the age group of respondents. Over three-forth (77%) of respondents were 30 years of age or younger, 23% were over 31 years or older, and the largest proportion were respondents aged 26 to 30 years (Table 6). The average age of the respondents was 28 (SD = 4.74). There were no significant differences between male and female teachers with respect to age (X^2= 13.813, df= 19, p= .794).

Table 6

Age category of survey respondents (%)

Age	% Male (n=42)	% Female (n=40)	% Total (n=82)
20-25	24%	38%	31%
26-30	50%	42%	46%
31-35	14%	15%	15%
35 and above	12%	5%	8%

Table 7 shows a range of teacher's years of experience. The data indicates that most of the teachers are in the early years of their career. Of the surveyed teachers, 74% had less than 10 years of teaching experience and 26% of teachers had over 10 years of teaching experience. Teachers with less than two years of teaching experience were excluded from this study as they were not eligible for the CPD programme. There were no significant differences between male and female teachers with respect to the years of teaching experience (X^2=18.848, df=17, p= .337).

Table 7

Years of Teaching Experience of Survey Respondents (%)

Years of teaching experience	% Male (n=42)	% Female (n=40)	% Total (n=82)
2-5	29%	43%	35%
6-10	45%	32%	39%
11-15	19%	23%	20%
16-20	5%	0%	4%
21 and above	2%	2%	2%

Table 8 shows teacher's qualification. As per the national Ministry of Education standard, 80 (98%) teachers were qualified teachers, with at least a teaching college diploma or first degree. 2 (2%) of the teachers were high school graduates and not qualified to teach at the

primary school level. There were no significant differences between male and female teachers with respect to teacher qualification (X^2=1.415, df=2, p= .493).

Table 8

Survey Respondents' Qualification by Gender (in %)

Qualification	% Male (n=42)	% Female (n=40)	% Total (n=82)
High School Dip.	2%	2%	2%
College Diploma	69%	80%	74%
BSC/BA Degree	29%	18%	24%

Survey Sampling Strategy and Rationale

The researcher first randomly selected one school from each of the 10 clusters in the district. There are 457 teachers in 45 schools with an average of 10 teachers per school. Thus, there were approximately 100 teachers in 10 randomly selected schools. The researcher conducted a census survey in which all teachers meeting the study criteria were asked to participate. The researcher found 82 teachers that met the criteria. Random sampling is appropriate in surveys aimed at understanding the characteristics of a population by generalizing the sample data (Johnson & Christensen, 2015). In such surveys, the sample should be large enough to be representative, so conducting census survey is appropriate for this study. The survey was conducted at the beginning of data collection and followed by interviews.

Survey Sampling Criteria and Rationale

Criterion. The participants should be primary school teachers with more than 2 years of teaching experience. According to the national framework, in the first 2 years of teaching, teachers are not engaged in CPD; rather, they receive induction courses. Hence, the criterion of more than 2 years of experience is used to identify a relevant population for the study who could

inform the researcher about the degree to which teachers engage in effective CPD practice as well as the knowledge, motivation and organizational challenges they face.

Interview Sampling Strategy and Rationale

Nonprobability purposive sampling is the preferred method for in-depth understanding of information-rich cases (Merriam & Tisdell, 2016). Thus, in this study, criterion-based purposive sampling was used to select information-rich participants for the interviews. Each survey participant was provided a separate interview participant recruitment sheet with demographic questions and one question asking for their level of knowledge about CPD. Among those who volunteered for the interview, two participants were selected from each of the first eight randomly selected schools who responded as having the highest familiarity about CPD. This decision was made with the assumption that those teachers selected are relatively information-rich about CPD practices and challenges. If more than two participants responded as having the same high level of familiarity, gender, grade level, and subject area taught were used to allow a maximum variation. Thus, 16 participants were interviewed in total. In the purposeful sampling, Lincoln and Guba (as cited in Merriam & Tisdell, 2016) suggested sampling until the point of information saturation or redundancy is reached. In line with this, the final number of participants for this study was determined by information saturation. The researcher planned to interview a minimum of 12 and a maximum of 20 participants depending on the new information saturation. The researcher interviewed 16 participants. The interview participants were among those who participated in the survey and volunteered to participate in the interview.

Interview Sampling Criterion and Rationale

Criterion 1. The participant should be a primary school teacher with more than 2 years of teaching experience who participated in the survey and volunteered for the interview.

According to the national framework, in the first 2 years of teaching, teachers are not engaged in CPD. Hence, the criterion of more than 2 years of experience is used to ensure selection of information-rich participants.

Criterion 2. A participant needs to have considerable knowledge and experience in CPD practices. Among those who volunteer to be interviewed, the researcher selected two participants from the first eight schools whose response to the survey question regarding how knowledgeable they consider themselves regarding CPD practices was relatively higher compared to other participants. In the case where more than two participants responded as having the same high level of familiarity, gender, grade level and subject area taught was used to allow a maximum variation. This criterion was used to select information-rich participants.

Data Collection and Instrumentation

A convergent parallel mixed-methods design was used to evaluate the degree to which BDEO is meeting its goal of having all teachers engage in effective CPD practices. The researcher collected both quantitative and qualitative data at roughly the same time and combined the information in the interpretation of the findings. Creswell (2014) argued that mixed-methods procedures provide a stronger understanding of the research problem by combining the strengths and overcoming the limitations of the two approaches. Using multiple methods of data collection also increases the credibility of the study (Merriam & Tisdell, 2016).

Surveys

The researcher provided self-administered surveys to all 82 teachers who agreed to participate in the survey. Nine more teachers who meet the survey criteria were not willing to participate in the study. Participants were requested to return their survey response to the researcher on the same day. It was a typical paper-and-pencil cross-sectional survey. This survey

type was chosen considering a lack of mail and internet services available in study sites and the absence of telephone numbers and addresses of the targeted participants. The researcher used a survey because of its advantage of rapid turnaround in data collection and identifying attributes of a large population from a small sample. Surveys are appropriate to collect data on people's feelings and perceptions, satisfaction, values, habits, personal background and demographic characteristics (Fink, 2017). The researcher used a survey to collect data on teacher perceptions about their knowledge and skills, self-efficacy, and organizational support in their CPD practice. The researcher translated the survey instrument into the Affaan Oromo language to ensure teachers' full understanding of the questions. A bilingual educator was asked to translate the instrument back into English. According to Merriam and Tisdell (2016), the closer the translation is to the data in original language, the more reliable it is. The data was collected in the Affaan Oromo language and translated into English for analysis. The survey instrument (Appendix A) consists of 36 items reflecting the knowledge and skill, motivation and organizational influences, and demographic information. Categorical and ordinal response scales were used for close-ended questions and three open-ended items were used in the survey.

To ensure content validity, a pilot test was administered to three teachers in a similar context as the study participants. In the pilot test, respondents were provided a space and asked to provide their feedback and criticism. Learning from the data collected and analyzed as part of the pilot study, the researcher made necessary changes to the instrument. Further, the researcher asked three professional development experts to review and comment on the instrument: a teacher educator, Imagine1day's capacity building officer, and the Oromia region teacher professional development department director. These experts are among the key stakeholders who are responsible for ensuring effective CPD practices as indicated in the CPD framework.

They are assumed to have knowledge about the current CPD policy and practices as well as the implementation challenges in the context of Ethiopia. For improving the response rate, the researcher made the questions more understandable, to the point, and culturally appropriate. Plus, the researcher personally delivered the survey questionnaire to the participants, provided a pen as an incentive for those who completed the survey, and clearly communicated how the survey responses will be kept confidential. The researcher distributed the survey in the staff room during break time and in the morning before class started. The researcher requested the survey participants return completed surveys in person to researcher upon completion the same day.

Interviews

The researcher conducted a one-time average of 45-minute formal in-depth personal interviews with 16 participants. This number of interviewees was decided based on information saturation (Merriam & Tisdell, 2016). Information-rich participants for the in-depth interviews were purposely selected from those who volunteered via the survey. To ensure privacy and attention, the interview was conducted in person in vacant classrooms or any quiet available sitting area. Participants were privately interviewed on a one-on-one basis to allow them the opportunity to speak freely about their experiences. All the interviews were tape-recorded with permission from the participants and transcribed to prevent loss of data. Interviews were conducted in the morning before school was in session or during breaks. The interviews were conducted in the Affaan Oromo language to ensure teachers' full understanding of the questions. The interview protocol (Appendix C) consist of 12 predetermined items with openness to any new emerging questions during the interview. The 12 items covered knowledge, motivation, and organizational influences. All interviews were semi-structured to focus the discussion around central topics yet allowed for open-ended questions based on the interviewee's response. Patton

(as cited in Merriam & Tisdell, 2016) suggested six types of questions: experience and behavior, opinion and values, feelings, knowledge, sensory and demographic questions. In this study, items assessing declarative, conceptual and metacognitive knowledge were asked including questions such as, "tell me what you know about CPD? In your opinion, what are the characteristics of effective CPD? Give me an example of a collaborative learning you experienced over the last 12 months"

Interviews are a preferred method of data collection when one seeks in-depth understanding of how people view or interpret their experience (Merriam & Tisdell, 2016). This study seeks to generate an in-depth understanding of teachers' lived experiences of the CPD program through interviews. This approach encouraged participants to express their views in their own words and provided better qualitative data. As a primary instrument for data collection, the researcher clarified instruments and checked with the participants for the accuracy of the interpretation. This approach also enabled the researcher to enrich their understanding through both verbal and nonverbal communication.

Document Review

The most important advantage of documents and artifacts is its objectivity. Distinct from interview and observations, the attendance of the researcher does not change what is being studied (Merriam & Tisdell, 2016). The researcher considered the benefit and its cost-effectiveness in selecting documents and artifacts as sources of data. The researcher gathered and reviewed school documents and teachers' works as a data source to supplement interviews. For instance, it was impossible to tell from interviews whether the participant has knowledge of conducting action research. Hence, by reviewing the actual action research paper and teacher CPD portfolio, it was possible to complement the data from the interviews. The researcher

sought out the national CPD framework, teachers' CPD portfolio, minutes related to professional development, school and district education office reports on CPD, organizational charts, teachers job descriptions, action research papers, and teachers' work in the pedagogical center and science laboratories. Data mined from documents and artifacts helped to uncover meaning, develop understanding, and discover knowledge, motivational, and organizational influences in successfully engaging in effective CPD practices. The national CPD framework was reviewed and used as a guide to evaluate the actual CPD practices.

The researcher asked for permission to review and take pictures of key components of the CPD portfolio of the 20 teachers who participates in the interviews. The CPD portfolio is a document required to be created by all teachers to document their ongoing CPD activity. It provides details of CPD activities undertaken by a teacher, including action research conducted, collaborative learning opportunities attended, and reflection on teaching and learning practices. By reviewing the portfolio, the researcher tried to understand the teachers' declarative and metacognitive knowledge about CPD.

Action research papers, teachers' work in the pedagogical center and science laboratories were reviewed to obtain data on knowledge influences. For instance, if the action research conducted by the teacher was systematic, the researcher assumed that this teacher has knowledge of how to conduct action research. Professional development minutes, school and organizational reports were used as a source of data to understand motivation and organizational gaps; if any. Further, the organizational chart and teachers' job descriptions were used to gain understanding of organizational support and influences. A permission letter was to be obtained from the BDEO and presented to the school principal to get entry access to school documents and teachers' work

relevant to the study. The researcher also asked teachers' permission to review private documents including their CPD portfolio.

Data Analysis

The quantitative and qualitative data were analyzed separately and then integrated. Quantitative data results from the survey were analyzed using Microsoft Excel. The descriptive statistical analysis was done after collecting all survey results. Descriptive statistics, including frequencies, percentages, and standard deviations, were presented in the form of tables and graphs. Computer assisted qualitative data analysis were conducted using Atlas.ti software.

For interviews and document review, data analysis was conducted side by side with data collection and the write-up of findings. The researcher created a data set consisting of memos, transcribed interviews, and documents. The researcher reflected on each interview and wrote memos describing viewpoints and initial interpretations about the data. The researcher then transcribed the interview data and coded it with words representing categories in the margins. In the first step of analysis, the researcher uses a combination of open codes and *a priori* codes corresponding with knowledge, motivation, and organizational concepts from the conceptual framework. In the second phase, the researcher constructed the next level of category by grouping open and *a priori* codes that seem to go together into axial codes. In the third phase of data analysis, the researcher identified any recurring patterns and themes that emerged in relation to the conceptual framework and study questions. Finally, the researcher analyzed documents for evidence consistent with the concepts in the conceptual framework.

Credibility and Trustworthiness

A convergent parallel mixed-methods approach requires establishing validity or credibility for both quantitative and qualitative components (Creswell, 2014). To increase the

credibility and trustworthiness of the findings, the researcher used different strategies suggested by Merriam and Tisdell (2016), including triangulation, member checks, reflexivity, and peer reviews. The researcher triangulated interview and survey results against findings from the document review.

The researcher also conducted member checks with four selected key informants through phone calls to get feedback on my preliminary findings. The researcher used participants' feedback to identify and exclude possible misinterpretation and personal biases. At every step of the study, the researcher reflected on and acknowledge bias, assumptions, and preconceptions that brought into the study and examined how it shaped the conduct and outcome of the study. For instance, due to the researcher's experience and prior knowledge about CPD practices in Ethiopia, the researcher had a preconceived belief that it is not well liked by teachers and that they are reluctant to participate in CPD activities. The researcher reflected on how this belief influenced the interview with each participant and was diligent in putting effort into minimizing his bias effect during data collection, analysis and presentation of key findings. The researcher also discussed his study process, interpretations, and findings with his dissertation committee as well as peer reviewed. The dissertation committee reviewed and commented on his finding's credibility and trustworthiness. The researcher also asked a colleague with experience in the area of the study to examine some of the raw data and evaluate whether the findings are credible based on the data collected.

Finally, the researcher provided adequate descriptive data to enhance the transferability or external validity of the study. The researcher described the school setting, participant teachers' working conditions and qualifications, context of CPD in Ethiopia, and detail the

findings, including quotes from interviewees. This transparent process will help others assess if the findings of this study are transferable to their context.

Validity and Reliability

The researcher increased the reliability of the quantitative component of this study by using language that makes sense to the survey respondents as well as avoiding jargon or using multiple and leading questions. The researcher established face validity by asking for experts' opinion about whether an instrument measures the motivation and organizational influences.

To ensure confidence in the survey sample, the researcher conducted a census survey of all teachers meeting the 2-years' teaching experience criterion in the targeted schools. Among those who meet the survey criterion, 9 out of 91 were not willing to participate in the survey. Hence, 82 teachers participated in the survey. To increase the response rate, the researcher conducted pilot testing, keeping the survey short and simple, avoiding leading questions, providing enough response options, identifying the best time for participants to complete, and provide in-kind incentives for participating. The researcher checked for response bias by taking a small sample from a population with similar characteristics to determine if their responses differ significantly from that of respondents. The researcher also looked at the data to determine a significant range of responses of very high and low effects, as both may suggest a response bias. In both cases no significant bias was found.

Ethics

Researchers have a responsibility to behave ethically with their study participants (Rubin & Rubin, 2012). The Belmont Report (1979) provided three ethical principles with its applications intended to assure that research involving human subjects be carried out in an ethical manner. According to this report, the three basic ethical principles are respect of persons,

beneficence and justice (The National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1979). Informed consent is a core requirement of ethical research which can empower participants and is a way to enact the principle of respect for persons. Through informed consent, the researcher provides sufficient information to the participants to enable them to make informed decisions about participating in a study (Glesne, 2011). This includes making participants aware that their participation is voluntary, data collected is confidential, and that they can withdraw from the study at any point without penalty.

Ethical issues need to be dealt with prior to starting the study, during data collection and analysis and in reporting, sharing and storing the data (Creswell, 2014). Ethical issues were addressed during every phase of this study to show respect and provide confidentiality to all participants as well as to protect them from any potential harm. This process began by submitting the study proposal to the University of Southern California Institutional Review Board to ensure that the study does not harm participants. The researcher presented the purpose of the study to the BDEO and received approval of individuals in authority to conduct a survey, interview teachers, and review documents and artifacts in the selected schools. Every effort was made to treat all participating teachers and schools with respect and to disrupt as little as possible. For all interviews, vacant classroom or any quite sitting area available was used. Hence, all the interviews were treated with strictest confidence. All participant teachers were briefly informed at the start of interview about the general purpose and potential benefits of the study, how the data collected from them will be used, that their participation is voluntary, and that they are free to withdraw from the study at any time. The researcher also gave them an information sheet with the same information in writing prior to any interviews. The researcher also requested permission from participants to record the interviews. During the interviews,

when there were any questions/answers that were not clear, the questions were repeated to ensure better understanding by both parties.

During data analysis, the researcher avoided taking sides and only discussed the results supporting his views. The researcher reported the full range of findings and perspectives without withholding any important information. The researcher disentangled names from responses during the coding and recoding process and used fictitious names for participants and places to protect participants' identities. All information from the study will be kept confidential and participants were informed that it will be used for research purposes only. Researchers are expected to maintain raw data for a minimum of 5 years after publication (American Psychological Association, 2010). Thus, the researcher scanned the raw data and saved it digitally with password protection. The study report was presented in aggregate form and quotations from interviews do not refer to the names of the schools or the names of the participants.

The researcher has no supervisory, friendship or direct working relationship with teachers who participated in this study. However, as a leader of the donor organization currently supporting schools in the district, some research participants might feel like they must participate in the study or that their decision to not participate may affect support to their school. The researcher informed them that he has only a research role and is not a representative of the donor organization for this study. The researcher also assured the participants that the purpose of the study is purely academic and not related to funding school programs.

Limitations and Delimitations

The researcher anticipated several limitations and delimitations to this study. In this study, limitations refer to influences that the researcher cannot control whereas delimitations are

choices the researcher made to set the scope of the study. First, the limitation of this study emanates from using self-reported data, the quality of which is dependent on participants' honesty. Secondly, the study is limited due to its assumption that all participants understood and interpreted the interview and survey items similarly and accurately. The third limitation is the fragmented and inconsistent documentation about CPD at the district and school levels. Finally, the study is limited in collecting information about knowledge influences by using interviews and survey.

Although observation provides more accurate information about procedural knowledge influences, this study is delimited to collecting information using survey, interview, and document analysis. The researcher made the choice not to include observations, which required more time than the researcher found feasible for the dissertation timeline. Also, though member checking should be conducted with all study participants, the study is delimited only to four out of the 16 key informants' member checks. The study is also delimited to understanding from one key stakeholder group's lived experience, and that may or may not reflect that of other stakeholder groups like cluster supervisors and school principals. Even though CPD is a broader concept, the study is delimited by a focus on collaborative learning and action research influences. These influences were chosen based on the literature review.

CHAPTER FOUR: RESULTS AND FINDINGS

This chapter presents the results and findings of the data collection associated with the teachers' experience of engaging in CPD practices. This study used a mixed-methods approach to collect both qualitative and quantitative data through a survey, interviews, and document review. The data was analyzed and triangulated to validate the root causes of knowledge, motivation, and organizational challenges for BDEO's teachers to successfully engage in effective CPD practice; and to evaluate the extent to which BDEO is meeting its goal of 100% teachers successfully engaging in effective CPD practice. The findings were then used to validate or not validate the assumed knowledge, motivation, and organizational influences described in Chapter 2. This chapter addresses the first two research questions guiding this study:

1. To what extent is BDEO meeting its goal of 100% teachers successfully engaging in effective CPD practice?
2. What are the knowledge, motivation, and organizational challenges for BDEO's teachers to successfully engage in effective CPD practice?
3. What are the potential knowledge, motivation, and organization solutions to enable all BDEO's teachers to be actively engaged in effective CPD practice?

The first section presents the results and findings answering the first research question. The second section of this chapter presents the results and findings addressing the second research question organized by the categories in the area of knowledge, motivation, and organization. Based on the findings and results each section will present the assumed influences that have been validated or not validated and will conclude with a summary of findings and results. Chapter 5 answers the third research question guiding this study by providing evidence-

based suggested solutions in accordance with validate KMO influences related to teachers' effective CPD engagement.

Report of the Findings

Research Question 1

When teachers were asked about their engagement in effective CPD practice, over 90% of teachers rated their CPD experience as highly or somewhat impactful in improving their knowledge, skills and attitudes, classroom practice, and their students' behavior and learning outcomes. Contrary to the survey results, in-depth interviews with 16 teachers revealed that for the most part teachers were not engaged in effective CPD practice. The interview respondents attributed the ineffectiveness of their CPD practice to several factors including: lack of understanding about CPD, inadequate time and resources allocated to CPD, unsupportive leadership, and an absence of proper training required to implement CPD. When teachers were asked about their understanding of CPD practices, it was clear that most of the teachers had misconceptions about the program and level of teacher engagement. For instance, one teacher shared, "CPD is a discussion meeting and includes training or workshops aimed to enhance teachers' knowledge and skills so that they improve education quality." This is a narrow understanding of CPD. Though single-shot trainings and workshops can be useful forms of CPD, they are inadequate to bring change if not intensive and disconnected from practice (Darling-Hammond et al., 2009; OECD, 2015). Another teacher shared a CPD misconception saying, "CPD is more of a political agenda than it is to help teachers improve their capacity to better serve their students. Our CPD meetings were mostly unproductive and involved non-academic conversations that are not of interest to many teachers." This particular view implies that teachers are not considering CPD as genuine educational intervention rather see it as a

means used to politically orient teachers. As a result, teachers lost interest in their current CPD practice. Another teacher responded in a way that represented the similar responses made by other teachers stating,

> CPD was introduced with good intentions, but it failed in the implementation. I feel it was imposed on us without proper consideration of our context such as classroom teaching load, class size, and working conditions. For instance, our class teaching load would not allow us time to engage in effective CPD. Imagine, teaching, assessing, and following-up with over 300 students and then you must attend CPD. There is no adequate and planned time for us to engage in CPD. Teachers are required to stay after school and give up their weekends to engage in CPD activities. Teachers in my school are not happy about this and without it being mandatory to attend no one would want to do it. With confidence, I can say that it failed to deliver its promises of improving teacher's classroom practice and student learning outcomes. To be frank with you, teachers consider CPD as a burden and are unenthusiastic to engage in genuine CPD practice.

This above stated notion was shared by most of the interview participants. From this notion, one could conclude that CPD was a top-down imposed program with no involvement of teachers in the design. It is also clear that CPD was adopted without sufficiently contextualizing to local teacher and school context. Hence, it lost teachers buy-in and ineffectively implemented. Another teacher further shared, "CPD was introduced by the Ministry of Education for teachers, school principals, and supervisors. But, the design of it was not participatory. Teachers were not consulted and rather only told to implement it. So, it didn't address teachers' professional development needs." From this perception, it is clear that the CPD design overlooked teachers' professional development needs and prescribed from the top.

Another teacher similarly stressed the problem that their CPD is not need-based by saying, “We are all required to practice the same CPD activity regardless of our career level and years of service.” One teacher further substantiated this view by stating,

> CPD was imposed on teachers in a top-down approach through a training of trainer model. The school principals participated in a short training about CPD and were asked to replicate it in their respective schools. They were unable to deliver the content of CPD as they didn’t internalize it themselves. Hence, the transfer of knowledge did not occur in relation to the CPD program in our schools since no one has the full understanding about how to effectively put it in practice.

The top-down approach to CPD introduction created a knowledge gap about CPD. The cascading approach failed to create adequate understanding about CPD. The school principals were not adequately trained to roll out CPD program. Thus, teachers lack understanding about effective CPD practices. Supporting this argument, one teacher said,

> Due to lack of understanding about CPD, we do not seriously engage in CPD. We simply chat and count that towards our 60 hours of CPD commitment. How could a teacher be expected to engage in effective CPD practice without adequate knowledge about it?

According to most of the teachers interviewed, CPD was prescribed from the top down without involving teachers in the design. This resulted in lack of understanding about the program and teachers’ professional development needs being not addressed. Hence, it lost teacher buy-in quickly after the introduction. The following reflection summarizes the views expressed by 14 out of 16 interview participants,

> It is now many years since CPD was introduced. In the early years, it was presented to us as a reform aimed to develop teachers. So, at the beginning teachers were highly

> motivated to practice it. As time goes, it became weaker and weaker. The reason why it became weaker was because it lacked ownership. Currently, CPD lacks owner. There is no one tasked with the responsibility to ensure its successful implementation.

This opinion also reveals that CPD was introduced without proper structure in place. There is no responsible body to overlook the effective implementation of the program. As a result, CPD lacks the support structure need to effectively plan, execute, and evaluate CPD activities. The same teacher shared frustration about the value of CPD saying,

> In my view, other than making us busy it is not useful. Now I even feel that this CPD should be stopped as it is not beneficial. The reason is that we invested a lot on it thinking that it has some value for us. For instance, I have a CPD plan and report file that 'a donkey cannot carry'. Truly, all these documents we created were not reviewed and we never received any feedback, and no one was responsible to give direction. Hence, I believe that CPD in its current form has no value. This is just what I think as a teacher. I practiced it for many years, and I have not seen any positive impact because of it.

This view clearly pointed that the lack of leadership support in giving constructive feedbacks impacted teachers' motivation to practice and the effectiveness of their CPD practice. Teachers expressed their frustration to engage in CPD and developed a feeling that made them to question the value of their current CPD practice. Similarly, another teacher expressed lack of leadership support by stating, "The school and district leadership do not contribute enough to facilitate effective CPD practice. For instance, our principal and cluster supervisor do not encourage us in our CPD practice. They only ask for how many hours we spent on CPD." Research indicates that leadership support and involvement in teachers' professional development is key to ensure its effectiveness (Stoll et al., 2012). The leadership need to engage

teachers in the school CPD plan, provide them required resources and constructive feedbacks on their practice. Input oriented CPD impact measurement like reporting on number of CPD hours do not indicate whether teachers learned and changed their practice (Cheetham & Chivers, 2005).

One teacher noted how the attitude of teachers also impacted the effectiveness of CPD. According to this teacher, "In my view, the attitude of teachers towards CPD needs to change if CPD is to be effective. It is obvious that many teachers are not positive towards CPD." This teacher added, "I feel there is a misunderstanding in teachers' thinking that CPD practice should lead to promotion, transfers, and salary increase. Since this was not the case, teachers gradually became reluctant to engage in effective CPD practice." Teachers expectations are based on the CPD framework provision that teachers CPD performance shall be linked to their career progression. Despite the provision in the framework, in practice CPD performance was not linked to teachers' CPD performance. Hence, it became one demotivating factor for teachers. Supporting the view that teachers are reluctant to practice CPD, another teacher shared,

> The current practice is to simply "copy down" what others have done or from your previous work just for reporting purpose. You simply submit a copied CPD plan and report to be documented in your portfolio. For instance, in our school if you check, you could find out that we all have similar CPD plans for the year that are simply copied from each other. Other than submitting copied CPD plans, including myself, we don't plan it genuinely with intention to create something new, or to improve our practice and student results.

The interview findings revealed that CPD implementation was challenged by many factors including: a lack of understanding of CPD, teachers not perceiving that CPD

implementation had relevance to their practice, lack of teacher buy-in, lack of supportive leadership, time limitations , and inadequate resources. It is evident from the interviews that these challenges significantly limited teachers' successful engagement in effective CPD practice. It was also evident from the interviews that the CPD program was introduced without an adequate support structure to build teacher capacity through feedback, mentoring, and coaching. Though CPD was introduced with the aim to increase teacher's capacity and student learning outcomes, most of the teachers believe that it failed to achieve these original goals. Based on the teacher interviews, the leadership lacks knowledge about CPD that limited their ability to support and effectively impart these goals and practices to teachers. To summarize, it is clear from the interview findings that teachers were not successfully engaged in effective CPD practice.

Research Question 2

Clark and Estes' (2008) knowledge, motivation, and organizational (KMO) model will be adapted as a conceptual framework to answer this study question. According to the KMO model, people's knowledge and skills, their motivation, and organizational support are critical factors for successful goal achievement. A focus on one of these factors alone will only capture part of the cause and, eventually, provide only part of the solution. According to Clark and Estes (2008), people's perceptions are important to detecting gaps. And people perception could be gathered by using interviews, surveys, work record reviews, and focus group discussions. Hence, the following sections answers this research question by presenting results and findings for knowledge, motivation, and organizational influences related to BDEO's teachers CPD practice.

Results and Findings for Knowledge Influences

Knowledge of teachers is critical to improving classroom practice and student learning outcomes. Rueda (2011) indicated that many educational problems are caused by stakeholders

learning and knowledge gaps required to perform a task effectively. In this fast-changing world, individuals need knowledge and skills to solve new problems and adapt to changing conditions (Clark & Estes, 2008). In the education setting, regardless of how good pre-service teacher preparation is, it cannot be assumed that it prepares them to overcome future challenges they encounter in their career (Schleicher, 2012). This necessitates teachers to engage themselves in effective continuous professional development. Therefore, the examination of teachers' capacity to engage in effective CPD practice is critical to identify and address the necessary knowledge gaps.

In Chapter 2, this study identified five knowledge influences. In this chapter, the same influences were reorganized into seven knowledge influences. The areas that teachers need knowledge of the national CPD framework, toolkit, and portfolio were organized into three influence categories to facilitate a clear presentation of the findings. The first four influences focus on declarative knowledge about the CPD program. The fifth and sixth influences considers the procedural knowledge about CPD models including the use of observation, reflection, collaborative learning, and action research. The seventh influence focuses on metacognitive knowledge about teacher reflection. This section presents the assumed knowledge causes and whether they were validated or not. Table 9 highlights the six influences that were validated, and the one that was partially validated. Additionally, there was one new knowledge influence that emerged.

Table 9

Knowledge influences validated, partially validated, and new influences

Knowledge Type	Assumed Cause	Validated	Partially Validated	New Emerged
Declarative	Teachers need knowledge of the national CPD framework including the meaning, purpose, nature, and cycle of CPD.	✓		
Declarative	Teachers need knowledge of the CPD toolkit (a module with examples of teachers' CPD activity)	✓		
Declarative	Teachers need knowledge of the meaning, elements, and purpose of the CPD portfolio.	✓		
Declarative	Teachers need to understand the characteristics of effective CPD for them to put into practice	✓		
Declarative	Teachers need to know that they are responsible for their own CPD			✓
Procedural	Teachers need to know how to collaborate with others via observation and reflection to improve their own teaching effectiveness and that of others		✓	
Procedural	Teachers need to know how to engage in conducting action research	✓		
Metacognitive	By reflecting on their learning and teaching, teachers need to be able to identify key needs and engage in planning to meet these needs.	✓		

Based on the type of knowledge classification by Anderson (as cited in Anderson & Krathwohl, 2001), findings have been grouped into: declarative, procedural, and metacognitive knowledge types.

Declarative Knowledge Influences

According to results in Table 9, four assumed declarative knowledge influences were validated, and one new influence emerged. Table 10 shows the percentage of teachers and

validated assumed declarative knowledge influences that were identified, and which instruments were used to validate these influences.

Table 10

Validated Assumed Declarative Knowledge Influences

Knowledge Type	Assumed influence	Instrument	Know	Don't know
Declarative	Teachers need more knowledge of the national CPD framework including the meaning, purpose, nature, and cycle of CPD.	Interview	13%	87%
		Survey	29%	71%
Declarative	Teachers need knowledge of the CPD toolkit (a module with examples of teachers' CPD activity)	Interview	0%	100%
Declarative	Teachers need knowledge of the meaning, elements, and purpose of the CPD portfolio.	Interview	44%	56%
		Survey	71%	29%
		Document review	25%	75%
Declarative	Teachers need to understand the characteristics of effective CPD for them to put into practice	Interview	31%	69%
Declarative (Newly emerged)	Teachers need to know that they are responsible for their own CPD	Interview	0%	100%

The first assumed knowledge influence is that teachers need more knowledge of the national CPD framework including the meaning, purpose, nature, and cycle of CPD. In the national CPD framework, CPD is defined as "anything that makes me [Teacher] a better teacher" (Ministry of Education, 2009a, p. 16). According to this framework, the aim of CPD is to enhance teachers' classroom practice with the ultimate purpose of improving student learning and achievement. The same policy document also laid-out; Analyzing, planning, doing, and

evaluating as CPD cycles. Knowledge about the CPD framework is important to successfully translate the objectives stipulated in CPD framework into practice.

The first assumed declarative knowledge influence identified in this study was validated both through survey and interview questions. The interview question was: "What comes to your mind when you hear the phrase "CPD?" with follow-up probe questions including; "What is CPD?", "What do you know about CPD framework; if at all", "What is the purpose of CPD?", and "Walk me through the CPD cycle". The interview participants could share their understanding of CPD including the meaning, nature and purpose, and cycle of CPD.

Two of the sixteen teachers reported that they know about the CPD framework and accurately described the CPD meaning, nature, purpose, and its cycle. The remaining fourteen teachers reported that they don't know or have limited knowledge about CPD framework. The following quotations taken from the responses of teachers to the above-mentioned questions testify teachers' knowledge about CPD framework. One teacher said, "I have no clear understanding about CPD. We were told that we should engage in CPD without any information on what it is, why we should do, and how we should do it". Echoing this, another teacher mentioned a view expressed by most of those who don't know about CPD framework:

> I have never seen and used CPD framework. I am just learning about the existence of such framework from this interview. So, I have no knowledge about this framework and has been practicing CPD only based on what I heard and saw from other teachers.

These responses indicate that teachers lack knowledge about CPD framework. Teachers were introduced to CPD only through a word of mouth with no structured orientation mechanism. With a similar view on CPD framework, below is an excerpt reported by another teacher:

> We have the CPD framework guideline in our school. The problem is that no one understands it and it simply sits on shelf. We are not referring and applying it as we lack knowledge about it. I haven't personally used for my CPD practice. We have no adequate knowledge about CPD programme itself and only practicing it because we are told to do so. I wish I had knowledge about this framework and practiced my CPD properly.

The teacher's knowledge about CPD framework was triangulated through a survey question. The survey question was: "which of the following areas were the focus of your CPD activities over the last 12 months (list of focus areas including subject matter content, teaching methodologies and strategies, classroom management, life-skills, continuous assessment, CPD framework, action research, and other with a corresponding frequency rating: often, sometimes, rarely, never)?". As shown in the survey results presented in Figure 1, 58 (71%) teachers reported never or rarely experiencing activity related to CPD framework learning. Therefore, the assumed influence that teachers need more knowledge of the national CPD framework was validated.

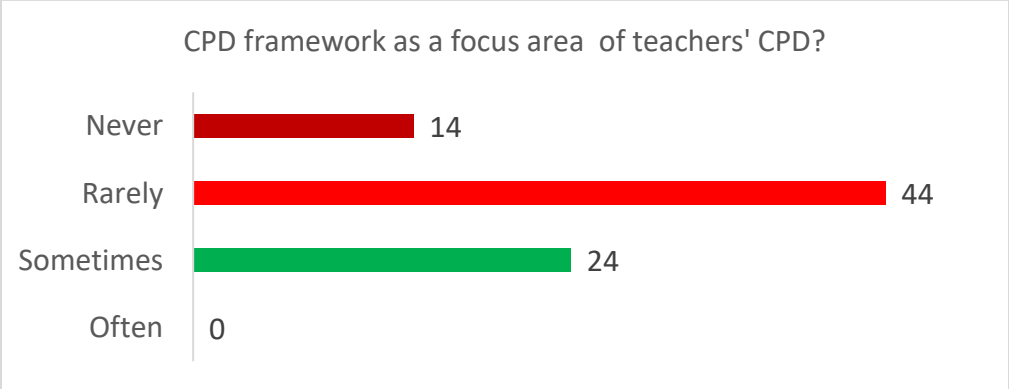

Figure 1. Survey results: CPD framework as a focus area of teachers' CPD.

The second assumed knowledge influence was that teachers need knowledge of the CPD toolkit. The CPD toolkit was a module designed to facilitate the implementation of CPD

framework (Ministry of Education, 2009b). It provides practical examples of CPD needs analysis, planning, undertaking, and evaluation. This document serves as a scaffolding particularly for teachers in early stage of their career to effectively practice CPD.

The second assumed influence that teachers need knowledge of the national CPD toolkit was validated through participant interviews about their knowledge of the CPD toolkit: "Tell me your experience of using the national CPD toolkit?". All the 16 teachers reported that they do not know about examples of CPD practices provided in the CPD toolkit. Several respondents reported absence of the CPD toolkit in their schools. For instance, one teacher mentioned that, "We have no CPD toolkit module and don't use it. I personally don't know about it". In other cases, though there is CPD toolkit it was not used by teachers. For instance, one teacher stated that:

> In my opinion, if we had a CPD toolkit we could have a better understanding of the CPD program, which would make it more likely for teachers to give their attention to. You know, if you ask any teacher in this country about their CPD experience, they do not tell you much as they have limited understanding about it. There is no toolkit or related training to improve teacher's knowledge about the program. We do try practicing CPD with no proper understanding of it, because it is a mandatory requirement for all teachers.

It was clear from the interviews that teachers mostly do not have access to CPD toolkit or provided the kit with no proper training on it. As a result, they lack knowledge about the examples of effective CPD practices provided in the kit. Some teachers with access to CPD toolkit also mentioned limited relevance of the kit to their needs. One teacher said, "the kit is big in size, but mostly filled with poor content. I feel it should have useful content and precise enough for teachers to use." Another teacher shared,

> As we got more teaching experience, our use of CPD toolkit is minimal. This is because, the toolkit is the same for everyone and does not address our needs based on years of teaching experience. So, I am not using the CPD toolkit anymore as there is nothing in there for me. I advise it for the beginning teachers, but not for experienced teachers.

The interview findings indicate that teachers lack knowledge of the examples of effective CPD practices provided in the kit. Lack of access to CPD toolkit, poor content of the kit, and absence of training were mentioned as main factors for teachers' knowledge deficit about this kit. The CPD toolkit is also not differentiated for teachers with varying background and career stage.

The third assumed knowledge influence is that teachers need knowledge of how to implement the professional portfolio into their practice including its meaning, elements, and its' purpose. The professional portfolio is a means to document and present evidence of professional development activities conducted as part of CPD. The professional portfolio content includes; a place to record all professional development activities undertaken, which requires teachers to report and document the CPD's impact on their teaching and learning, new development needs identified, analysis of student performance and steps taken to improve it, evidence of successful performance, and areas for further improvement (Ministry of Education, 2011). The national CPD framework does require all teachers to maintain a portfolio of CPD activities. The purpose of maintaining professional portfolio is to facilitate the plan for CPD activities, to keep records and document CPD activities undertaken, provide evidence of participation in professional learning, and provide evidence of reflection on progress and gaps identified (Ministry of Education, 2009).

The third declarative knowledge influence that teachers need more knowledge of the professional portfolio was validated through participant interviews, survey, and document review. The interview question used to validate this third knowledge influence was: "Tell me what you know about the professional portfolio of CPD?" Nine (56%) of the 16 participants reported having no or limited knowledge about the meaning, elements, and purpose of professional portfolio. These teachers had difficulty fully expressing the professional portfolio's meaning, content, purpose, and its' review process. For example, the following quote from one teacher substantiates that teachers lack adequate knowledge of the professional portfolio: "…I sometime hear colleagues talking about, the portfolio report. However, I do not know the full meaning of professional portfolio. I appreciate if you could tell me a little bit about it for my own understanding". Several other teachers reported having a narrow understanding of professional portfolio. For instance, one of the teachers described the professional portfolio as, "professional portfolio is a file of our CPD plan and report". These views reflect that teachers have limited or no knowledge about professional portfolio's meaning, content, purpose, and its' review process. None of the teachers were able to fully express the content and purpose of maintaining professional portfolio. Similarly, another teacher expressed misconception about professional portfolio as,

> I am not quite clear about the meaning and purpose of professional portfolio. I think it is compiled by departments and not by individual teachers. As I haven't maintained it myself, I don't know the process of keeping it and what goes into it.

The preceding quote from one of the teachers indicate that some teachers were not maintaining their own professional portfolio. Teachers also indicated lack of knowledge as

reason for not maintaining it. Supporting this, another teacher further explained the absence of clear guideline of how to prepare a professional portfolio.

> We have no clear guidelines on how to prepare a portfolio. The provisions in the CPD framework are vague to understand and put into practice. So, it is not fair to expect teachers to maintain quality professional portfolio without having relevant knowledge and skills about it.

As per the framework, individual teachers' professional portfolio content needs to be reviewed and feedback provided. Contrary to this, one teacher mentioned that "I never received feedback on my professional portfolio. Nobody monitors it and we usually submit the CPD plan and report just to fulfil the requirement. We do not give much attention to it." Another participant expressed a similar notion by saying, "Our cluster supervisors and principals lack knowledge of how to offer feedback on our professional portfolio. So, there is no capacity to effectively guide teachers in their professional portfolio development." Another teacher shared, "I know little about professional portfolio and I am not actively maintaining it. I only submit my CPD plan and report to be documented in my portfolio. I am not aware about what else I should file in my portfolio." From these responses, it is evident that teachers lack knowledge of maintaining comprehensive professional portfolio as per the CPD framework. Most of the teachers were not documenting their self-reflections, student learning progress, areas for improvement, and professional development activity. Moreover, they were not regularly updating it.

Further, the professional portfolio of interview participants was reviewed. Teachers' professional portfolio was reviewed particularly verifying the content, revision, and feedback process. As per the teachers' professional portfolio document review, 4 of the 16 teachers

documented and updated their CPD plan, activities, self-reflection on progress, and student performance analysis as per the national CPD framework requirement. As shown in Figure 2, the professional portfolio document review revealed that at least 12 of the 16 participants do not maintain professional portfolio that meets the national CPD framework requirements.

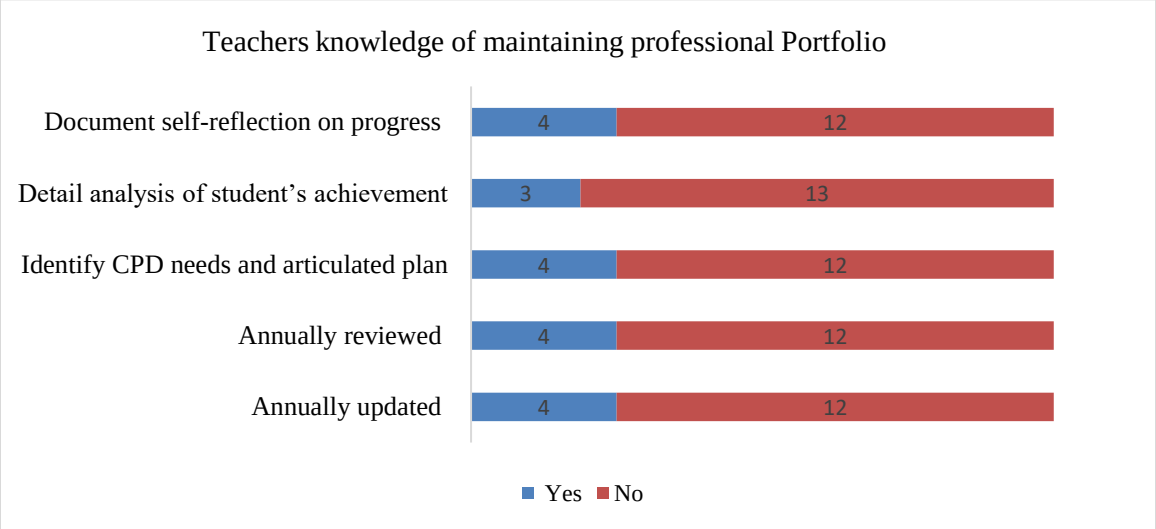

Figure 2. Survey results: Teachers knowledge of maintaining professional portfolio.

The teacher's knowledge about maintaining professional portfolio was also triangulated through a survey question. The survey question was: "Which of the following CPD method have you experienced in your school over the last 12 months (Maintaining professional portfolio: often, sometimes, rarely, never). 71% of the survey respondents reported they often or sometimes experience maintaining a professional portfolio while 29% of the respondents indicated they rarely or never experience maintaining a professional portfolio. Based on the survey result, most of the teachers reported that they experienced maintaining professional portfolio. The survey findings do not coincide with the interview and document review findings. This conflicting finding reflects the shortcomings of survey instrument to have an in-depth understanding of the phenomenon. Like most of the interviewed teachers who indicated only maintaining a CPD plan and report; it is likely that the survey participants were referring to the

same level of partial documentation with no adequate knowledge about CPD portfolio. A gap in teachers' knowledge of maintaining a professional portfolio was validated through the document review and interview findings which showed most teachers do not have the necessary knowledge to maintain a professional portfolio as specified in the CPD framework.

The fourth declarative knowledge cause that was identified is that teachers do not know the characteristics of effective CPD, which was validated through three related interview questions: "In your opinion, what are the characteristics of effective CPD?", "Think of effective CPD experience you have had, what did you find most helpful? and "What makes CPD ineffective?". Based on the national CPD framework and literature review discussed in Chapter 2, characteristics of effective CPD includes: that it is need-based, content focused, incorporates active learning utilizing adult learning theory, supports collaboration, typically in job-embedded contexts, coherence with other policies, uses action research and enquiry as key tools, offers opportunities for feedback and reflections, and of sustained duration. The characteristics of effective CPD mentioned by the study participants were; it is need-based, on-going, evidence-based, collaborative, participatory, has adequate time and resources, proper training, and a feedback mechanism. For instance, one teacher said, "I believe CPD is effective when teachers collaborate, involves the school principal, and is monitored and reviewed by responsible person." Another teacher mentioned, "Characteristics of effective CPD includes that it is given adequate time, attention, resources, and there is a presence of awareness about it. Teacher should be actively engaged in the CPD activities and avoid passively depending on other teachers." Another teacher emphasized the need for teachers and other stakeholders' involvement in the planning. According to this teacher,

> For CPD to be effective, in-depth discussion about it is mandatory and the discussion should be participatory. All stakeholders should actively participate on it. In our school, there is ineffective CPD practice in which school CPD plans and reports are being produced without proper discussion on it. Mostly principals prepare it alone without active teachers' participation.

Collective participation is key to effective CPD practice (Desimone, 2009). School CPD plan and report preparation need to be participatory. For teachers to own the plan, they need to have a say on it through active participation. The actual practice in schools was that school CPD plans are created by principals alone and teachers are only required to drive their individual plan from it. Describing more characteristics of effective CPD, another teacher shared the importance of training:

> In my opinion, before we even create CPD plan, a proper training needs to be provided for teachers, school principals, and supervisors. I also think that teachers and school principals should discuss on the monthly CPD report submitted by each teacher. The current practice is that we only file the report and there is no discussion or feedback on it.

All teachers interviewed except one were able to cite at least one characteristic of effective CPD. One teacher reported: "I have no experience of effective CPD practice and do not know the characteristics of effective CPD." Teachers who were able to mention at least three characteristics of effective CPD were assumed as knowing about the characteristics of effective CPD. The study participants who were able to mention three characteristics of effective CPD and give examples of it were few. Though all teachers except for one were able to mention at least one characteristic of effective CPD, none were able to provide a practical example from their experience and practice. Accordingly, five of the 16 teachers know the characteristics of

effective CPD. Eleven of the 16 teachers do not know or have limited knowledge about the characteristics of effective CPD. Therefore, this assumed declarative knowledge cause is validated.

The fifth knowledge influence that was discovered was whether teachers know that they are responsible for their own CPD. The new declarative knowledge influence that newly emerged in data collection was validated through participant interviews. During the data collection process, the researcher learned that most of the teachers push the responsibility to engage on their own CPD to school and district leadership. In listing the roles and responsibilities of CPD stakeholders, the national CPD framework clearly articulated the roles and responsibilities of key stakeholders including teachers, school principals, cluster supervisors, and government structures from district to national level. The framework indicates that teachers are responsible to engage in their own CPD, work collaboratively with peers, complete at least sixty hours of CPD each year, put CPD into classroom practice, support wider CPD needs of their institutions, and maintain a professional portfolio (Ministry of Education, 2009).

Most of the teachers interviewed blamed the school and district leadership for the ineffective CPD practice in their school. From the interviews, a lack of ownership among teachers and other stakeholders was clear. The teachers reflected views of pushing their CPD responsibilities to other stakeholders. For instance, one of the teachers mentioned views that were also shared by most of the participants, “Our school principal and supervisor were not fulfilling their responsibility of arranging CPD activities for teachers.” Despite the provision in the framework, teachers are pushing the responsibility of identifying and engaging in their own CPD to school leaders. Another teacher reaffirmed, “…it is only teachers who are bearing the

burden of CPD." This quote particularly indicates that teachers are considering their CPD engagement as an obligation rather than their personal responsibility throughout their careers.

Procedural Knowledge Influences

Validated procedural knowledge influences. According to results in Table 11, one assumed procedural knowledge influence was validated**.**

Table 11

Assumed procedural knowledge influence validated

Knowledge type	Assumed Cause	Instrument	Know	Don't know
Procedural	Teachers need to know how to engage in conducting action research	Survey	44%	56%
		Interview	37%	63%
		Document review	39%	61%

The sixth assumed knowledge influence is that teachers need to know how to engage in conducting action research. The concept of teacher as a researcher on their own schools or in their own classrooms has been extensively advocated as a key ingredient for professional development, school-based curriculum development, systems planning, school restructuring, and as an evaluative tool. Overall, the purpose of action research is to improve practices through helping people understand their practices, and the situations under which they practice (Kemmis, McTaggart, & Nixon, 2014). Action research involves spiraling cycles of problem identification, systematic data collection, reflection, analysis, data-driven action taken, and, finally, problem redefinition (Kemmis & McTaggart, 1988).

This assumed procedural knowledge gap is that, teachers do not know how to engage in conducting action research, was validated by the participant interviews, document reviews, and

survey. The interview question: "Tell me what you know about action research?" was used to validate this assumed influence. Several teachers reported that they know the meaning and purpose of action research theoretically from their college study. However, few reported having practical knowledge of conducting action research. One teacher shared, "Even if it lacks rigorous and systematic inquiry, we do conduct action research based on our knowledge from pre-service. There is a capacity gap to conduct critical meaningful action research." Another teacher attested:

> In my understanding action-research is not to simply write a paper, it was supposed to influence our practice and student learning. I think we missed the purpose of doing action research. In my view, we are doing it just to check-off one of the factors in our performance appraisal. That became a common trend and hence action research failed to change our teaching and learning. Every year the action research conducted in our school was on the same topic, because it is simple for teachers to copy from previous years with no additional effort. This problem exists because there is no clear understanding of the purpose and how to conduct action research.

From the above quote, one could conclude that there is a knowledge gap of how to conduct action research. It also implies a top-down approach in which teachers are required to conduct action research as part of their performance appraisal and not based on their interest. In a current practice, all teachers are uniformly required to engage in action research regardless of their qualification and years of experience. For it to be effective, the level of teachers' action research engagement need to be differentiated depending on their capacity, qualification, and years of service. Further, another teacher indicated that their action research lacks systematic data inquiry,

> We commonly conduct action research as a group or department. This action research we conduct is only to meet our performance appraisal. It is not fully inquiry-based. To give you an example, last year we decided to do action research in our department and identified a problem. Due to demanding workload, we were unable to complete data collection. So, we had to interrupt it halfway. Some of us from the group simply wrote the report with incomplete data and submitted it only to get points in our performance appraisal.

This view indicates that teachers were filling the data gap with their own assumptions. Thus, this type of action research could less likely inform teachers classroom practice and student learning outcomes improvement. A similar view was held by another teacher:

> We were attempting to conduct action research only because of the direction from the top. No one has in-depth understanding of action research. We lack practical knowledge and experience. As a result, our action research report lacks quality and was not used to inform our practice.

Overall, 63% of the 16 respondents do not know the meaning, purpose, process, steps, and able to provide examples of action research. They gave incorrect or inadequate responses to the question indicating that they have limited or no knowledge about how to conduct action research. The interview findings for this assumed influence was triangulated through document review. On average, 61% of teachers don't have evidence showing their knowledge of conducting inquiry-oriented action research.

Further, the assumed procedural knowledge that teachers need to know how to engage in conducting action research, was validated through two survey questions: "which of the following CPD method have you experienced in your school over the last year? Action research: Often,

sometimes, rarely, never?" and "which one of the following areas were the focus of your CPD activities over the last 12 months? Conducting action research: Often, sometimes, rarely, never)?." The survey finding validated this assumed influence. As indicated in Figure 3, 46 of the 82 (56%) teachers never or rarely participated in action research as the focus of their CPD activity. The remaining 36 (44%) teachers reported sometimes participating in action research as the focus of their CPD. Therefore, the findings from interviews, document reviews, and survey validate the assumed knowledge influence that teachers need to know how to engage in conducting action research. From the findings, it is clear teachers lack knowledge of how to conduct action research

Procedural knowledge influence partially validated. According to results in Table 12, one assumed procedural knowledge influence was partially validated.

Table 12

Assumed procedural knowledge influences partially validated

Knowledge type	Assumed Cause	Instrument	Know	Don't know
Procedural	Teachers need to know how to collaborate with others via observation and reflection to improve their own teaching effectiveness and that of others.	Interview	75%	25%
		Survey	74%	26%

The seventh assumed knowledge influence is that teachers need to know how to collaborate with others through observation and reflection to improve their own teaching effectiveness and that of others. Professional collaboration is an effective form of CPD with undisputable benefits of improving student achievement, increasing teachers' retention, and successfully facilitating the implementation of change and innovation (Geldenhuys & Oosthuizen, 2015; Hargreaves & O'Connor, 2017). It is also an effective method of professional

development to improve teacher efficacy and student learning (Borko, 2004; Colbert et al., 2008; Desimone, 2011; Little, 2001; Patton et al., 2015). "Collaborative professionalism welcomes rather than fears feedback, critique, and improvement" (Hargreaves & O'Connor, 2017, p. 103). Collaboration in CPD can take many forms. This includes teachers planning lessons together, observing each other, critiquing each other, coaching and mentoring novice teachers, and preparing common assessments (Casale, 2011; Ministry of Education, 2009). Collaborative school culture enables teachers to seek assistance, share best practices, ask questions, and receive feedback from their colleagues. However, not all types of collaboration are useful or appropriate (Hargreaves & O'Connor, 2017).

The assumed procedural knowledge influence that teachers need to know how to collaborate with others through observation and reflection to improve their own teaching effectiveness and that of others, was not validated through the interview and survey findings. The interview question: "What comes to your mind when you think of collaborative learning?" further revealed that 12 of the 16 (75%) of teachers know how to participate in collaborative learning and were able to provide examples. The remaining 4 teachers (25%) gave an incorrect response indicating they did not know how to collaborate with others to improve their own teaching effectiveness and that of others. The following quote from one of the teachers summarizes how teachers collaborate to improve their own teaching effectiveness:

> I used to have a challenge in student handling classroom management. To improve this, I observed the classrooms of senior teachers in our school who used to be known for their good performance in student handling. From those teachers, I learned how to shape students' behavior, manage classroom, prepare lesson plans, and ensure active engagement of students.

This view indicates that teachers know how to collaborate with their peers through observation of classrooms. These teachers were also able to provide examples of how they collaborated with other teachers and how that benefited them. Acknowledging the benefits of collaboration, another teacher explained the experience saying,

> I personally collaborate with other teachers in our teaching and learning process. For instance, though my background is social science, I am expected to teach all subjects to my class including mathematics. I used to have limited mathematics subject knowledge. One of our colleagues is very good in mathematics and I learned a lot from this teacher though observing his teaching and asking him for support.

Though 12 of the 16 teachers know how to collaborate with others and benefited from it, the other four teachers however, claimed the absence of collaboration among teachers. One teacher stated, "...there is a problem of not taking feedback given by colleagues. In the previous school that I served; teachers used to collaborate to the extent of classroom observation. In this school, I have not seen such practice of learning." Another participant reaffirmed,

> for instance, given I am biology graduate; if I ask a teacher for help on a specific topic that I am not clear about, most likely they laugh at me saying how comes you do not know this from your major. So, instead of supporting they discourage you from asking for help.

Similar views such as the statement above were shared by most of the interview participants. However, some of these teachers also expressed that engaging in reflection after a classroom visit was not a common practice. According to one teacher:

> If you want to reflect and give feedback to the teacher observed, you are considered a show-off. This is due to the limited understanding of collaboration and values of

reflection. There is a fear and lack of trust among teachers. As a result, reflection among teachers remains weak.

The assumed procedural knowledge that teachers need to know how to collaborate with others, was measured through two survey questions: “which of the following CPD method have you experienced in your school over the last year? Collaborative learning, visiting schools, visiting teachers, discussion meetings, demonstration lessons, planning lessons together, peer observation, observation of lesson and feedback, observation of students in lesson, shadowing a teacher, team teaching, and mentoring: Often, sometimes, rarely, never?” The survey finding indicates that overall 74% of teachers know how to collaborate with other teachers. Table 13 outlines descriptive statistics of the CPD methods experienced by teachers. Mean score in this dimension range from a mean of 1.40 (SD = 0.718) to a mean of 2.38 (SD = 1.014). Analysis of the data showed that all the 82 survey respondents claimed to have participated in several types of collaborative form of CPD activities. The most used collaborative CPD methods are discussion meetings (92%), observation of lesson and feedback (80%), observation of students in lesson (83%), and mentoring (89%).

Table 13

CPD methods experienced by teachers (%)

	Rating					
Item	Often	Sometimes	Rarely	Never	Mean	SD
Collaborative learning	43%	23%	24%	10%	2.01	1.036
Visiting schools	18%	46%	15%	21%	2.38	1.014
Visiting teachers	35%	41%	18%	5%	1.93	0.858
Discussion meetings	60%	32%	6%	2%	1.51	0.724
Demonstration lessons	35%	21%	23%	21%	2.29	1.160
Planning lessons together	51%	18%	17%	14%	1.93	1.109
Peer observation	22%	49%	18%	11%	2.18	0.904
Observation of lesson and feedback	49%	31%	19%	1%	1.73	0.817
Observation of students in Lesson	66%	17%	13%	4%	1.55	0.863
Shadowing a teacher	43%	28%	18%	11%	1.98	1.030
Team teaching	49%	20%	18%	13%	1.96	1.105
Mentoring	72%	17%	10%	1%	1.40	0.718

Note. Item responses were: 1= often, 2 = Sometimes, 3 = Rarely, 4 = Never

Though most of the teachers shared that they collaborate with others, the type of collaboration that exists among teachers is mostly shallow and informal. From the participant interviews, it was clear that collaboration among teachers was more informal and based on individuals' interest. Though informal collaboration are also important, studies indicate that not all forms of collaborations are impactful (Hargreaves & Fullan, 2012). Though most of the teachers reported knowing how to collaborate with others; their deep understanding of the concept and actual practice is minimal. For instance, as shared by most of the interview

participants, they have limited knowledge of how to reflect with other teachers. Therefore, this assumed procedural knowledge influence was partially validated.

Metacognitive Knowledge Influences

There was one metacognitive knowledge influence assumed in chapter 2. According to the results in Table 14, this assumed metacognitive knowledge influence was validated.

Table 14

Validated assumed metacognitive knowledge influences

Knowledge Type	Assumed Influence	Instrument	Know	Don't know
Metacognitive	By reflecting on their learning and teaching, teachers need to be able to identify key needs and engage in planning to meet these needs.	Interview	0%	100%
		Document review	25%	75%

The eight assumed knowledge influences that teachers need to be able to reflect on their learning and teaching and be able to identify key needs and engage in planning to meet these needs. Teachers need to pay attention to their practice and reflect on it with the objective to continuously improve their practical knowledge and students learning (Villegas-Reimers, 2003). By reflecting on teaching strategies, student learning, and curriculum, a teacher can identify his or her own learning needs and adjust their teaching strategies (Villegas-Reimers, 2003). For these benefits to materialize, a teacher needs to have reflective knowledge and skills (Hargreaves & Fullan, 2012).

The assumed influence, that by reflecting on their learning and teaching, teachers need to be able to identify key needs and engage in planning to meet these needs, was validated through interviews and document review. The interview question asked, "Tell me about the last time you reflected on your learning needs and teaching practice; if at all", was used to validate this influence. In response to this question, one teacher mentioned: "In our school, teachers rarely

self-reflect on their teaching and learning. They lack awareness and capacity to reflect." Another teacher noted a similar perspective: "I do not have experience of reflecting on my teaching and learning by myself. I have no awareness about it, and this is my gap. I create my CPD plan based on the school CPD plan provided by our principal." Most of the interviewed teachers indicated lack of training and education as a factor for why they are not reflective on their learning and teaching. For instance, one teacher said, "Teachers have a weakness in this area [reflecting on their learning and teaching]. Teachers often express their interest to get training, education and experience sharing practice in this area. Otherwise, teachers are not reflective." These views were shared by most of the interviewed teachers.

Overall, none of the 16 interviewed teachers reported having knowledge and experience of reflecting on their learning and teaching practice. The interview findings for this assumed influence were further triangulated through document reviews. Based on the document reviews of interviewed teachers, 75% of teachers had not self-reflected on their teaching and learning progress in their professional portfolio. Therefore, this assumed influence was validated.

Synthesis of Results and Findings for Knowledge Influences

The results and findings from the survey, interviews, and document review revealed that six of the seven assumed influences and one newly emerged influence were validated or partially validated. A total of seven knowledge influences were validated. The validated causes are presented in Table 15.

Table 15

Summary of validated assumed knowledge influences

Knowledge Type	Assumed Cause	Validated	Partially Validated	New Emerged
Declarative	Teachers need more knowledge of the national CPD framework including the meaning, purpose, nature, and cycle of CPD.	✓		
Declarative	Teachers need knowledge of the CPD toolkit (a module with examples of teachers' CPD activity)	✓		
Declarative	Teachers need knowledge of the meaning, elements, and purpose of the CPD portfolio.	✓		
Declarative	Teachers need to understand the characteristics of effective CPD for them to put into practice	✓		
Declarative	Teachers need to know that they are responsible for their own CPD			✓
Procedural	Teachers need to know how to collaborate with others via observation and reflection to improve their own teaching effectiveness and that of others		✓	
Procedural	Teachers need to know how to engage in conducting action research	✓		
Metacognitive	By reflecting on their learning and teaching, teachers need to be able to identify key needs and engage in planning to meet these needs.	✓		

The survey results, interview findings, and document review were triangulated to validate the assumed declarative, procedural, and metacognitive knowledge influences. Triangulation of findings from these different sources revealed that teachers need to have knowledge and skills related to CPD program, collaborative learning strategies, action research, and ability to reflect and engage in effective CPD practices. Most of the respondents reported lacking awareness on

CPD framework, toolkits, and portfolio preparation. Teachers also demonstrated a lack of procedural knowledge about engaging in conducting action research. The findings further showed that teachers lack the metacognitive knowledge to reflect on their learning and teaching.

Though Ethiopia introduced the CPD program with good intentions, the findings of this study indicates that it is a wasted good intention. The findings of this study further revealed that the program introduced in 2009 was poorly implemented and left unmonitored for the last ten years. This reality created a vacuum of knowledge in relation to implementing the CPD program among teachers. As a result, it failed to achieve the original objectives to improve teacher's classroom practice and student learning outcomes. For teachers to engage in effective CPD practice, it requires them to take responsibility for their own CPD and to have knowledge about the CPD program, collaborative learning, action research, and engaging in reflective professional practices. The knowledge and skills gap related to effective CPD practice were mainly caused by organizational influences that will be discussed in this chapter.

Results and Findings for Motivation Influences

There were three assumed motivational influences that negatively impacted the full implementation of CPD. Table 16 presents a summary of both validated and not validated motivational influences.

Table 16

Motivation influences validated, not validated.

Motivation construct	Assumed Influence	Validated	Not Validated	New Influences
Utility Value	Teachers need to see the value of engaging in collaborative learning as a critical component of effective CPD practice and in supporting students in achieving at least basic proficiency.		X	
Utility Value	Teachers need to see the value of engaging in action research as a critical component of effective CPD practice and in supporting students in achieving at least basic proficiency	✓		
Self-efficacy	Teachers need to believe they are capable of effectively engaging in action research	✓		

Several studies indicated that learning achievement and related choices are influenced by two factors: how confident an individual is in his or her ability to succeed and the perceived value of the task (Ambrose et al., 2010; Eccles, 2010). Eccles (2010) further explained four dimensions of task value; referred to as intrinsic value, attainment value, utility value, and cost value, respectively. The findings of this study were categorized into utility value and self-efficacy.

Value

The assumed value influences consisted of two utility values. Table 17 indicates that one assumed utility values was validated, and the other was not.

Table 17

Motivational value influences not validated

Motivation construct	Assumed Influence	Instrument	Results
Utility Value	Teachers need to see the value of engaging in collaborative learning as a critical component of effective CPD practice and in supporting students in achieving at least basic proficiency.	Survey/Interview	On average, over 90% of the survey respondents and 12 of the 16 (75%) interview participants reported that they value engaging in collaborative learning
Utility Value	Teachers need to see the value of engaging in action research as a critical component of effective CPD practice and in supporting students in achieving at least basic proficiency	Survey/Interview	54% of interview participants value engaging in action research. And 69% of teachers conducted action research that didn't lead to deliberate and planned action. And 89% of the survey respondents value engaging in action research

The first assumed motivational influence is that teachers need to see the value of engaging in collaborative learning as a critical component of effective CPD practice to support students in achieving at least basic proficiency. This influence was assessed using interviews and teacher survey. The interview question asked, "Was your collaborative learning experience useful? If yes, in what way do you find it useful?". Twelve of the sixteen interview participants indicated that their collaborative learning experience was useful and substantiated it with real examples. One teacher asserted,

> Collaborative CPD practice for a teacher is like a 'spinal cord' for human being. Could a human being stand firm without a Spinal cord? Without collaborative CPD, a teacher cannot be effective in their teaching. Therefore, I believe that collaborative learning has a

> great value in improving my classroom practice, job satisfaction, relationship, trust and respect with other teachers.

This view indicates that teachers' strongly value collaborative learning. Another teacher expressed a similar view on collaborative learning saying: "I believe collaborative learning is highly important. People have different levels of knowledge and I think teachers will for instance, benefit from exchanging experience on teaching and learning process". A similar belief was noted by another teacher,

> I am hugely benefiting from collaborative learning. For example, my qualification and subject matter expertise is in mathematics, but I teach all subjects including English. I learned a lot about how to teach English by observing a class taught by a qualified English teacher. I believe the value of this collaborative learning is worth my time.

As teachers are mostly required to teach outside their subject major, teachers see the value of collaboratively learning from subject experts. Contrary to the above teachers' positive attitude towards collaborative learning experience, some teachers indicated their dissatisfaction. These teachers expressed that there is no true collaboration among teachers and often very limited collaboration exists only for the purpose of performance evaluation. For instance, one teacher stated, "Collaboration in our school is almost non-existent. When we come together for collaboration, often it becomes a play and joking time. Teachers are not persistently collaborating. Because of this, it lost active teachers' participation and interest". Another teacher shared his views on classroom observation, "Sporadically teachers collaborate in observing each other's classroom. It is like once a year when required by the school. Teachers are not confident and unwilling to be observed. So, there is limited collaboration opportunity." A similar view stated by one of the teachers,

> Our collaboration was not purposively planned. Mostly it is only to meet the requirement of 60 hours of CPD activity. So, I am not doing it with interest. You have interest on something when you know the goal of what you do. For instance, if there was something like teachers who collaborated actively will get promoted or if there was supportive environment; it creates interest in teachers to collaborate. Now there is nothing that encourages us to initiate and we have zero interest to collaborate. If it was not obligatory, no one would want to be engaged in collaborative learning in its current form.

The interview results were triangulated through survey questions asking teachers to rate the impact, effectiveness, and value of their collaborative CPD activities using six survey questions. As shown in Figure 3, in terms of CPD's impact value, over 90% of teachers rated their collaborative learning CPD experience as highly or somewhat impactful in improving their knowledge, skills and attitudes, classroom practice, their students' behavior and learning outcomes.

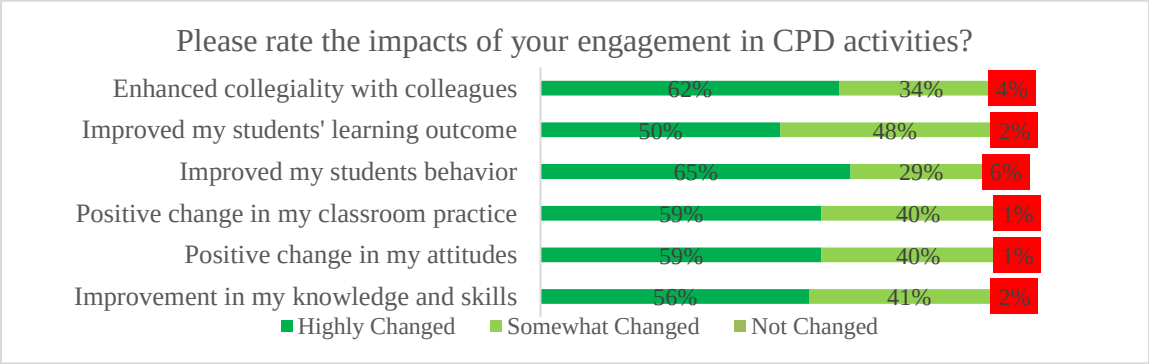

Figure 3. Survey results: Impact of engaging in CPD activities.

Similarly, teachers were asked to rate the effectiveness of their CPD activities in enhancing their professional knowledge, skills, and attitude. As shown in Figure 4, a higher proportion of the survey respondents believe that team teaching (88%), shadowing a teacher (86%), peer observation (89%), planning lesson together (88%), and collaborative learning

(92%) CPD activities were highly effective or somewhat effective in improving their professional knowledge, skills, and attitude.

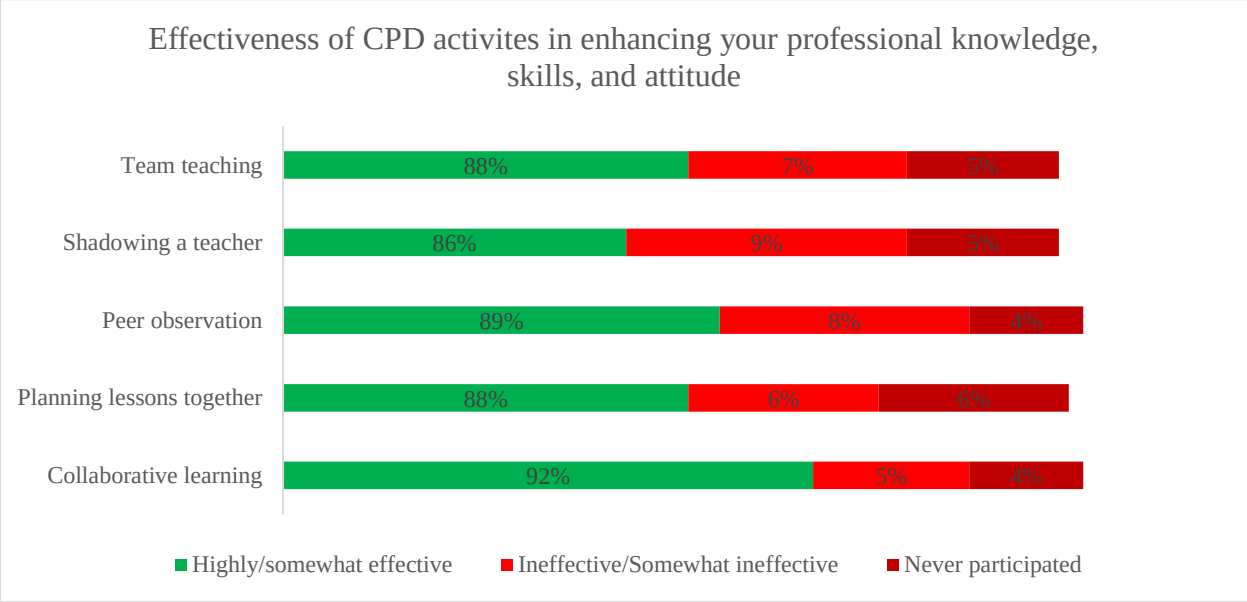

Figure 4. Survey results: Teachers perceived effectiveness of CPD activities.

Further, teachers were asked how strongly they agree or disagree with the following statements: (a) I believe collaborative learning is valuable for me in supporting my students to achieve at least basic reading proficiency, (b) I believe learning through peer collaboration worth my time, (c) Active engagement in collaborative learning enables me to become an expert teacher, (d) For the most part, my CPD experiences have improved my classroom practices. As indicated in Figure 5, on average 88% of the teachers strongly agreed or agreed that collaborative learning was valuable in supporting their students, enhancing their expertise and classroom practices.

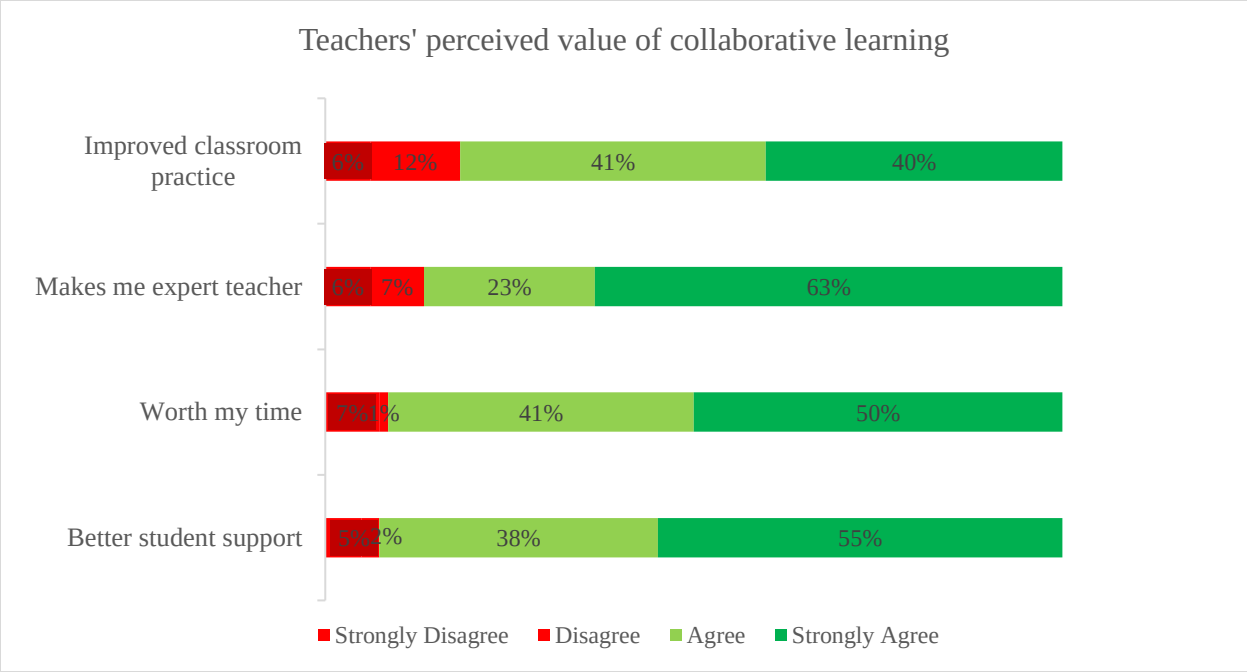

Figure 5. Survey results: Teachers' perceived value of collaborative learning.

The interview and survey findings revealed that most of the teachers' value collaborative learning regardless of its limitations. Teachers expressed that their collaborative learning opportunities is worth their time and improves their classroom practice and student learning. Despite the claims by most of the study participants, some teachers expressed a different view that individualism and teachers working in silo was a common practice in their school. According to these teachers, many teachers lack interest and intermittently collaborate only for obligatory reason. For instance, one teacher said, "teachers are not keen to collaborate. Fear and lack of trust among teachers is forcing everyone to work alone." One other teacher gave a similar opinion saying, "Only new teachers ask for support or observe senior teachers out of their interest. We mostly avoid collaboration if not mandatory. The habit of learning together is yet to be cultivated." According to Hargreaves and O'Connor (2017), obligatory collaborations often happens in the form of conversations rather than action. Hence, there is a need to strengthen collaboration among teachers through effective professional learning communities.

Overall, as most of the teachers value their collaborative learning experience, the assumed influence that teachers need to value collaborative learning was not validated.

The second assumed motivational influence was that teachers need to see the value of engaging in action research as a critical component of effective CPD practice and in supporting students in achieving at least basic proficiency. This influence was validated using interviews, document reviews, and survey. The interview questions used to validate this influence were, "Tell me what you know about action research. Provide a recent example of a time when you conducted action research? How useful was your action research experience?". In response to these questions, one teacher shares his experience as,

> For me action research is a practice-oriented inquiry conducted by practitioners. I enjoy conducting action research. But I wasn't successful in doing quality action research. There were times when we simply select a topic as a group and leave it to few members with a better understanding about action research to write and present for us. And we all get the same credit.

In agreement with the above views, another teacher mentioned the value of action research in finding practical solutions. This teacher said,

> Conducting action research is interesting to me. Action research uncovers the hidden. If I had time, I would like to engage in action research with those who have in-depth knowledge about it. Discovering something that was hidden motivates you. Because the problem you discover through action research will get the right solution.

Contrary to the above views, one of the teachers expressed his view that, "I believe action research has no value. To be honest, our action research participation is not with interest rather it is to get point on our performance appraisal." Similarly, another teacher plainly stated, "In

principle I value action research. But, not the one we are doing. Our action research studies were only for the shelf. Other than making us busy, it didn't help us improve our classroom practice and student learning" Teachers who refuted the benefit of action research, do not see action research as a form of professional development. These teachers need to understand that action research supports the opportunity to collaborate, learn together without predetermined point of view, ability to engage in data driven decision making, and facilitates change. Seven of the thirteen (54%) teachers who were interviewed and had experience of conducting action research indicated that it was a useful experience to address teaching and learning problems through inquiry. Six (46%) teachers indicated that it was not a useful experience. Though over half of the teachers expressed that engaging in action research was valuable in supporting their students to achieve at least basic proficiency; almost half indicated the opposite.

To triangulate the interview findings, the second assumed motivation influence was also verified using survey questions. In one of the survey questionnaires, teachers were asked how strongly they agree or disagree with the statement: "I believe engaging in action research is valuable for me in supporting my students to achieve at least basic proficiency." As depicted in Figure 6, among 82 survey participants 73 (89%) teachers strongly agreed or agreed that engaging in action research is valuable to support their students to achieve at least basic proficiency.

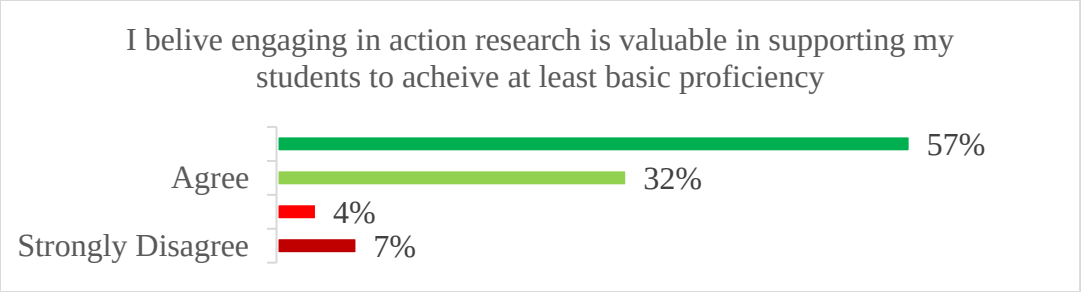

Figure 6. Survey results: Teachers who value engaging in action research.

Though the survey results showed a higher percentage of teachers perceived a significant value of engaging in action research, the participant interviews revealed that a significant percentage of teachers don't value their action research experience. Further, from the document review findings about 69% of teachers were not engaged in action research that lead to deliberate and planned action. Regardless of a higher perceived motivational value in survey results, the document review and interviews findings indicate that many teachers do not value or engage in action research. Therefore, this assumed influence is validated.

Self-Efficacy

As indicated in Table 18, the assumed motivational influence in relation to self-efficacy found that teachers are not confident in their capability to effectively engage in action research was validated.

Table 18

Motivational Self-efficacy influence validated

Motivation Construct	Assumed Influence	Instrument	Results
Self-efficacy	Teachers need to believe they are capable of effectively engaging in action research	Survey	79% of the survey respondents reported that they do not feel confident in their capability to effectively engage in action research
		Interview	14 of 16 (87%) of the interview participants reported that they do not feel confident in their capability to effectively engage in action research

The assumed motivational self-efficacy influence is that teachers need to believe they are capable of effectively engaging in action research, which was validated based on the interview findings and survey results. The interview question: "Can you describe how confident you are about your ability to conduct action research?" was used to validate this influence. In response to this question, most of the teachers reported that they are not confident in their ability to conduct action research. For instance, one teacher described,

> To speak the truth, I have never conducted action research by myself. We are usually assigned to conduct action research in a group. In a group, some teachers are capable to conduct research and the rest of us learn from them. Personally, I am not yet confident in my ability to conduct action research by myself. We lack proper training on it.

As teacher lack confidence to conduct action research, social loafing is a common trend. That means teachers exert less effort to actively participate in a group action research, and only few with the confidence to conduct action research take in charge. Another teacher shared a similar perspective of lacking capacity to conduct action research. This teacher explained,

> In college, we learned about action research from someone one with practical experience. After college, there was no opportunity to improve our capacity on action research. We have a capacity gap to conduct action research. I am not confident in my ability to fully undertake action research. But I must do it as it is part of our performance evaluation.

Fourteen of the sixteen (87%) interview respondents indicated that they do not feel confident in their ability to conduct action research. To triangulate the interview findings, this assumed self-efficacy influence was also verified using survey. In the survey, teachers were asked how strongly they agree or disagree with the statement: "I am confident in my ability to conduct action research." As shown in Figure 7, among teachers surveyed 79% strongly disagreed or disagreed indicating that they do not feel confident in their ability to conduct action research. The survey results supported the interview findings. Therefore, this assumed self-efficacy influence was validated.

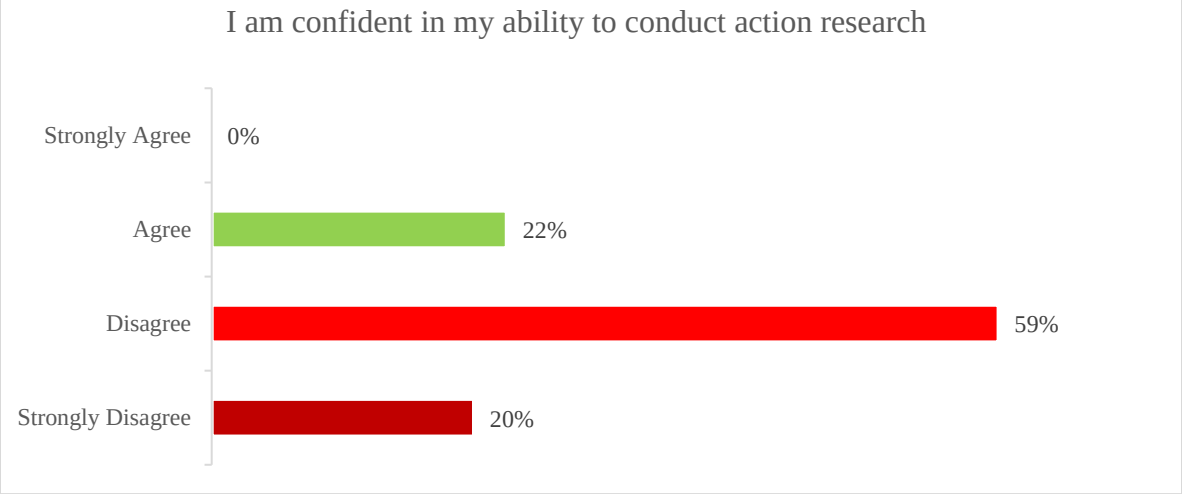

Figure 7. Survey results: Confident in ability to conduct action research.

Synthesis of Results and Findings for Motivation Influences

The results and findings indicated that two of the three assumed motivational influences were validated. The validated influences are illustrated in Table 19.

Table 19

Motivational influences validated

Motivation construct	Assumed Influence	Validated
Utility Value	Teachers need to see the value of engaging in action research as a critical component of effective CPD practice and in supporting students in achieving at least basic proficiency	✓
Self-efficacy	Teachers need to believe they are capable of effectively engaging in action research.	✓

Detailed analysis of the interview findings and document reviews revealed that several teachers do not see the value of engaging in action research and most teachers expressed that they neither see the value nor feel confident to effectively engage in action research. Several respondents indicated that they have limited understanding about action research and do not feel confident in their ability to conduct action research on their own. Mostly teachers used to be assigned to conduct action research as a group. In a group setting, only a few teachers had the ability to engage themselves in the actual action research process. Yet, everyone counts it towards their 60 hours of CPD and gets equal points on it regardless of their level of contribution.

The study findings are consistent with prior studies regarding using action research as an effective professional development tool. In their early career, it is common that teachers lack confidence to conduct their own action research (Zepeda, 2008). According to Zepeda (2008) it is a misunderstanding to use action research as a measuring tools for teacher evaluation instead of it being a professional development tool. From the interview findings, this misunderstanding prevails in this study of targeted schools.

Results and Findings for Organizational Assumed Influences

There were 4 assumed organizational influences identified in chapter 2. Three of these assumed organizational influences were validated. And one was partially validated. The assumed influences have been categorized into collaborative culture, supportive leadership, resources, and professional development. Table 20 summarized these results.

Table 20

Organizational influences validated and partially validated

Organizational Influence Category	Assumed Influence	Validated	Partially Validated
Collaborative Learning Culture	The school needs to cultivate and embrace a culture of collaborative learning.		✓
Supportive leadership	The school and district leadership need to be supportive of teachers' engagement in action research and collaborative learning as examples of CPD.	✓	
Resources	The district needs to allocate adequate resource and provide sufficient time to facilitate and encourage teachers to be engaged in action research and collaborative learning.	✓	
Professional development	The district needs to provide appropriate training in the area of collaborative learning and action research.	✓	

Collaborative Learning Culture Influence

As shown in Table 21, collaborative learning culture influence was partially validated. As this influence was only validated through interviews and is considered partially validated.

Table 21

Partially validates collaborative learning culture

Type	Assumed	Instrument	Results

	Influence		
Collaborative learning culture	The school needs to cultivate and embrace a culture of collaborative learning	Interview	11 of the 16 (69%) teachers who participated in the interview indicated absence of strong collaborative learning culture
		Survey	79% of the survey respondents strongly agreed or agreed that their school encourages and have a strong collaborative learning culture

Over the last two decades, education systems have become more familiar about the need to move from a culture of individualism to a culture of collaboration (Hargreaves & O'Connor, 2017). However, it is common to see a move towards the wrong type of collaboration. Effective collaboration involves quality data and good decision-making, open and respectful professional discourse, more considerate feedback, more collective responsibility for each other's results, and more bold engagement with clear visions of education that will support individuals to become change architects for themselves and others (Hargreaves & O'Connor, 2017).

The first organizational influence that the school needs to cultivate and embrace culture of collaborative learning, was verified through interview and survey findings. The interview question, "What comes to your mind when you think of collaborative learning?" and a related probe question was used to validate this influence. One teacher shared, "We spend most of our time in classrooms. I teach five sections with up to 70 students per section. So, where is the time for collaboration?" According to one of the teachers: "Collaborative learning is educating each other in topics relevant to our teaching. For example, I could train teachers in the area of my expertise and likewise learn from colleagues. However, a collaborative learning culture in our school is too weak." Another teacher with a similar view said, "There is no such thing as

organized culture of collaborative learning in our school. There were only some individual efforts of collaborative learning. Collaborative learning as a culture of the school does not exist." The following quote from another teacher further substantiates lack of collaborative learning culture in study schools:

> In our school, the collaborative learning culture is not that common; it is weak. It is weak because of lack of awareness and time. We teach in the morning and afternoon shifts. And on Saturday morning, we provide tutorial class for our students. So, there is no time for collaborative learning and therefore has remained weak.

According to the interview findings, teachers' workload was one factor for weak collaborative learning culture. Though teachers value collaborative learning, there is no sufficient time for teachers to collaborate. Another teacher shared the ineffectiveness of top-down and imposed collaborative school culture saying,

> Collaboration in our school is at times imposed on us to railroad political agenda through teachers. To give you an example, there was a 1:5 network introduced by the government. In this model, five teachers are grouped and regularly meet to discuss and share information. Though the programs intent was to promote learning and best practices among the faculty, the discussion agendas were mostly with a political motive. Hence, it failed to create collaborative school culture.

According to the interviews, the formal teacher collaboration mechanisms introduced by the government was exploitive. Another teacher explained, "Collaborative learning in our school is overly limited to informal and superficial talks with no exchange of innovative ideas and materials. The formal ones were mostly top-down and don't have teacher buy-in." When collaborative school culture is widely informal it can become weak and fuzzy. Equally, if there

is no attention to the informal collaborative school culture, collaboration can become inconvenient, fake, and even exploitive (Hargreaves & Fullan, 2012). Eleven of the 16 interviewed teachers reported absence of strong collaborative learning culture in their school.

The collaborative learning culture influence was also assessed through a teacher survey. As presented in Figure 8, the teachers surveyed asked to rate how strong they agree or disagree with two statements: “The culture of our school encourages collaborative learning” and “We have a strong collaborative learning culture at our school”. According to the survey result, 79% of the teachers strongly agreed or agreed that their school encourages and has a strong collaborative learning culture.

The interview findings and survey results do not support each other. Though, this assumed culture of collaborative learning influence was not validated through survey, the interviews clearly validated it. Although the results of the survey indicated that teachers felt that there was collaborative learning culture, the findings from interviews indicated that there is limited culture of collaborative learning. This may be one constraint of a survey because the surveys were conducted using ratings on scales. In the interviews, teachers more fully and validly expressed their views due to clarifying questions and probes used by the researcher. Therefore, it is concluded that the views of the interview participants indicate that there is no strong culture of collaborative learning in their schools. Therefore, this assumed culture of collaborative learning influence is partially validated.

Supportive Leadership Influences

As shown in Table 22, one organizational influence was validated for supportive leadership.

Table 22

Validated supportive leadership assumed influence

Type	Assumed Influence	Instrument	Results
Supportive leadership	The district and school leadership need to be supportive of teachers' engagement in action research and collaborative learning as examples of CPD	Interview	Most of the 16 interviewed teachers (13 for school leadership and 15 for district leadership) mentioned that their school and district leadership were not supportive in their action research engagement and collaborative learning as examples of CPD.
		Survey	68% and 73% of the survey respondents strongly disagreed or disagreed that they have support in their action research engagement from school principal and district cluster supervisor; respectively.

Leadership plays a crucial role in supporting teachers in becoming collaborative professionals and action researchers by helping to create different steps of implementation. Leaders can enhance collaborative learning culture by developing trust and building relationships. The leadership can also support teachers in their action research engagement. These supports include helping teachers to identify the purpose of the research and recommend ways the project will improve student learning achievements through the following steps: selecting primary and secondary sources that the teachers will research, developing a schedule, defining the project scope, assisting in study and analysis of materials for the project, and

interpreting and acting upon the findings. Leaders can be effective in their support of successful action research by collaborating with teachers on the various steps. For instance, the leader could facilitate reflection with the aim to help guide the teacher to a manageable action research project.

The second organizational assumed influence identified is that the school leadership needs to be supportive of teachers' engagement in action research and collaborative learning as an example of CPD and was validated through survey and interviews. The interview questions, "Is there anything more that you would like to share about teachers CPD practice in Ethiopia?" and probe: "how supportive is the school and district leadership in your action research and collaborative learning practice?" were used to validate this influence. A view shared by many teachers was shared by one teacher who mentioned, "Our CPD activities became ineffective. The reason is that it has no owner. Our CPD is now like a 'child with no father'. There is no leadership with capacity to provide support to teachers in their CPD activities." Another teacher further explained, "…. there is no capable leadership to give direction on CPD activities. The leadership lacks knowledge and skill to support teachers' CPD activities". This notion was also shared by another teacher, "Collaborative learning is not common in our school. The main reason is that there is no leadership support. Also, leaders barely allocate time, material and financial resource for teachers to collaborate and conduct action research."

Another teacher indicated that the leadership support is only on paper as provided in CPD framework. This teacher shared,

> If leadership support was provided as per the policy provision, CPD could have been effective. However, it was not implemented as provided in the policy. CPD has ownership problem. When leadership is asked for support, their response is usually 'I

> don't know. Due to lack of proper training, the leadership lacks capacity to provide ongoing feedback and support.

In support of the lack of leadership support, another teacher argued that school principals and cluster supervisors discourage rather than support the teachers. This teacher stated,

> our principal and school supervisor care only about checking the box about the type and number of hours of CPD we were engaged in. They do not care about the impact of the CPD we are doing. Often, principal and supervisors evaluate our CPD simply to criticize us instead of providing us support. They only need data about number of CPD participants and hours to report to the district education office. As a result, teachers' commitment towards CPD is now significantly low.

Almost all teachers indicated absence of district leadership and cluster supervisor support to their CPD activities. The following quote from one teacher was shared by most of the interview respondents:

> We don't have full understanding about action research and CPD in general. I think addressing this awareness issue shouldn't be left to school principals and teachers. I believe that we could improve the current practice, if district leadership and other concerned actors provide us the necessary support in this area.

The interview findings about assumed school and district leadership support influence were triangulated through survey questions. In the survey teachers were asked to rate how strong they agree or disagree that their school principal was supportive in their action research engagement and collaborative learning among teachers. The survey result revealed that on average 68% of teachers strongly disagreed or disagreed that their school principal was supportive in their action research engagement and collaborative learning.

Similarly, teachers were asked to rate how strong they believe that their cluster supervisor was supportive in their action research engagement. As depicted in Figure 8, the majority (73%) of teachers reported that they strongly disagree or disagree that the cluster supervisor was supportive.

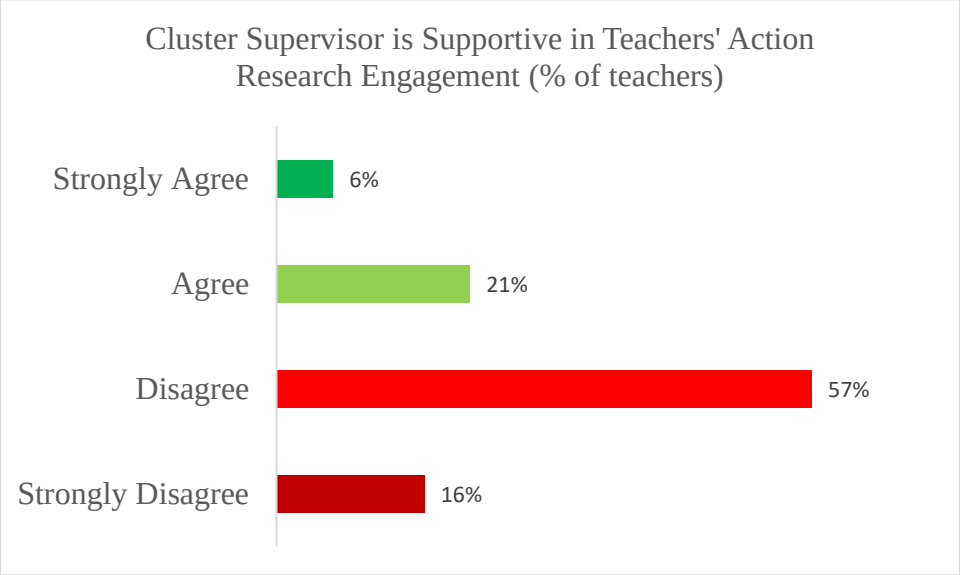

Figure 8. Survey results: Supportive district leadership/cluster supervisor.

To summarize, most of the teachers mentioned that their school and district leadership were not supportive in their action research engagement and collaborative learning. From the interview findings, it was found that leaders lack the necessary knowledge of CPD to provide appropriate support for teachers. The study participants also indicate that the leadership fails to allocate the necessary resources for CPD program. These findings indicate that the district and school leadership do not do enough to ensure effective implementation of CPD program. There is inadequate participation of school principals and district leadership in teachers' CPD activities. Therefore, both survey results and interview findings revealed that there is a lack of school and district leadership support in teachers' action research engagement and collaborative learning. Therefore, this assumed organizational influence of supportive leadership is validated.

Resource Influences

As indicated in Table 23 below, one organizational influence was validated.

Table 23

Validated assumed resource influences

Type	Assumed Influence	Instrument	Results
Resources	The district needs to allocate adequate resources and provide sufficient time to facilitate and encourage teachers to be engaged in action research and collaborative learning.	Interview	14 of the 16 teachers indicated that their schools do not provide adequate time to participate in their CPD activities including collaborative learning and action research
		Survey	93% and 100% of the survey respondents strongly disagreed or disagreed that their schools provide enough time to participate in collaborative learning and action research; respectively. Moreover, 78% and 80% of the survey respondents strongly disagreed or disagreed that their district allocates adequate resources to facilitate teachers' active engagement in action research and collaborative learning; respectively.
		Document review	69% of the 16 teachers whose document reviewed had no CPD resources including the framework, toolkit, portfolio purpose document, and CPD modules.

The third organization influence finding is that the district needs to allocate adequate resources and provide sufficient time to facilitate and encourage teachers to be engaged in action

research and collaborative learning, which was validated through three sources including: interviews, survey, and document reviews. Fourteen of the 16 interviewed teachers revealed that their schools do not allocate adequate time to CPD activities. For instance, one teacher shared, "There is no time allocated for CPD activities and teachers are expected to use their after-school time for their CPD. Most teachers are reluctant to stay after school and are not willing to do it over weekends." The CPD framework suggests that CPD activities occur during 'CPD Days' in which students would not be present and teachers would focus on planned CPD activities. Despite the policy provision, there is no planned time for teachers to do CPD. The following quotation taken from one of the teachers, reflects views held by most of the teachers,

> I feel shortage of time is the main cause for ineffective CPD activities in our school. If adequate time was given to CPD, we could have effectively practiced it. For me, time is the biggest setback in my CPD engagement. During school hours, we are busy teaching. After school, we have our own personal life and family. I very much wish that we were given adequate time to engage in our CPD.

Several teachers mentioned time as one of the main challenges to their effective CPD practice. Another teacher reaffirmed,

> Shortage of time remained a bottleneck to effective CPD practice. In our context, we have a workload. We teach in a double shift system. If it was one shift, we could have enough time for CPD practice. Currently, we are using our weekends to engage on collaborative CPD. This conflicts with individual teachers also scheduling tutorial class over the weekends. It would be more fruitful if there is a regular weekly schedule like every Friday afternoon dedicated to CPD engagement.

Further, the interviews revealed the lack of adequate budgets, materials, CPD modules and guidelines as bottlenecks to teachers' CPD practice. For instance, one teacher explained:

> There are some factors that made us not to achieve our target in CPD. One of these factors was lack of teaching aids and other materials required to practice CPD. There are no support materials from the district or other actors. For instance, we don't get basic items like paper and other supplies to work on. We buy such things out of our pocket.

In a context where teacher salary is already very low, it is unrealistic to expect teachers buying materials themselves for effective CPD practices. Another teacher stated, "In school resource allocation, CPD is not a priority. It is up to individual teachers to practice within their means. In my experience, as there is no CPD earmarked budget provided by the district, it is poorly implemented."

The interview findings were triangulated through survey and document reviews. As shown in Figure 9, the survey results indicate that in all cases most of the teachers strongly disagreed or disagreed that there is sufficient time and adequate resources allocated for teachers to engage in action research and facilitate collaborative learning among teachers.

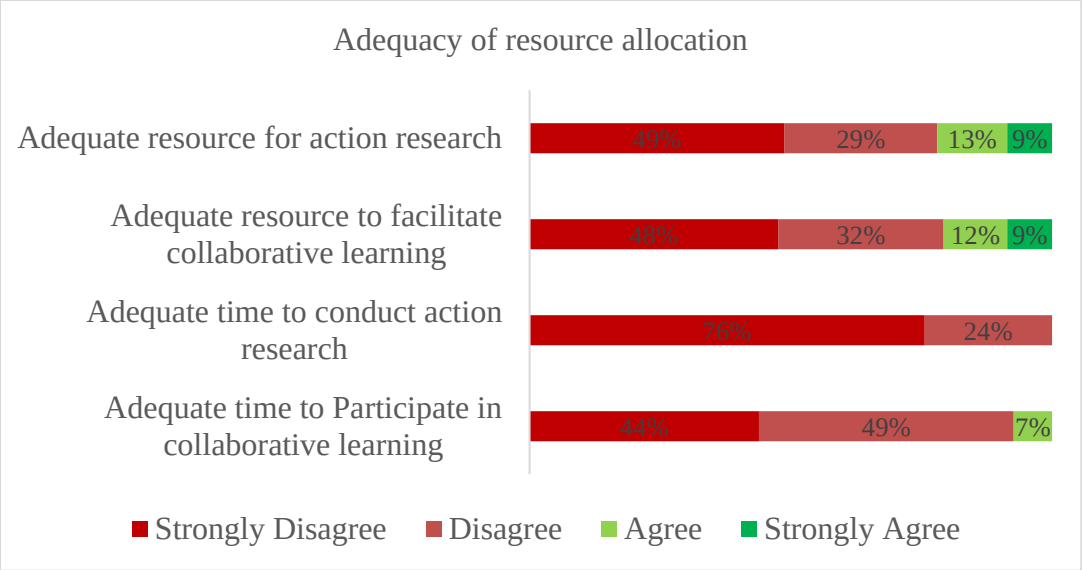

Figure 9. Survey results: Adequate resource allocated, and Sufficient time provided.

The survey results and interview findings about the assumed influence was that the district needs to allocate adequate resources to facilitate and encourage teachers to be engaged in action research and collaborative learning. The need for more adequate resources and time allocated for CPD activities was further substantiated by the document review. The document review finding revealed that 11 (69%) of the 16 teachers whose document reviewed had no CPD resources including the framework, toolkit, portfolio purpose document, and CPD modules. The interview findings, survey results, and document review analysis revealed that the district and schools do not allocate adequate time and resources for teachers to participate in CPD practice including action research engagement and collaborative learning. Therefore, the assumed organizational influence is that the district needs to allocate adequate resources and provide sufficient time to facilitate and encourage teachers to be engaged in action research and collaborative learning is validated.

Professional Development Influences

As shown in Table 24, one professional development influence was validated.

Table 24

Validated assumed professional development influence

Type	Assumed Influence	Instrument	Results
Professional development	The district needs to provide appropriate training in the area of collaborative learning and action research	Interview	15 of the 16 interviewed teachers indicated that they did not receive appropriate training on action research and collaborative learning.
		Survey	a. 77% of the survey respondents strongly disagreed or disagreed that they received need-based training. b. 91% of the survey respondents strongly disagreed or disagreed that their school provides on-going CPD opportunity c. 94% of the survey respondents strongly disagreed or disagreed that their school provides sustained CPD opportunity.

The fourth organizational influence that was validated through interview and survey responses is that the district needs to provide appropriate training in the area of collaborative learning and action research. Two interview questions: "Is there anything more that you would like to share about teachers CPD practice in Ethiopia?" and "What makes CPD ineffective?" were used to validate this organizational influence. In response to these questions, all interviewed teachers except one indicated a lack of proper professional development as one of their challenges to actively engage in their CPD activities. One teacher clearly explained this saying,

> As per the national policy, the aim of CPD is to improve our professional capacity. At this moment, we have no interest in CPD as we were not able to see the benefits of it. In

> my view, the main problem is that teachers' lack understanding of the CPD program. For instance, no one has a clear understanding about action research. In our school, there was no training, proper follow-up, or feedback mechanism to improve teachers' CPD practice. These gaps need to be addressed for it to be effective.

This view implies that the absence of training and on job coaching was one the challenges for teachers to successfully engage in effective CPD practices. No proper awareness on CPD was created among teachers. Furthering this notion, another teacher shared,

> there is no CPD understanding among teachers. Five years ago, some of us participated in a CPD workshop that covered collaborative learning and action research topics. Other than that one-time training, I have not seen ongoing training and technical support on CPD. To make CPD effective, ongoing awareness needs to be created through appropriate training by a qualified trainer and clear manuals and guidelines need to be produced and provided to all teachers.

The interview findings for the assumed professional development influence was triangulated through the survey. In the survey teachers were asked to rate how significant they agree or disagree that they received need-based, on-going, and sustained CPD training opportunities. Figure 10 shows that most of the teachers did not receive need-based (77%), on-going (91%), and sustained (94%) CPD opportunities.

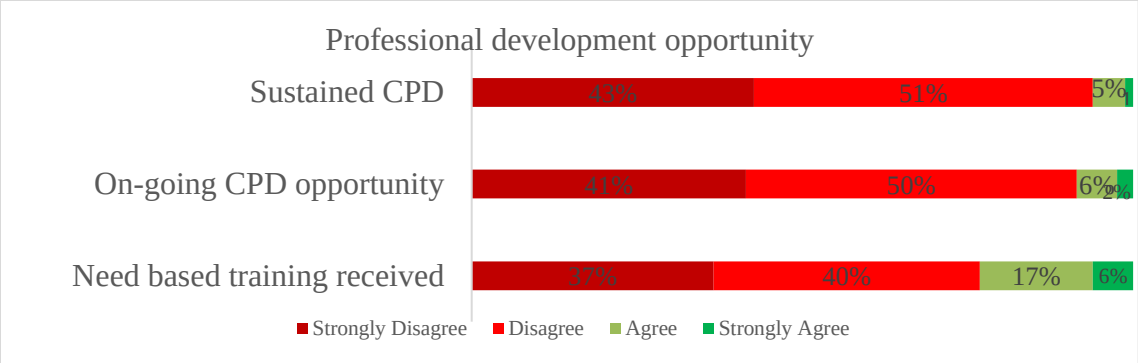

Figure 10. Survey results: Received professional development opportunity.

Knowledge and skills are fundamental to work performance. Equipping people with the necessary skills does require a provision of appropriate information, training, and education (Clark & Estes, 2008). The training provided should be intensive, ongoing, and connected to practice (Stoll et al., 2012). Based on the interview and survey findings, most of the teachers indicated that they were not given ongoing and sustained training opportunity on collaborative learning and action research. Some teachers indicated receiving a one-time workshop which researchers indicated is ineffective to influence teachers practices and student learning (Darling-Hammond et al., 2009). Therefore, this assumed organizational influence that the district needs to provide appropriate training in the area of collaborative learning and action research is validated.

Synthesis of Organizational Results and Findings

The results and findings from the survey, interviews, and document review revealed that 3 of the 4 assumed influences were fully validated. And one organizational influence was partially validated. The validated influences are presented in Table 25.

Table 25

Summary of validated and partially validated assumed influences

Organizational influence category	Assumed Influence	Validated	Partially Validated
Collaborative Culture	The school needs to cultivate and embrace a culture of collaborative learning		✓
Supportive leadership	The school and district leadership need to be supportive of teachers' engagement in action research and collaborative learning as examples of CPD	✓	
Resources	The district needs to allocate adequate resources and provide sufficient time to facilitate and encourage teachers to be engaged in action research and collaborative learning.	✓	
Professional development	The district needs to provide appropriate training in the area of collaborative learning and action research.	✓	

No matter how motivated, knowledgeable, and skillful individuals may be, inadequate materials and processes can fail them to achieve their performance goals (Clark & Estes, 2008). In this study, organizational influences including; collaborative culture, supportive leadership, resources, and professional development were examined. The survey results, interview findings, and document review were triangulated to validate these organizational influences. Triangulation of findings from these different sources revealed that although there is some practice of collaborative learning among teachers, it is not strong and does not exist as a part of the organizational culture. The findings suggest that the leadership is unsupportive mainly due to their own limited knowledge about CPD. The study participants also reported shortage of time, lack of adequate resources, and absence of intensive training opportunity on CPD as a critical challenge to their CPD engagement.

Conclusion

The survey results, interviews, and document review findings were triangulated to validate the assumed KMO influences identified in chapter 2. Though in most cases, the survey results supports the interviews and document review findings, for some knowledge and motivation influences they do not support each other. This may be one constraint of a survey because the surveys were conducted using ratings on scales. In the interviews, teachers more fully and validly expressed their views due to clarifying questions and probes used by the researcher.

Overwhelmingly, the study validated all the knowledge, motivation, and organizational needs identified; except one. The assumed motivation influence that teachers need to see the value of engaging in collaborative learning was not validated. The study found that the major challenges to teachers' effective CPD engagement related to organizational influences. The study findings also revealed that teachers lack declarative knowledge of the national CPD framework, toolkits, portfolio preparation, and characteristics of effective CPD. Though the Ethiopian government introduced CPD with good intention, the study revealed that the program has been under implementation without stakeholder's adequate knowledge about it. As shared by most of the study participants, CPD was imposed on teachers without creating adequate understanding of the purpose and know-how of the program. As a result, there was narrow understanding and misconception about CPD among teachers. For instance, teachers reported having limited knowledge and expertise on collaborative learning through observation, reflection, and action research. Similarly, several respondents indicated that they have limited understanding about professional inquiry and do not feel confident in their ability to conduct action research. Due to this limited understanding and low self-efficacy about CPD, many teachers developed the feeling

that CPD is only to make them busy and irrelevant to their professionalism. The study findings also revealed organizational gaps including unsupportive leadership, poor professional collaboration, lack of resources, and training opportunities in the area of CPD. The teachers identified absence of ownership as a critical challenge to effectively practice their CPD. In this regard, the study participants perceived that the school principals and cluster supervisors lack competency to provide valuable feedback on their CPD practice. The principals and supervisors usually focus on collecting how many teachers and hours of CPD was practiced regardless of its effectiveness in improving teacher's classroom practice and students learning outcome. Hence, the leadership was unsupportive to ensure effective teachers' CPD engagement. Further, the study suggested that the leadership was not allocating adequate time and resource to facilitate CPD implementation, training, monitoring, and evaluation. Overall, these validated organizational influences were found the main causes for teachers' knowledge and skills deficit and low self-efficacy. Hence, solutions that focused on addressing organizational influences could also solve the knowledge and skills and motivation related factors. Table 26 below summarizes the research questions and the knowledge, motivation, and organizational influences and responses that addressed the research questions of this study.

Table 26

Summary of Validated Knowledge, Motivation, and Organizational Influences and Response to Research Questions

Research Question	Response or Validated KMO influence
Research Question 1: To what extent is BDEO meeting its goal of 100% teachers successfully engaging in effective CPD practice?	Most of the study participants revealed that they were not successfully engaging in effective CPD practice. As an example, a typical view shared by many teachers was that, "Due to lack of understanding about CPD, we do not seriously engage in CPD. We simply chat and count that towards our 60 hours of CPD commitment. How could a teacher be expected to engage in effective CPD practice without adequate knowledge about it?". Similarly, another teacher shared, ""I feel there is a misunderstanding in teachers thinking that CPD practice should lead to promotion, transfers, and salary increase. Being this was not the case; teachers gradually became reluctant to engage in effective CPD practice."
Research Question 2: What are the knowledge, motivation, and organizational challenges for BDEO's teachers to successfully engage in effective CPD practice?	Teachers need knowledge of the national CPD framework including the meaning, purpose, nature, and cycle of CPD. (Declarative Knowledge) Teachers need knowledge of the CPD toolkit (a module with examples of teachers' CPD activity). (Declarative Knowledge) Teachers need knowledge of the meaning, elements, and purpose of portfolio. (Declarative Knowledge) Teachers need to understand the characteristics of effective CPD for them to put into practice. (Declarative Knowledge) Teachers need to know that they are responsible for their own CPD. (Declarative Knowledge) Teachers need to know how to collaborate with others via observation and reflection to improve their own teaching effectiveness and that of others. (Procedural Knowledge) Teachers need to know how to engage in conducting action research. (Procedural Knowledge)

Table 26, continued

Research Question	Response or Validated KMO influence
Research Question 2: What are the knowledge, motivation, and organizational challenges for BDEO's teachers to successfully engage in effective CPD practice?	By reflecting on their learning and teaching, teachers need to be able to identify key needs and engage in planning to meet these needs. (Metacognitive Knowledge) Teachers need to see the value of engaging in action research as a critical component of effective CPD practice and in supporting students in achieving at least basic proficiency. (Value Motivation) Teachers need to believe they are capable of effectively engaging in action research. (Self-efficacy Motivation) The school needs to cultivate and embrace a culture of collaborative learning. (Collaborative Culture Organizational) The school and district leadership need to be supportive of teachers' engagement in action research and collaborative learning as examples of CPD. (Supportive Leadership Organizational) The district needs to allocate adequate resources and provide sufficient time to facilitate and encourage teachers to be engaged in action research and collaborative learning. (Resource Organizational) The district needs to provide appropriate training in the area of collaborative learning and action research. (Professional Development Organizational)

In analyzing the research questions posed and the results and findings of the study, it is evident that BDEO teachers were not successfully engaged in effective CPD practice. Hence, BDEO is not meeting its goal of 100% teachers successfully engaging in effective CPD. This study aimed to better understand the knowledge and skills, motivation, and organizational influences of the teachers in closing the achievement gap for BDEO teachers to improve their classroom practice and student learning outcomes. As presented in Table 26, the critical

challenges for BDEO's teachers to successfully engage in effective CPD practice includes deficiency of declarative, procedural, and metacognitive knowledge as well as a lack of supportive leadership, time, resources, and training. Additionally, low individual and collective teachers' self-efficacy and absence of collaborative school culture were key impediments. Among the KMO challenges, organizational influences including absence of collaborative culture, unsupportive leadership, lack of resources, and professional development opportunities were the main causes for teachers' ineffective CPD engagement. An in-depth discussion and literature review will be presented in Chapter 5, and research-based solutions will be developed for priority validated influences as an answer to research question 3, **"**What are the potential knowledge, motivation, and organization solutions to enable all BDEO's teachers to be actively engaged in effective CPD practice?" Chapter 5 will also present the implementation and evaluation plan of the proposed solutions.

CHAPTER FIVE: SOLUTIONS, IMPLEMENTATION, AND EVALUATION

The purpose of this chapter is to propose solutions for the validated knowledge, motivation, and organizational influences presented in Chapter 4. The Clark and Estes (2008) KMO Model was used to evaluate the extent to which BDEO is meeting its goal of 100% teachers successfully engaging in effective CPD practice. This study identified and then validated assumed knowledge, motivation, and organizational influences, as shown in Table 27, that enables teachers' successful engagement in effective CPD practice. These assumed influences were initially identified based on literature on effective CPD practices. The influences were then validated through survey and interviews of teachers and document reviews.

Chapter Five responds to the third research question guiding this study, "What are the potential knowledge, motivation, and organization solutions to enable all BDEO's teachers to be actively engaged in effective CPD practice?" This chapter is organized into four main sections. The first section presents the validated influences with proposed solution. The second section provides solutions based on the validated KMO influences. The third section outlines the implementation plan to execute solutions proposed to address the key validated knowledge, motivation, and organizational needs. The fourth section will present evaluation plan based on Guskey's (2000) five levels of evaluation, which provides direction for implementing the recommended solutions and measuring progress towards targeted results.

Validated Influences and Solutions

Data analysis in Chapter four revealed the assumed knowledge, motivation, and organizational influences that were validated. The validated needs along with its appropriate category is presented in table 27. There is a total of fourteen validated influences: eight validated knowledge influences, two validated motivation influences, and four validated

organization influences. In a full gap analysis solution must address all validated influences, thus proposed solutions were developed for all 14 validated influences. Among the proposed solutions, some are comprehensive in nature to address more than one validated influence.

Table 27

Validated Influences and Proposed Solutions

Influence Category	Validated influence	Solution
Declarative Knowledge	Teachers need more knowledge of the national CPD framework (describing meaning, nature, purpose, and cycle of CPD).	Provide relevant and quality job aids (Clark & Estes, 2008) including CPD framework, toolkit, professional portfolio guideline, professional learning communities (PLC) protocols, and other supplementary CPD materials.
	Teachers need knowledge of the CPD toolkit (a module with examples of teachers' CPD activity)	
	Teachers need knowledge of the meaning, elements, and purpose of CPD portfolio.	
	Teachers need to know that they are responsible for their own CPD.	
	Teachers need to understand the characteristics of effective CPD for them to put into practice	Provide hands-on training and coaching related to effective CPD practices including collaborative, reflective, and professional enquiry-based learning. (Clark & Estes, 2008; Darling-Hammond et al., 2009)
Procedural Knowledge	Teachers need to know how to collaborate with others via observation and reflection to improve their own teaching effectiveness and that of others.	Observing or use of Models and Modeling (Darling-Hammond et al., 2017; Pajares, 2010)
	Teachers need to know how to engage in conducting action research	
Metacognitive knowledge	By reflecting on their learning and teaching, teachers need to be able to identify key needs and engage in planning to meet these needs.	
Motivation: Utility Value	Teachers need to see the value of engaging in action research as a critical component of effective CPD	Show relevance of the task (Ambrose et al., 2010; Pintrich, 2003).

	practice and in supporting students in achieving at least basic proficiency.	Modeling values, passion and interest in the task (Ambrose et al., 2010; Eccles, 2010; Pajares, 2010) Provide intangible incentives for very challenging performance level (Clark & Estes, 2008).
Motivation: Self-efficacy	Teachers need to believe they are capable of effectively engaging in action research and collaborative learning	Dividing the task at hand into small steps, and setting short-term, challenging but attainable goals (Ambrose et al., 2010; Dembo & Seli, 2016; Pajares, 2010). Provide frequent and effort focused feedback on the strategy, and praise efforts to build teachers' confidence (Ambrose et al., 2010; Clark & Estes, 2008; Pajares, 2010)
Cultural Model: Collaborative Culture (Organizational Influence)	The school needs to cultivate and embrace a culture of collaborative learning	Create professional learning communities (PLC) (DuFour R. , 2004; DuFour & Reeves, 2016) Leadership involvement in teachers' professional development (Stoll et al., 2012) Align the organizational structure and processes with business goals (Clark & Estes, 2008). Provide relevant and quality job aids (Clark & Estes, 2008) including CPD framework, toolkit, professional portfolio guideline, professional learning communities (PLC) protocols, and other supplementary CPD materials. Provide hands-on training and coaching related to effective CPD practices including collaborative, reflective, and professional enquiry-based learning. (Clark & Estes, 2008; Darling-Hammond et al., 2009)
Cultural Model: Supportive leadership (Organizational Influence)	The district and school leadership need to be supportive of teachers' engagement in action research and collaborative learning as examples of CPD	
Cultural Setting: Resource (Organizational Influence)	The district and school need to allocate adequate resources and provide enough time to facilitate and encourage teachers to be engaged in action research and collaborative learning	
Cultural Setting: Professional Development (Organizational Influence)	The district needs to provide appropriate training in the area of collaborative learning and action research	

Solutions for Knowledge Influences

The study findings presented in Chapter 4 suggested that teachers need to have clear understanding about the CPD programme. Most of the teachers mentioned lack of clear understanding about the program as the major hindering factor for teachers' successful engagement in effective CPD practice. According to Clark and Estes (2008), when individuals do not know how to perform a task it requires knowledge and skill improvement. Knowledge and skills could be enhanced through information, job aids, and training. Relevant information about their task could be an adequate solution to fill the knowledge and skill gap; when individuals could succeed practicing on their own. The next higher-level solution is job-aids. Job-aids are appropriate when individuals require reminders like checklist of processes or steps to perform a task without guided practice. Training is an appropriate solution when individuals need procedural knowledge and skills and corrective feedback to accomplish their performance goals (Clark & Estes, 2008).

In line with the most current findings in knowledge and skill research, three solutions are proposed for validated knowledge influences: (a) Develop and provide relevant and quality job aids including CPD framework, toolkit, and the purpose of professional portfolio manuals, (b) Provide hands-on training and coaching related to effective CPD practices including collaborative, reflective, and professional enquiry-based learning, and (c) Utilize models and modeling.

Develop and provide relevant and quality CPD materials

In Chapter 4, declarative knowledge influences that teachers need knowledge of the national CPD framework, toolkit, professional portfolio, and the responsibility for their own CPD were validated. Significant number of teachers reported neither having access to these

centrally prescribed CPD resources, nor adequate information about the program. BDEO did not communicated and shared these important CPD resources with teachers. As a result, the teachers reported having knowledge deficit about CPD program. Moreover, teachers who had access to these CPD resources indicated that it is too generic to influence their subject and pedagogical knowledge. Job aids are cost-effective form of knowledge and skill improvement. It is better to provide job aids when the content is simple to adapt, and individuals do not require directed practice and corrective comments to master a new task (Clark & Estes, 2008). Thus, BDEO providing job aids including the CPD framework, toolkit, and purpose of professional portfolio could enhance teachers understanding of effective CPD practices. Access to the CPD framework will enable teachers to understand and describe the meaning, purpose, and cycle of CPD. The CPD toolkit will provide practical examples and serves as a scaffolding to successfully engage in effective CPD practices. And professional portfolio guideline will enhance teachers' declarative knowledge of the meaning, elements, processes, and purpose of maintaining professional portfolio.

Though there are other solutions that are more effective and efficient, solution proposed here needed to be specific to the local context (Rueda, 2011). The approach to CPD in developing countries needs to be understood in a context which often differs from CPD in developed countries (Christie et al., 2004). For instance, though technology based CPD is a cost-effective way to create access to CPD resources and training, it would not be possible for rural schools in Ethiopia. A recent study indicated that over 90% of teachers have access to mobile phone (Betemariam, 2017), but the internet data over mobile phone is unreliable particularly in this remote study district. Additionally, absence of electricity coverage limits the possibility of technology assisted CPD. Therefore, BDEO needs to develop and provide adequate print copies

of relevant and quality CPD framework, toolkit, purpose of portfolio, and other supplementary materials to support teachers' learning.

Providing Training and Coaching

The study suggested that teachers need to know how to engage in effective CPD practices including collaborative, reflective, and enquiry-based learning. Most of the teachers reported that they have limited knowledge about collaborative, reflective, and inquiry-based learning. For people that lack knowledge and skills but need to learn new strategies, Clark and Estes (2008) suggested providing training with an opportunity to practice and receive corrective feedback. Training also influences the mental organization of knowledge. For the knowledge from training to be effective, it should be structured in the same order that it is used on the job. Newly acquired knowledge could be more practical to solve problems if it has a link with individuals' prior knowledge (Clark & Estes, 2008). Researches provide evidence that intensive training with ongoing support can assist teachers enhance their knowledge and transform their teaching practices (Borko, 2004; Darling-Hammond et al., 2009).

Hence, supports like school-based coaching need to be provided for teachers to practice the learnings from training. Studies have indicated the advantage of combining training and coaching in enhancing teachers learning and practice and in turn increase student learning outcomes (Darling-Hammond et al., 2017; Zepeda, 2008). For instance, one study found that training combined with coaching program increased performance by 88% compared to 22.4% for training alone interventions (Olivero, Bane, & Kopelman, 1997). Peer coaching is a form of school based professional development rapidly becoming a common practice (Darling-Hammond et al., 2009). Coaching and expert support include the sharing of knowledge about content and evidence-based practices, with emphasis on teachers' need (Darling-Hammond et al.,

2017). Training, administrative support, trust in oneself, in each other and system are important settings for successful peer coaching (Zepeda, 2008).

Therefore, the study suggests BDEO to provide training and coaching support on effective CPD framework and practices involving collaborative, reflective, and inquiry-based learning. The training needs to be provided in two phases.

Collaborative learning. Purposeful collaboration among peers is a key ingredient in the world's high performing schools (Mourshed et al., 2010). Teachers appreciate the merit of learning with peers (Day, Sammons, Stobart, Kington, & Gu, 2007), and teachers involved in focused collaborative learning eventually change or significantly develop features of their classroom practice which improves their student's learning. Effective models of collaborative learning include learning circles, lesson study, peer observation, joint practice development, peer coaching, and mentoring (Stoll et al., 2012). Therefore, BDEO needs to provide training, coaching, and opportunity to practice these powerful collaborative learning models. For teachers to have effective collaborative learning experience, the district and school leadership needs to develop trust and relationships among teachers.

Reflection and inquiry-based learning. Effective professional development programs that resulted in student learning improvement commonly offer time for teachers to engage in critical reflection about their practice, receive feedback on, and make changes to their practice (Darling-Hammond et al., 2017). Teachers could individually or collectively reflect on their real practices documented in professional portfolio to transform their teaching. Reflection is one of the necessary skills of action research or professional inquiry-based learning (Zepeda, 2008). According to Stoll et al., (2012) conducting and using research helps to improve practice. Action research engagement in schools involves individually or collectively conducting research to

examine key issues in teaching and learning or using others research finding to inform their practice.

Thus, this study suggests BDEO to create action research literate teachers through training and coaching on the conceptual underpinnings, values, processes, and steps of action research. The study also suggests BDEO to adapt Timperley, Wilson, and Barrar's teacher inquiry and knowledge building model to close teaching and learning performance gap (Timperley, Wilson, Barrar, & Irene, 2007). According to this model, through effective inquiries that involve teachers collectively and individually; teachers identify important problems, become the agents for getting the knowledge they require to solve them, monitor the impact of their practice, and fine-tune their practice accordingly (Timperley et al., 2007). This model is also consistent with the Ethiopia's CPD national framework that aimed to improve teacher's classroom practice with the goal of improving student achievements. Hence, BDEO need to adapt the inquiry model shown in Figure 11, and train and coach expert teachers and school administrators on it.

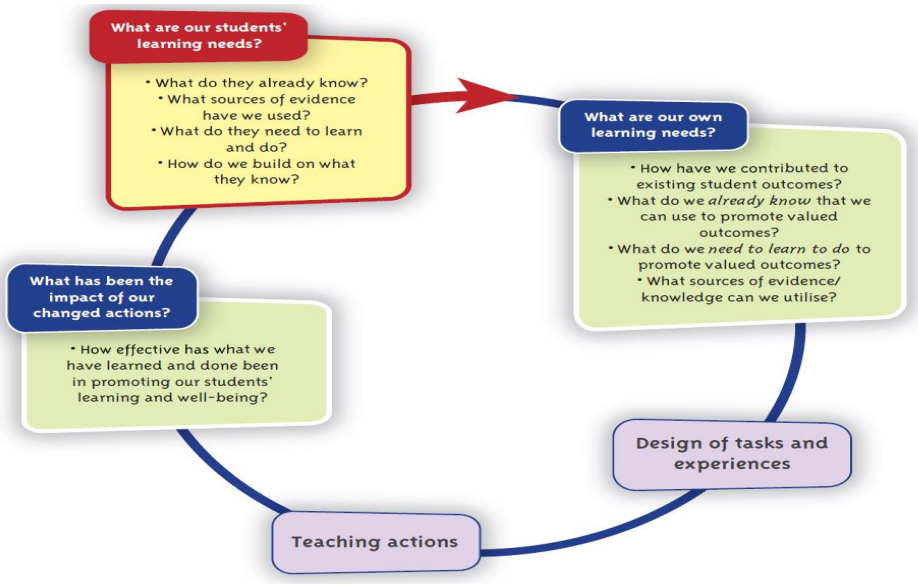

Figure 11. Teacher inquiry and knowledge-building cycle to promote valued student outcomes. Adapted from "Teacher professional learning and development: Best evidence synthesis iteration [BES]" by H. Timperley, A. Wilson, H. Barrar, and I. Fung, 2007, p. xliii, Copyright 2007 by the New Zealand Ministry of Education.

Utilizing Models and Modeling

Empirical evidences indicate that professional development programs using models of effective practices are successful at improving teacher learning and student outcomes (Darling-Hammond et al., 2017). Teachers are more likely to apply new practices modeled for them to improve their teaching practice (Garet et al., 2001). Therefore, this study suggests BDEO to document and disseminate different types of modeling including; sample collaborative action research, reflection log of classroom observation, analysis of written cases of teaching drawn from actual classrooms, samples of unit or lesson plans, assessments, and student work.

Solutions for Motivation Influences

Motivation is the results from peoples past experiences and beliefs about themselves, their peers, their predictions for being effective, and their values for their performance goals

(Clark & Estes, 2008). Individual's confidence about whether they have the skills necessary to be effective is the most determinant influence in their dedication to work tasks and the quality and quantity of mental effort people devote to their job (Clark & Estes, 2008). The study findings in Chapter 4 revealed that most of the teachers neither see value nor feel confident to effectively engage in action research. Further, teachers expressed perceived organizational barriers including lack of training, materials, and time to conduct action research. As a result, teachers avoid engaging in action research. The solution will need to increase individual and collective teachers' self-efficacy and increase task value. This study provides five solutions based on the validated motivation influences: (a) Teachers working towards challenging but achievable goals, (b) Show relevance of action research engagement to teachers' classroom practice and student learning, (c) Provide targeted feedback and leadership training, (d) Link intangible incentives with progress, (e) School principal modeling by showing their own passion and enthusiasm for the action research.

Teachers Working towards Challenging but Achievable Goals

Research evidences indicate that on one hand impossible goals destroy peoples' work commitment and on the other hand people do not place high value on too easy tasks (Ambrose et al., 2010; Clark & Estes, 2008). In both cases, people will be unmotivated to engage with the task. Breaking the activity into manageable phases and setting short-term, realistic goals that allow teachers to have a sense of progress and achievement are effective strategies to raise self-efficacy (Dembo & Seli, 2016). According to these research evidences, people get motivated when shared performance goals are challenging but attainable. Hence, the solutions to increase teacher's confidence in their skill to engage in action research is to divide the action research project into small steps such as defining the focus, developing research instruments, collecting,

coding, and analyzing data, creating action plans, and reporting results. Additionally, teachers will also benefit from training and coaching on goal setting to ensure that teachers have specific, measurable, achievable, realistic, and time bound (SMART) personal goals related to their CPD engagement. According to Dembo and Seli (2016) specific personal goals motivate people to engage, persist, exert the maximum mental effort at a task. Organizations like Imagine1day and Lightyear Leadership could be approached to provide technical support in this area.

Show Relevance of Action Research

People are motivated to engage in activity that are relevant and useful to them (Pintrich, 2003). Higher level task values motivate people to choose, persist, and invest higher mental effort to achieve performance goal (Clark & Estes, 2008; Pintrich, 2003). The study findings in Chapter 4 revealed that most of the teachers put little value on action research engagement. So, it is critical for BDEO to ensure that the action research engagement is relevant to improve teachers' knowledge and teaching practice and ultimately their student learning. Teacher need to be shown that engaging in action research will make them research literate and could broaden their future career opportunity as a researcher.

Provide Targeted Feedback

Timely and constructive feedback can have a significant effect on people's motivation towards a task (Ambrose et al., 2010). According to Pintrich (2003) the feedback should be correct and genuine about their work performance and learning, targeting on the progress of capability, knowledge, and skills. In Chapter 4 the study findings revealed that teachers do not get feedback on their action research engagement. Therefore, their expectancy for success was very low. Thus, BDEO's school principals and supervisors need to provide frequent, timely, and

accurate feedback on their teachers' action research process aiming to improve their capability and competence.

Link Intangible Incentives with CPD performance

One among research solutions to increase self-efficacy is linking rewards with performance progress in order to show the informational function of intangible incentives (Clark & Estes, 2008; Pintrich, 2003). Intangible incentives recognize people for their good performance and deliver the message about how to succeed at challenging task. Given the unaffordability of tangible incentives, BDEO need to use intangible incentives such as teacher of the month, recognition award plaque or trophy for people doing a good job, and certificate of completion. For instance, the district could award the best three action researches of the year. However, this incentive should be carefully managed as it could have a negative consequence. The decision should be made by a committee nominated by teachers on a clearly and objectively established criteria. And the selection process should be open and transparent.

Modeling Passion and Enthusiasm for the Action Research

The opportunity to observe similar model engaging in valuable task with interest and commitment; helps people to discover the value of the task that they ignored and motivate them to engage in the same task (Ambrose et al., 2010; Pajares, 2010). Thus, BDEO's school principals need to show their passion and commitment for action research by actively supporting and engaging in collective action research projects. This could involve giving teachers the opportunity to reflect on their action research project. The principal could facilitate reflection by asking them questions like "What is the purpose of your action research project? Why is this study important? What are the objectives of your action research? How will the study improve your teaching practice and student learning? What did you learn from your action research

journey? What was your findings? What worked well? What didn't work well? What support do you need? What do you consider changing for the next project? Teachers could perceive that the school principal place high value on action research and passionate about it. As a result, teachers could be motivated to actively engage in action research projects.

Solutions for Organization Influences

Clark and Estes (2008) argued that highly motivated people with appropriate level of knowledge and skills, might still fail to achieve performance goal due to absence or insufficient processes, material, and resources. Thus, in addition to addressing knowledge and motivational influences, it is important to address organizational factors. These factors include organizational culture, structure, policies, and practices (Rueda, 2011). Chapter 4 revealed organizational gaps including limited culture of collaboration, inadequate resources, unsupportive leadership, and absence of professional development opportunity. Based on these validated influences, this study suggest four solution to close the gap: (a) Creating a professional learning communities, (b) Align the organizational structures and processes with the CPD goal, (c) Active leadership involvement and support in teachers' CPD practices, (d) Provide hands-on training and coaching related to effective CPD practices to teachers, principals, and cluster supervisors. The last proposed solution was covered under solutions for knowledge and will be not discussed in this section.

Creating a Professional Learning Communities

There is consistent evidence that teachers who work in schools with strong collaborative culture overperform teachers who work alone (Hargreaves & Fullan, 2012). According to Hargreaves and Fullan (2012), collaborative cultures build and share knowledge and ideas, as well as assistance and support, that makes teachers more successful, confident, and motivated to

actively engage in performance improvement and change. School with culture of collegiality are more likely to implement effective professional development that improves teachers' practice (Whitworth & Chiu, 2015). Chapter 4 revealed that the collaborative culture in study schools was mostly limited to superficial talking. The kind of collaboration experienced in study schools was mainly top-down imposed and teachers do not want to collaborate due to lack of trust and respect among them. The solution to this organizational gap needs to foster collaborative professionalism among teachers and schools in the district. Professional Learning Communities (PLCs) is one most popular framework known for enhancing collaborative culture (Darling-Hammond et al., 2017).

Empirical evidences show that well-designed PLCs model is highly associated with tangible improvement in teachers' practice and students learning outcomes (Darling-Hammond et al., 2017; Harris & Jones, 2010; Vescio, Ross, & Adams, 2008). When implemented with a high degree of quality, PLCs offer sustained, on-site learning that is active, collaborative, and reflective (Darling-Hammond et al., 2017; DuFour & Reeves, 2016; Stoll et al., 2006). PLCs are built on important elements of trust and respect among members that ultimately create safe and supportive school environment for teachers (Patton et al., 2015). Based on these evidences, the proposed solution is to create professional learning communities that collectively examine and transform teaching and learning in schools. Therefore, it is recommended that BDEO create PLCs first within the schools and later scale it to between schools. Before introducing PLC, BDEO leadership need to have critical conversation and brainstorming with key stakeholders including teachers, principals, cluster supervisors, and administrators about creating a professional learning community (Wahlstrom & Louis, 2008). Creating a professional learning

community also requires a shift from a focus on teaching to a focus on students learning, a culture of collaboration, and a focus on results (DuFour R. , 2004).

BDEO need to create teacher groups from same grades learning with and from each other. This study suggests schools to be guided by DuFour and Reeves's four PLC quality test questions to ensure real PLC practice: (1) What do we want students to learn? (2) How will we know if they have learned it? (3) What will we do if they have not learned it? (4) How will we provide extended learning opportunities for students who have mastered the content. A simple one-page protocol with these four questions could be given as a job aids to help teachers focus on student learning.

Aligning the Organizational Structures and Processes with CPD Goals

Efforts of closing organizational performance gaps require aligning resources and processes with shared business goals (Clark & Estes, 2008). Knowledge and skills acquisition and transfer into practices are contingent on supportive organizational factors (Stoll et al., 2012). The study findings in chapter 4 revealed major organizational structure issues inhibiting effective CPD implementation including lack of adequate time, resources, materials, and manpower to oversight CPD implementation. Identifying suitable time and adequate time for teachers to engage in CPD practice is one core feature of effective professional development (Darling-Hammond et al., 2009; Day et al., 2007). In this regard, the solution is to proactively plan and negotiate a suitable and adequate time for CPD activities on the school calendar. Further, more frequent practices spread out over shorter learning session with quality use of time is more effective for learning than one extended session (Mayer, 2011).

Schools could consider two strategies for providing professional learning time into routine school days. The first option is to rearrange existing time. In this case, it requires fixing

CPD day in which classroom teaching shortened for teachers to work together. However, instead of the current practice of bi-weekly half-day CPD meetings, it could be more effective to do it weekly for a shorter period. More frequent practices spread out over shorter learning session with quality use of time is more effective for learning than one extended session (Mayer, 2011). The second option is to create additional time through innovative use of external volunteers (Zepeda, 2008). Where possible, the schools could engage and use volunteers to replace teachers while they are engaged in collaborative learning. Young university graduates and other professionals in the community including agriculture development agents, and health extension workers could be used as volunteers to support teachers.

The other major factor hindering effective CPD practice is lack of funding to provide materials and resources required for effective CPD practice. Leadership need to prioritize and support CPD in terms of time and resources that address the needs of teachers at different stages of their careers. In the context of developing countries, competing need for funding within education sector usually makes CPD a peripheral priority area (Christie et al., 2004). In Africa, donor aid funding plays an important role in introducing CPD initiatives. However, sustained CPD is unthinkable without institutionalizing within the national systems and their local structures.

Thus, BDEO need to prioritize CPD and find ways of covering and operationalizing within their resource limit. The district needs to allocate budget to provide necessary supplies and CPD job aids. Moreover, schools need to assign one among teachers to serve as CPD coordinator. The CPD coordinator is to support school principal in facilitating teachers CPD practice. All teachers will be given the opportunity to serve as CPD coordinator on a rotation basis with a service term of six months. This will allow teachers to have an ownership stake in

CPD and more likely to buy-in to the program. Professional development change efforts without teachers' participation in decision-making, often fail to get their buy-in (Steyn, 2010; Zepeda, 2008). Thus, it is important to involve teachers from the designing phase through planning and implementation of CPD (Darling-Hammond et al., 2009; Desimone et al., 2002; Garet et al., 2001; Patton et al., 2015).

Active Leadership Involvement and Support

Leadership plays a critical role in teachers' professional development and student achievement (Whitworth & Chiu, 2015). Leadership could make a significant contribution to students learning outcomes by supporting and involving in teachers' professional development (Robinson, 2011). Research evidence indicated that school and district leadership may be second only to teachers in having impact on students learning (Leithwood et al., 2008). Chapter 4 revealed that both school and district leadership were not supportive in teachers CPD practice. Among the root causes mentioned were that the leadership lacks knowledge and skill about CPD to provide ongoing feedback and support to practicing teachers. As a result, CPD has not been a focus for the leadership. Contrary to this fact, research evidence indicates that effective professional development involves the development of leadership capacity at all levels. Without active involvement, district and school leadership may not understand the value, cost, and support needed for effective teachers' professional development (Whitworth & Chiu, 2015). Active involvement of district and school leaders in teachers' professional development efforts can facilitate collaborative learning communities, link teachers with required resources, and facilitate changes in classroom practice with a focus on student learning outcomes. Therefore, BDEO could improve performance gap in teachers' CPD engagement through professional development opportunity for the district and school leadership on the role of leadership in

teachers' professional development, core features of effective CPD, comprehensive CPD cycles including; need assessment, planning, implementation, and evaluation.

Implementation Plan

A summary of the validated knowledge, motivation and organizational influences and their corresponding solutions were presented above. However, the challenges to teachers' professional development are much more complex to fix with a simple fragmented solution (Patton et al., 2015). It rather requires designing and implementing a mix of knowledge and skills, motivational, and organizational solutions (Clark & Estes, 2008). According to Clark and Estes (2008), well integrated performance enhancement programs are more successful, cost-effective, and easier to assess their impact. Also, it is likely not cost-effective or feasible to implement all possible solutions. Thus, a systematic approach was used to prioritize solutions that are most important to close the performance gaps. The possible solutions were ranked according to criteria, and a mean score was calculated to determine their overall ranking. In this study, three heuristics were used for ranking solutions based on their significance: 1) cost, 2) feasibility to implement, and 3) the impact in closing the performance gap. The criteria in Table 28 were used to rank each validated cause from 1-4 in descending order of significance. For instance, if the cost is high, it was the least difficult to implement, and most impactful on closing the KMO gap, then the solution received a number one ranking for all three criteria.

Table 28

Solution ranking criteria

	Criteria 1	Criteria 2	Criteria 3
Ranking	Cost	Feasibility	Impact
1	Less expensive	Less difficult	Most Impactful
2	Somewhat expensive	Somewhat difficult	Impactful
3	Expensive	Difficult	Neutral
4	Very expensive	Very difficult	Not Impactful

Table 29 shows how the mean scores were calculated for the three criteria. For instance, the mean score for the first solution is 1.33. This score was calculated by averaging the scores for each criterion. In this case, the score was 2.0 for Criteria 1, 1.0 for Criteria 2, and 1.0 for Criteria 3 for a total of 4.0 points divided by three, which equals 1.33.

Table 29

Solutions ranked according to selection criteria

Solution	Criteria 1: Cost	Criteria 2: Feasibility	Criteria 3: Impact	Mean Score
Develop and provide relevant and quality CPD materials	2	1	1	1.33
Providing Training and Coaching in the area of effective CPD practices including reflection, inquiry-based and collaborative learning	4	2	1	2.33
Utilizing Models and Modeling	3	3	1	2.33
Teachers working towards challenging but achievable goals	1	3	4	2.67
Show relevance of action research	1	3	4	2.67
Provide targeted feedback	1	3	3	2.33
Link intangible incentives with CPD performance	1	1	1	1.0
Modeling passion and enthusiasm for the action research	1	4	3	2.67

Table 29, continued

Creating and nurturing professional learning communities	2	2	1	1.67
Align the organizational structures and processes with CPD goals	2	2	1	1.67
Active leadership involvement and Support	1	2	4	2.33

Mean scores ranging between 1.0 and 2.0 were selected as the next phase of solutions to be prioritized and implemented. Those solutions that are outside of this range were considered expensive, less impactful or difficult to implement. The selection process revealed that four solutions have the greatest impact on closing the knowledge, motivation and organizational gaps. Accordingly, a comprehensive CPD program revitalized through four key solutions is proposed to close the performance gap. Solution one is to create effective PLCs. Solution two is to develop and provide relevant and quality CPD materials. Solution three is to align the organizational structures and processes with CPD goals. Solution four is linking CPD with teachers' incentives. This section is to present the implementation plan of these four prioritized solutions. The objectives of these solutions are to improve teachers' active engagement in effective CPD with the aim to improve teachers' classroom practice and student learning outcomes. The solutions will do so by equipping teachers in Barbare district with the knowledge, skills, confidence, and support needed through successfully engaging them in effective CPD practices. The following are specific expected outcomes of the program:

1. By June 2020, at least 90% of teachers in Barbare district are successfully engage in effective CPD practices.
2. By June 2020, improved knowledge and skills in the areas of collaborative, reflective, and inquiry-based learning for at least 75% of teachers.
3. By June 2020, there are at least 10 cases of effective professional learning communities to be scaled across the district

4. By June 2020, increased teacher confidence in engaging in professional inquiry and reflection observed in at least 75% of teachers.
5. By June 2020, 70% of grade 2 and 3 students achieved at least basic proficiency in reading

To achieve these expected outcomes, the proposed solutions will be executed through implementation action steps discussed in the session below.

Key Implementation Action Steps

This section presents specific action steps that will be taken to operationalize the four proposed solutions. Solutions could help organizations achieve their intended goals only when it has clear implementation action steps. Therefore, this study identified the below presented key action steps for each solution.

Solution 1: Creating and Nurturing Effective Professional Learning Communities

Professional Learning Communities (PLC) is the most powerful form of CPD (Darling-Hammond et al., 2017; Stoll et al., 2012). Before scaling this solution to all schools in the district, it should be piloted in three randomly selected schools for six months. To operationalize this specific solution, the following key action steps will be taken by the schools and district education office:

1. Develop PLC framework
2. Educate stakeholders on PLC
3. Collectively establish PLC norms
4. Cultivate a collaborative culture built on trust
5. Focus on the most critical educational problem
6. Provide a 360-degree support

7. Help PLCs set SMART goals
8. Monitoring and providing constructive feedback

Developing PLC framework. The framework must be developed to guide effective PLC implementation. This guide articulates the what, why, who, where, and how for PLC implementation. The framework will cover contents related to PLC including; its meaning, purposes, strategies, key design principles and characteristics, stakeholders' role, and monitoring and evaluation. The framework is to guide teachers, principals, supervisors, and administrators to ensure effective PLC implementation. The framework should be developed by the district education office with the support of external expertise.

Educating stakeholders on PLC. The stakeholders including teachers, principals, school supervisors, and administrators need to be sensitized on the concepts and purposes of PLC. A three days launching workshop need to be organized to introduce PLC concept, purpose, framework, and the why behind introducing PLC. It should be introduced carefully to avoid a situation in which the stakeholders assume that it will be one more education reform effort that will eventually dissolve. The district needs to identify and use facilitators who are expert and passionate about PLC. The first impression will be so crucial to initiate interest to practice it. It should be clear to all stakeholders that PLC is not about taking an order from administrators. It is simply a form of CPD that changes the focus of your school from teaching to learning. It should be also clear to the stakeholders that it operates on the principle of shared leadership and in that teachers and leaders equally contribute and hold themselves accountable for continuous improvement. The stakeholders also needs to be oriented on the six key characteristics of an effective PLC (DuFour & Reeves, 2016) including its focus on learning, collaborative culture, collective inquiry, action orientation, continuous improvement, and result orientation.

Thus, before starting to implement PLC, stakeholders need to be educated on these fundamentals about PLC for three days. In addition to training, use job aids like posters, flyers, and host an informal information session or posting on school and district education office notice boards to clarify for those who might be uninformed.

Collectively establish norms. In a PLC setting the group norms must be developed collectively. The need for having governing rules is obvious, but should be decided by the members of PLC. The role of school principal is only to facilitate that these norms are set in a way that everyone can give input. This could be done by asking everyone to write down the norms that the members should be governed by. And ask them to put on the wall, discuss and organize them as ground rules or norms of the PLCs and share it with members. The members could revise these norms any time deemed necessary.

Cultivate a collaborative culture built on trust. Though it is possible, getting teachers to collaborate is not an easy task. And one cannot imagine PLC without a collaborative culture. Transparent and non-judgmental communication are critical to embrace a culture of collaboration. Through involvement in PLC sessions, schools' leaders need to ensure that it is ok for teachers to take risk and make mistakes and must create time and space for teachers to help each other. This will make teachers to trust each other and seek support when needed. Through this social capital teachers will tap into others human capital and grow professionally (Hargreaves & Fullan, 2012). And ultimately will produce a better result for students.

Evidences show that teachers participating in PLCs are more confident and have higher level of self-efficacy (Pirtle & Ed , 2014). So, school and district leaders need to build a collaborative culture in PLCs, where members feel confident to request support for any instructional challenges they face and make each other accountable for the greater good of

student learning. Building this culture of collaboration and trust, will minimize frustration and blaming others.

Focus on the most critical educational problem. It is known that the focus of PLC is to support and nurture student learning (Zepeda, 2008). Thus, it requires examining student learning from formative, summative, and national assessment data (Zepeda, 2008) including early grade reading and numeracy assessments. This student data examining exercise will help PLCs to identify where there is a gap in student learning and determine most pressing instructional needs to better support their students. Using the information gained from the data reviewed, PLC facilitators and members set priorities for intervention. PLCs could also use actual student works to analyze and determine if students are showing progress toward meeting the learning objectives.

Provide 360-degree support. Effective and sustained PLC requires both internal and external supports. School principal, cluster supervisors, and district leaders need to ensure that teachers have adequate scheduled time to participate in PLCs; the essential resources and materials to be effective in the classroom; and provided instructional leadership when required (Pirtle & Ed , 2014). Support to PLCs, in areas that require expertise such as how to analyze student data, use student data as a reflection tool and to frame their practice. School and district leaders need to be coached on how to best support teachers as they engage in the collaborative work of PLCs. School leaders need to participate as members of a PLC and could have input and provide timely support.

Help PLCs set SMART goals. One of the necessary tasks in PLC launching process is goal setting. This is important to later on assess the impact and success of the PLCs. It facilitates measurement which is critical in this world of competing interests for scarce resources.

Goals will also give direction and motivate PLC members to engage in the task. For the goal to be objective it should be Specific, Measurable, Achievable, Realistic, and Time bound (SMART). PLC should make sure that their goals satisfy these objective elements. The goal should be written using the following simple educational goal statement: [Who] will achieve [what] by [when] as measured by [which assessment].

Monitor and provide constructive feedback. Based on collectively set norms, teachers can assess their own activities in PLCs. These norms may include coming to PLC meetings punctually and prepared, remain focused on the task at hand and avoiding distractions, openly sharing successes and challenges, and committing to using the learning from PLC meetings in their classroom practice (Pirtle & Ed , 2014). By participating in PLC meetings, district and school leaders could help teachers see the impact of their PLCs on classroom practices and student learning. This could be also done by taking part in PLCs learning walks, an approach in which PLC members observe how points from PLC meetings are implemented in the classroom. This require coaching both for PLC members and leaders on how to conduct learning walks. Based on data gathered from learning walks, the facilitator will produce a report with a summary of observation and feedback for individual teachers. The report will be shared across the school. However, the report will only be used to monitor progress made toward the effective implementation of PLCs and not as a teacher appraisal tool.

Solution 2: Develop and provide relevant and quality CPD materials

For people who will perform a specific task frequently, Clark and Estes (2008) recommended providing information, job aids, training with practice and feedback. To operationalize this specific solution, the following key action steps will be taken by the schools and district education office:

1. Providing copies of CPD framework, toolkits, and professional portfolio guidelines.
2. Developing and providing relevant and quality package of CPD modules, monitoring, and support tools

Providing copies of CPD framework, toolkits, and professional portfolio guidelines. The study findings indicated that majority of the teachers in the study schools do not have adequate understanding about the meaning and purpose of CPD. The information about CPD was trickled down to teachers in a cascading approach and its purpose and meaning get diluted and teachers' have no access to guiding documents. Hence, documents providing clear information about the what, why, who, when and how of teachers' CPD needs to be provided. Therefore, copies of these documents will be provided to each teacher to facilitate teachers' self-guided CPD practice. These materials will be provided in advance of the training in November 2019.

Developing and providing relevant and quality package of CPD modules, monitoring, and support tools. The study finding indicated that teachers are experiencing a one-size-fits all type of CPD regardless of their difference in qualification, years of experience, and needs. Teachers have varying qualification ranging from high school diploma to master's degree in education. The current modules do not meet teacher's CPD needs as they are highly generic with little focus on content and pedagogical knowledge. Therefore, relevant and quality CPD modules, monitoring and support tools need to be developed. For teachers' professional development to be effective, it is critical to first carefully identify the CPD needs (Darling-Hammond et al., 2017). Before developing this package, the district should conduct teachers, principals, and supervisors CPD need assessment. Based on the need assessment findings, the district in collaboration with regional College of Teacher Education (CTE) develop context-

relevant and quality training modules and related monitoring and support tools as a package. The CPD module need to be differentiated based on teachers' needs. This package of training module, monitoring, and support tools need to be prepared and provided in November 2019.

Solution 3: Aligning the Organizational Structures and Processes with CPD Goals

To operationalize this specific solution, the following key action steps will be taken by the schools and district education office:

1. Assign CPD team and coordinator
2. Create TOR for the school CPD team and coordinator
3. In-service training for CPD team and coordinators, school principal, and cluster supervisors
4. Create and share clear CPD timetable and budget

Assign CPD team and coordinator. Effective CPD implementation requires supportive school and district leadership (Stoll et al., 2012). Many of the study respondents indicated lack of supportive leadership; and poor internal and external support for teachers. The study respondents indicated that the current leadership lacks capacity to provide technical support and feedback on teachers' CPD practice. Therefore, creating clear and cost-effective support structure is found important. Given the limited budget with which schools operate, this solution assumed using internal human resource instead of new recruitment. This plan assumed that school principal could establish a CPD team and assign its coordinator from among the schoolteachers and district education office experts. Members of the CPD team will be subject expert teachers and they will elect CPD team coordinator. The CPD team coordinator will work together with school principal to fulfilling CPD needs of the teachers in the school. The CPD team and coordination role will be rotated on an annual basis to extend the opportunity to all

teachers. This team will be organized at the beginning of academic year in the first week of October 2019.

Create Term of Reference (ToR) for the school CPD team and coordinator. For the CPD team and coordinator to be effective, they need to have clear roles and responsibilities. This needs to be drafted by the school CPD team and coordinator with the support of school principal and shared with teachers to get their say on it. With the input from teachers, the ToR will be finalized and adopted as a guiding document for the CPD team and coordinator. The ToR will be created in the first week of October 2019.

In-service training for CPD team and coordinator, school principal, and cluster supervisors. The study data revealed that there is a knowledge deficit on CPD framework, toolkits, professional portfolio, how to engage in collaborative, reflective, and inquiry-based learning. Clark & Estes (2008) suggested use of training when people do not have how-to knowledge and skills and need corrective feedback following practice. Therefore, the study suggests providing training and coaching support on CPD framework, toolkits, portfolio, and effective CPD practices involving collaborative, reflective, and inquiry-based learning. The training needs to be provided in two phases. In the first phase, providing district-based expert lead training of trainers (ToT) to carefully selected expert teachers forming CPD team, school principal, cluster supervisors, and district CPD coordinator for ten days. This first phase training needs to be project-based and provided over three months in three intervals with in-between expert coaching support. Additionally, CPD teams, school principals, and supervisors will be trained on how to mentor, coach, monitor, and support teachers' effective CPD practice. This first phase training will be conducted in the first week of November 2019.

In the second phase, those who successfully completed ToT training serve as school change agents by amplifying best practices and modeling (Darling-Hammond et al., 2017) effective CPD practices. The CPD team and coordinator, school principals, and supervisors will ensure effective CPD practices by all teachers in their school through replicating training, mentoring, coaching, monitoring, and creating supportive working conditions. The training needs to be differentiated considering teachers' varying level of capacity and needs. The replication will be conducted in November 2019 with ongoing school-based mentoring and coaching.

Create and share clear CPD timetable and budget. The study findings in Chapter 4 indicated that the majority of teacher perceive that not enough time and budget has been allocated to CPD and mostly conflicting with teachers' work schedule. To avoid this, clear timetable and budget will be created in consultation with teachers to encourage effective CPD engagement. Protected CPD day need to be scheduled to increase full participation of teachers. On those days, volunteer young university graduates and other professional in the communities could be used to substitute teachers in the classroom. Budget covering supplies and material cost will be allocated by the school from the General Education Quality Improvement Program (GEQIP) budget. Clear timetable and budget will be created and shared with all teachers immediately following the training in November 2019.

Solution 4: Link CPD with Teachers' Incentives

Though the national CPD policy indicates the need to link CPD with teachers' career structure and relicensing (Ministry of Education, 2009a), several teachers reported that this was not the case. These teachers shared their frustration that the policy was not delivering what it promised and there are no incentives to successfully engage in CPD. According to study participants, this was one reason why teachers are avoiding effective CPD practice. The use of

structured incentives motivates and directs people towards performance goal (Pintrich, 2003). A study conducted in 13 developing countries confirmed that structured teachers' incentives linked to desired behavior, could significantly influence teacher quality and student achievement (Mpokosa & Ndaruhutse, 2008). Thus, it is important to provide some intangible incentives to improve teachers' engagement in effective CPD practice. To operationalize this specific solution, the following key action steps will be taken by the schools and district education office:

1. Develop clear guideline of the link between CPD performance and teachers' incentives
2. Provide guideline and orient teachers on how their CPD performance relates to incentives
3. Certificate of recognition for teachers with high points on CPD performance
4. Value teacher's CPD performance in transfer request, training, and education opportunities.

Develop clear guideline of the link between CPD performance and teachers' incentives. The current CPD framework lack details on how CPD could be linked to teachers' career structure and relicensing. Without clear guidelines it will become confusing to implement and could become a source of conflict and grievance. The guideline will be prepared by the district education office with inputs from school principals, supervisors, and teachers. These guidelines will be developed by January 2020.

Provide guideline and orient teachers on how their CPD performance relates to incentives. Helping people to understand the usefulness of the task makes people to place high value on performance goal (Pintrich, 2003). Therefore, providing guidelines and orienting teachers on the link between CPD performance and rewards could motivate teachers to

successfully engage in effective CPD practice. The guidelines and orientation will be provided in January 2020 together with other CPD related trainings.

Certificate of recognition. Based on the guidelines created, the certificates of recognition will be awarded by BDEO for top three teachers from every school who exhibit high performance in changing their practice to impact student learning by their effective CPD practice. Beyond motivating high achievers, it will create teacher buy-in to the practice of effective CPD practice. At the end of the academic year, starting June 2020, teachers who excelled in their CPD performance and meaningfully improved their practice and student learning will be awarded a certificate of recognition for their efforts.

Value teacher's CPD performance in transfer, training, and education opportunities. Teacher transfer, training, and further education opportunities should value teachers' CPD performance. Currently, these incentives are based only on years of experience. The motivational advantage of incentives based solely on years of service is minimal. Making CPD performance another criterion with assigned weight is important to motivate teachers towards valuing their CPD practice. This will be an ongoing activity effective June 2020.

Table 30 below presents the summary of proposed solutions, action steps, capacity and resource requirements, timeline, and measures.

Table 30

Summary of solutions and implementation plan

Proposed Solution(s)	Action Steps	Building Capacity & Resource Requirements	Timeline	Indicators and Measures
Solution 1: Creating and nurturing Professional Learning Communities (PLC)	1. Develop PLC framework 2. Educate stakeholders on PLC 3. Collectively establish PLC norms 4. Cultivate a collaborative culture built on trust 5. Focus on the most critical educational problem 6. Provide a 360-degree support 7. Help PLCs set SMART goals 8. Monitoring and providing constructive feedback	Effectively implementing PLC requires developing internal capacity by training PLC facilitators, school principals, cluster supervisors, and district teacher professional development coordinator on basic PLC concepts, implementation, and assessment strategies.	Commencing October 2019 and ongoing	By June 2020, at least 90% of teachers in Barbare district are successfully engaged in effective PLC By June 2020, improved knowledge and skills in the areas of collaborative, reflective, and inquiry-based learning for at least 75% of teachers participating in PLC By June 2020, there are at least 10 cases of effective professional learning communities to be scaled across the district By June 2020, increased teacher confidence in engaging in professional inquiry and reflection observed in at least 75% of teachers participating in PLC

Table 30, continued

Proposed Solution(s)	Action Steps	Building Capacity & Resource Requirements	Timeline	Indicators and Measures
				By June 2020, 70% of grade 2 and 3 students in PLC implementing schools achieved at least basic proficiency in reading
Solution 2: Developing and providing relevant and quality CPD materials	1. Provide copies of CPD framework, toolkits, and professional portfolio guideline. 2. Develop and provide relevant and quality package of CPD modules, monitoring, and support tools	It requires funding to develop and print context relevant CPD materials. GEQIP fund is available to the district to support such activities.	September to November 2019	100% teachers have access to CPD policy documents and modules 80% of teachers consider the newly developed CPD materials as highly useful to improve their classroom practice and student learning
Solution 3: Aligning the organizational structures and processes with CPD goals	1. Assign CPD team and coordinator 2. Create TOR for the school CPD team and coordinator 3. In-service training for CPD team and coordinators, school principal, and supervisors 4. Create and share clear CPD timetable and budget	Deputy school principal and carefully selected subject experts will form school CPD team. Deputy school principal will play a coordination role. So, there is no need for additional staffing except that their teaching workload need to be reasonably reduced.	October and November 2019 for 2 months	100% of the schools in Barbare district have active CPD team and coordinator. 100% of CPD team members and coordinator, principals, and supervisors were trained on CPD policy and effective CPD practices 100% of schools in Barbare have clear CPD timetable and adequate budget allocated

Table 30, continued

Proposed Solution(s)	Action Steps	Building Capacity & Resource Requirements	Timeline	Indicators and Measures
		External expert is needed only to initially train the CPD team and school principal. NGOs like Imagine1day who are supporting capacity building in the region could be approached to get support in TOR preparation and training.		Through training, mentoring, and coaching support from CPD team, principal, and supervisor; at least 90% of teachers in the district are engaged in effective CPD practices
Solution 4: Link CPD with teachers' incentives	1. Develop clear guideline of the link between CPD performance and teachers' incentives. 2. Provide guidelines and orient teachers on how their CPD performance relates to teachers' incentives 3.Certificate of recognition for teachers with high points on CPD performance 4. Value teacher's CPD performance in transfer, training, and education opportunities.	District CPD team, school principal, supervisor, and district leadership need to be trained on the guidelines. It requires only small amount of money to print certificates of recognition.	January to June 2020	Clear Guideline created and shared with all schools. 90% of teachers are successfully engaged in effective CPD practices including collaborative, reflective, professional inquiry-based learning. 80% of transfer, training, and further education decisions considered teachers' CPD performance 80 % of teachers are satisfied with their CPD activity

Evaluation Plan

Evaluation is the final step of the KMO model (Clark & Estes, 2008) that this study used as its conceptual framework. It is a systematic investigation of that provide decision makers with evidences about the value or merit of implemented programs, particularly in relation to intended outcomes (Guskey, 2000). A purposive evaluation of the outcomes of implemented solutions is crucial to determine if they addressed the performance gaps, they were supposed to solve (Rueda, 2011). Hence, this section is to outline evaluation plan for the key solutions proposed by this study. There are several program evaluations models with many similarities and uniqueness in their approaches and procedures. Among available evaluation models, this study adopts Guskey's evaluation model. According to this model, there are five critical levels of professional development evaluation (Guskey, 2000). Guskey's model was derived from earlier model developed by Kirkpatrick for evaluating training program in business and industry. The Kirkpatrick model has four levels. The first level is participant's reactions to the training measuring early satisfaction with the experience; the second level is what new knowledge, skills, and attitudes did participant's learn; the third, how did it influence their behavior on the job; and the fourth is results, how did the training affect final outcome (Kirkpatrick & Kirkpatrick, 2006).

Despite many suggestions to improve the Kirkpatrick's model, it is yet the most widely used evaluation model (Clark & Estes, 2008). According to Guskey (2000), though Kirkpatrick's model has been widely used across disciplines, it lacks the explanatory power in addressing the "why" question of when things were implemented correctly from the training perspective, but the training participants returned to organizations that were not supportive in practicing what they learned. Therefore, Guskey contextualized Kirkpatrick' model to the realm of education and added one more level known as "Organizational Support and Change" to

Kirkpatrick's model. Guskey claims that his model of five levels of evaluation is needed to resolve that inadequacy in Kirkpatrick's model.

Guskey's model of evaluation is also consistent with the KMO model by clearly including the organizational factor of performance gaps. Evaluating solutions using this five levels model will enable school principals and district leaders to measure the effectiveness of continuous professional development (CPD) designed to improve teachers' classroom practice and student learning outcomes.

Level 1: Reaction

Guskey (2000) describe evaluating reaction as the easiest and most used form of professional development evaluation. This level is also referred to as "smile sheet" by those who think evaluation at this level has not of much value (Guskey, 2000). However, evaluations at this level are important to make early adjustments to the program or activity before wasting resource on something that is not working. Moreover, Initial positive feeling by people are mostly a necessary condition for a higher-level evaluation result. For instance, if teachers are not satisfied with their initial CPD training, there is high likelihood that they do not practice the learning in the classroom. Findings from evaluating people's reaction need to be carefully interpreted as sometimes people get excited with new programs only for a short moment and or simply resist change due to personal bias (Rueda, 2011).

Teachers' reaction to their experience of comprehensive continuous professional development proposed in this study could be assessed using surveys handed out at the end of the training or activity. Close ended survey questionnaires with rating scale and some open-ended response items could be used. Table 29 below provides tools and examples of questions that

could be used to evaluate teachers' reaction of their experience of participating or being affected by the proposed solution.

Level 2: Learning

Evaluating learning focuses on assessing the positive change in the knowledge, skills, and attitudes of teachers who participated in the program (Guskey, 2000; Kirkpatrick & Kirkpatrick, 2006). Professional development programs commonly prescribe learning objectives that serve as a base for evaluation at Level 2. The best approach to measure at this level involve direct observation as opposed to survey filled by the participant (Rueda, 2011). It is also common to use participants oral or written reflection, pre-test and post-test, and review of the work done by the participant. To evaluate teachers learning from the proposed CPD program, this study suggested using tools that involve classroom observation, review of teachers' portfolio, PLCs meeting minutes, facilitating teachers' reflection, pre-test and post-test, and administering performance test.

Level 3: Organization Support and Change

Guskey (2000) introduced evaluating organization support and change as additional level to Kirkpatrick's four levels model. According to Guskey (2000), even when individual participants exhibit the best commitment and effort, their professional development effectiveness could be hindered by organizational factors. Thus, it is useful to collect information on organization support and change. The question at this level focuses on the organizational processes, policies, structure, resources, and materials necessary for the successful implementation of the proposed comprehensive CPD program. This could involve review and analysis of district and school records, meeting minutes, policies, and procedures. Survey and interviews with participants, school, and district leaders can be also used to learn about the

organization's support level. This information is important to align organization structure and process to ensure that teachers are engaged in effective CPD practices.

Level 4: Behavior

Evaluating at the behavioral level involves assessment of the new knowledge and skills transfer into practice (Rueda, 2011). For teacher's professional development program, the key question at Level 4 is, "Did the learning from teachers professional development change teacher practice?" The assessment at this level requires setting key performance indicators at the professional development program design phase. Like Level 3, the most important information about behavioral change can be collected by direct observation of teachers in the classroom or reviewing their work. The nature of this evaluation requires allowing enough time for teachers to contextualize and practice the learnings. It is also important to evaluate the gradual progress at several time intervals to verify that the behavior is sustained.

Level 5: Results

Guskey (2000) indicated that evaluation at Level 5 answers "the bottom line or Return on Investment" question in education: What was the effect on learners? Evaluation at this level involves measuring indicators of student learning achievement, such as class assessment results, student and teacher's portfolio evaluation, student classroom behavior, participation in extra-curricular activities, report cards, national standardized examinations result, and national reading and literacy assessment results. This information could be collected from school and student records, interviews with teachers, students, parents, and administrators. The summative purpose of this evaluation is to document the overall impact, but formative evaluation can be used to inform performance improvement.

Guskey's model is consistent with teachers' professional development theoretical framework that shows how change in teachers practice due to professional development subsequently leads to increased student learning outcome. Figure 12, indicates Desimone's model showing sequences among the three outcomes of professional development (Desimone L. , 2009) that correlates with Levels 2, 4, and 5 of Guskey's evaluation model.

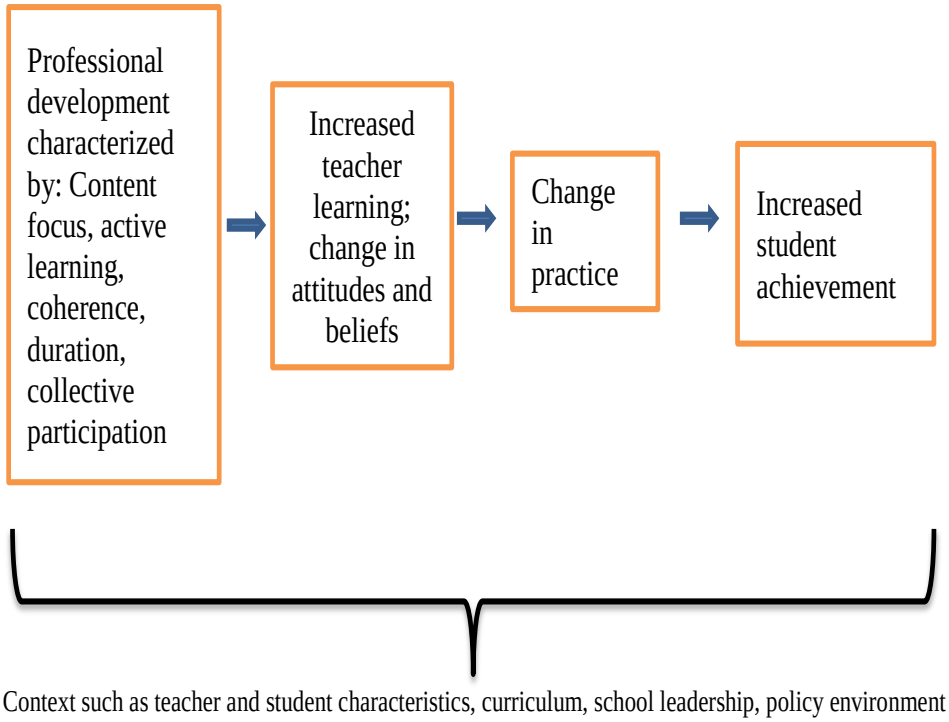

Figure 12. Core conceptual framework for studying the effects of professional development on teachers and students. Adapted from Desimone (2009), Improving impact studies of teachers' professional development: Towards better conceptualizations and measures.

Table 31 below summarizes how evaluation will be conducted for proposed interventions at each level of the Guskey's evaluation model.

Table 31

Evaluation plan

Intervention Proposed	Reactions (Level 1)	Learning (Level 2)	Organization Support & Change (Level 3)	Behavior (Level 4)	Results (Level 5)
Creating and nurturing Professional Learning Communities (PLC)	Survey members of PLCs group to assess their satisfaction with the experience. Following are examples of questions addressed at this level: • Was your time of participating in PLCs well spent? • Were you engaged in the learning? • Were your personal learning needs met? • Are you satisfied with the degree of collective learning practice? • Do you feel safe and seek support from PLC members? • Do you feel comfortable to share your challenges and success stories from classroom teaching and learning process?	Conduct focus group discussion with the PLC members, examine PLCs meeting minutes and observe individual teachers' classroom to measure any new knowledge or skill. The main question to be addressed at this level are: Did the PLC members acquire the knowledge and skills that are intended to improve their classroom practice and student learning outcome?	Administer structured interviews or focus groups and examine school and district records to assess the level of organizational support to PLCs. Following are questions addressed at this level: • What are the impacts of the PLCs establishment on the school? • Did it affect the school climate and procedures? • Were the PLCs promoted, enabled, and supported? • Were the challenges encountered addressed swiftly and efficiently? • Were enough resources (financial and material) allocated to PLCs?	Classroom observation, reflections and structured interviews with PLC participants to determine to what degree they implemented learnings from participation in PLCs into their classroom practice. The key questions to be addressed here are: • Did the PLC participants apply the new knowledge and skill learned from their PLC participation in their classroom? • How are the PLC participants applying what they learned?	Examine and analyze the student and school records, administer survey questionnaire and/or structured interviews with students, parents, teachers, and school principals to assess student learning outcomes improvement. Questions to be addressed include: • Did PLC participation impact student performance/ achievement? What is the evidence? • Did students reading proficiency improved? • Are students better engaged in their learning? • Are students more confident as learners? • Is student attendance rate improving. • Are school dropouts decreasing?

			• Is enough time within the workday is available and used for participation in PLC? • Are the district and school leadership recognizing and supporting professional learning as the key strategy for improving teaching quality and student learning?		
Developing and providing relevant and quality CPD materials	Survey teachers who were provided with new CPD modules and manuals and ask if these manuals are quality and relevant to their professional learning. Specific question to ask includes: • Did the materials/manuals relevant to your CPD needs? • Is the manual clear and easy to use? • Are these CPD resources useful to your professional learning and teaching practice?	Teachers interviewed and asked to reflect on the benefits of the manuals in enhancing their knowledge and skill. Additionally, review teachers' professional portfolios to determine any new knowledge or skill gained by the users of the manuals/module. Key question to ask here is: • Did the teachers attain the knowledge and skills those manuals/modules intended to offer?	Examine school records and survey teachers to assess if the district and schools are continuously improving quality of the materials and created easy access to the CPD modules/manuals. Following are key questions to ask here: • Are the manuals easily accessible to all teachers? • Did the manual preparation and revision process	Observation of teachers' classroom practice and evaluate how learned knowledge, skills, and strategies were applied in their classroom. Additionally, review their professional portfolios to determine documented application of learned knowledge. Following is the main question to ask at this level: Did the users of the manuals/modules effectively	Review student and school records, interview students, parents, teachers, and school principal to determine the improvement in student performance. Key questions to ask are: • Did provision of relevant and quality modules/manuals impact student achievement? What is the evidence? • Did it improve classroom interaction? • Is there improvement in student

	• Do you think these manuals are quality and prepared with high professionalism? • Do you think you will use these manuals to inform your CPD engagement? Do you think these manuals considered your local contexts and hence applicable?		engage teachers? • Are the manuals continuously updated to ensure relevance?	apply the new knowledge and skills into their classroom practice?	reading proficiency? • Did teacher retention improve? Did teacher attendance improve? teacher attendance?
Align the organizational structures and processes with CPD goals	Survey questionnaire administered at the assessment phase to determine the training needs and at the end of the training to assess their initial satisfaction with the experience. For the need assessment, provide list of topics that are considered important for effective CPD practice by teachers and ask them to rate as; of great need, some need or no need. To assess satisfaction with the training itself ask the following questions with a Likert-scale response (Excellent, very good, good, fair, and poor): • How do you rate the relevance of the training to	Administer pen and paper pre-test and post-test on teachers' knowledge about CPD meaning, purpose, purpose, toolkit, professional portfolio, characteristics of effective CPD, and action research to assess whether the participants acquired the intended knowledge and skills; use experimental and control group should the resource allows. And use performance test and observation to measure gain in new intended skills. This could include asking teachers to demonstrate their reflection skill orally or in writing, and observation of participant	Survey questionnaires, minutes of CPD meetings, interviews with participants, and school records could be used to document organizational support and impact of the training on the organization. The following questions are addressed at this level of evaluation: • Is the school impacted? How? • Did it affect school environment and procedures? • Was the implementation supported by the school principal and district leadership?	Interview trained teachers and school principals to assess how much of the knowledge, skills, and attitudes learned from the training transferred into practice. Additionally, observation of teachers' classroom practice and engagement in professional learning communities (PLC) and review of their work including action research they conducted and their professional portfolio and identify application of learnings from the	Examining student and school records and interview students, parents, teachers, and school principals to document improvement in student learning outcomes including cognitive, affective, psychomotor. The following questions are addressed to evaluate at this level: • What was the impact on students' achievement? • Did it influence students' reading proficiency? • Did it influence students' emotional well-being? • Are students more

	your effective CPD practice? • How do you rate training period? length? • How do you rate the training resources provided? • How do you rate the trainer's knowledge on the topic? Training facilitation skill? • How do you rate the training space convenience? • How do you rate the refreshment service?	portfolios. The guiding evaluation question at this stage is: Did the training participants acquire the intended knowledge and skills?	• Were challenges addressed quickly and efficiently? • Were adequate resources allocated? • Were achievements recognized and celebrated?	training. The following questions are addressed at this level of evaluation: • Did the training participants effectively apply the new knowledge and skills? • How are participants using learned teaching and learning strategies? • What challenge are participants encountering to practice learning?	confident as learners? • Are students actively participating in the classroom? • Is student attendance rate improving. • Is student absenteeism decreasing.
	Survey CPD practicing teachers to determine if they are satisfied with the support structure provided by the district. Questions to ask are: • Do you think you have adequate support (time, financial, and material) in your CPD practice from district and school leadership?	Not Applicable	Review district and school organizational structure and strategic plan document to assess the level of importance given to CPD. Key questions to ask while reviewing the documents are: • Is CPD recognized in strategic documents as a priority programme area to improved	Not Applicable	Review school and district annual reports to assess the effectiveness of institutionalizing CPD in improving teachers' classroom practice and student learning outcomes. Key questions to ask here are: • What was the impact of institutionalizing CPD on teachers'

	• Is clear CPD goal provided by your school? • Is there a clear CPD structure and process at your school? • Do you get frequent and effort focused feedback on your CPD practice from school and cluster supervisor?		teacher quality and ultimately improve education quality? • Is it clear from the org structure that there are personnel responsible for the effective execution of CPD • Is budget clearly earmarked for the CPD programme ?		classroom practice? • Did it impact student achievement and school participation ? What is the evidence? • Did it reduce teachers' retention? • Did it improve teachers' collective efficacy?
Link CPD with teachers' incentives	Survey teachers to assess their perception on the value of linking CPD with their incentives. • Are you happy with the government decision to link your CPD practice with teachers' incentives? • Do you think this will benefit teachers actively practicing in CPD? • Do you see this is an incentive to teachers? • Will it motivate you to effectively engage in CPD?	Not Applicable	Interview teachers to determine if the policy of linking CPD with teachers' incentives was put into practice. Key questions to ask: • Is the policy to link CPD with teachers' incentives practically implemented? • Is the policy implementation widely shared, promoted, and adequately supported by the	Not Applicable	Review school and district annual reports to assess the effectiveness of linking CPD with teachers' incentives in improving teachers' classroom practice and student learning outcomes. Key questions to ask here are: • What was the impact on teachers' classroom practice? • Did it improve teachers' utility value of CPD? • Did it improve teachers' interest to actively

			government ? • What challenges encountered in the implementation process of this policy?	engage in CPD? • Did it increase teachers' retention? • Did it impact student achievement ? What is the evidence?

Future Research

This mixed method study evaluated the extent to which BDEO's teachers are successfully engaging in effective CPD practices predominantly based on teachers self-reporting. In this regard, future research could provide a relatively more complete picture about teachers' CPD practice by studying additional key stakeholders including school principals and cluster supervisors. Further, empirical and longitudinal studies based on direct observation are also important to investigate whether the teachers really change their teaching practices and students' learning outcomes as a result of CPD practice. It is also evident from several studies that leadership plays a significant role in teacher development (Stoll et al., 2012; Whitworth & Chiu, 2015). This study findings also suggest the need for supportive leadership to ensure effective CPD practices by teachers. Therefore, future research is necessary to explore the school and district's leadership knowledge, motivation, and organizational needs to effectively support teachers' effective CPD engagement.

Conclusion

Teacher quality is considered one of the most important factors in student achievement (Abebe & Woldehanna, 2013; Darling-Hammond, 2000; Gemeda et al., 2014; Muijs et a., 2004). Therefore, it is justifiable for education systems to invest in teachers' professional development. However, not all types of professional development programs are effective in improving

classroom instruction and student learning outcomes (Darling-Hammond et al, 2017; Desimone L. , 2009). This study examined the extent to which BDEO's teachers are successfully engaging in effective practices with a focus on analyzing the knowledge and skills, motivation, and organizational influences. The main findings that emerged from the data analysis were limited knowledge of the CPD program and effective practices, low teachers' self-efficacy, limited collaborative cultures in schools, unsupportive leadership, shortage of time, and lack of funding and supplementary resources.

From the data analysis, it was also clear that the BDEO's teachers CPD practice did not meet the core-features of effective CPD design including: Content focus, active learning, duration, collective participation, and coherence. Though the CPD framework claim that it was developed with input from teachers, the reality as shared by teachers indicates that it was a top-down prescribed program. The program assumes the "one-size -fits-all" approach with no consideration of teacher differences. And the resource materials created were found mostly to be generic with little value to increase teacher's subject and pedagogical knowledge and skills. This coupled with a lack of overall knowledge about the CPD program, resulted in limited buy-in to the program. Many teachers tended to show-up at CPD meetings only because there is a mandatory requirement of 60 hours per year and the quality of how these 60 hours spent is not a consideration. CPD discussions are often conducted using teachers personal time which was also another frustration for teachers already overburdened with their classroom teaching loads.

Teachers indicated that organizational factors including school culture, leadership support, resources, and professional development opportunities as the major factors hindering their successful engagement in effective CPD practices. Teachers indicated inadequacy of collaborative culture among teachers due to lack of trust among teachers. The school and district

leadership were reported being incapable to effectively supporting teachers' CPD practice. The leadership was unable to build a culture of collaboration, provide coaching, mentoring, and frequent corrective feedback on teachers' CPD practice. Many teachers indicated no sense of ownership among both teachers and school leadership. Teachers received neither CPD materials nor appropriate training on it.

To summarize, despite the CPD framework intention to improve teacher practice and student learning, based on the study findings this initiative has only been realized on paper rather than in practice for over a decade. If the program failed to deliver on its' promises for over a decade, it is unwise to expect results without revitalizing the program. This study proposed evidence-based solutions to revitalize the program and close performance gaps. The solutions recommended in this study address all the validated influences: (1) Create effective professional learning communities (PLCs); (2) Develop and provide relevant and quality CPD materials; (3) Align the organizational structures and processes with CPD goals; (4) Linking CPD with teachers' incentives. Schools should also develop a culture of using university graduate youth volunteers and other professionals in the communities to replace teachers so that they have time to engage in their CPD activities. The implementation of these solutions will enable BDEO's teachers to successfully engage in effective CPD practices. The engagement in effective CPD practices will help teachers to engage in continuous learning and transform their instruction with a focus on student learning.

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APPENDIX A

SURVEY ITEMS

This questionnaire aims to look at your experience of CPD practice and activities and how these are evaluated from your perspective. All responses will be in complete confidence. No school or participant will be identified in any report of findings.

Instruction: Please complete and return this survey by hand to the researcher.

1. Gender:
    - Male
    - Female
2. Your age: _____
3. How long have you been a teacher? _____
    a. Out of your total service, how many years you served in this school? _____
4. What is your highest level of education?
    - ☐ High School Complete
    - ☐ College diploma
    - ☐ BA/BSc degree
    - ☐ MA/MSc degree
    - ☐ Other, please specify_____
5. Which of the following CPD method have you experienced in your school over the last 12 months?

	Often	Sometimes	Rarely	Never
Action research				
Collaborative learning				
Single Workshops/courses				
Visiting schools to see examples of good practice				
Visiting teachers to see examples of good practice				

Discussion meetings				
Demonstration lessons				
Planning lesson together				
Peer observation				
Observation of lesson and feedback				
Observation of students in lessons				
Assessment of students' work before and after the CPD activity				
Shadowing a teacher				
Maintaining your professional portfolio				
Team teaching				
Mentoring				
Self-directed study				
Other (please specify) ……				

6. Which one of the following areas were the focus of your CPD activities over the last 12 months?

	Often	Sometimes	Rarely	Never
Subject matter content				
Teaching methodologies and strategies				

Classroom management techniques				
Life-skills				
Continuous assessment				
CPD framework				
Action research				
Other (please specify) ……				

7. Please rate the impacts of your engagement in CPD activities?

	Highly changed	Somewhat changed	Not changed
Improvement in my knowledge and skills			
Positive change in my attitudes			
Positive change in my classroom practice			
Improved my student's behavior			
Improved my students' learning outcome			
Enhanced collegiality with colleagues			
Other (please specify) ……			

8. Please rate the effectiveness of the following forms of CPD in enhancing your professional Knowledge, skills and attitude?

	Highly effective	Somewhat effective	Somewhat ineffective	Ineffective	Never participated in this type of activity
Action research					
Collaborative learning					
Single Workshops/courses					
Visiting schools to see examples of good practice					
Visiting teachers to see examples of good practice					
Discussion meetings					
Demonstration lessons					
Planning lesson together					
Peer observation					
Observation of lesson and feedback					
Observation of students in lessons					

Assessment of students' work before and after the CPD activity					
Shadowing a teacher					
Maintaining your professional portfolio					
Team teaching					
Mentoring					
Self-directed study					
Other (please specify) ……					

9. I believe collaborative learning is valuable for me in supporting my students to achieve at least basic reading proficiency.
    - ☐ Strongly Disagree
    - ☐ Disagree
    - ☐ Agree
    - ☐ Strongly Agree
10. I believe learning through peer collaboration worth my time.
    - ☐ Strongly Disagree
    - ☐ Disagree
    - ☐ Agree
    - ☐ Strongly Agree
11. I believe engaging in action research is valuable for me in supporting my students to achieve at least basic proficiency.
    - ☐ Strongly Disagree

- ☐ Disagree
- ☐ Agree
- ☐ Strongly Agree

12. Active engagement in collaborative learning enables me to become an expert teacher.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Agree
- ☐ Strongly Agree

13. I am confident in my ability to conduct action research.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Agree
- ☐ Strongly Agree

14. The culture of our school encourages collaborative learning.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Agree
- ☐ Strongly Agree

15. We have a strong collaborative learning culture at our school.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Agree
- ☐ Strongly Agree

16. Our school principal is supportive in our action research engagement.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Agree
- ☐ Strongly Agree

17. Our cluster supervisor is supportive in our action research engagement.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Agree
- ☐ Strongly Agree

18. The school principal is highly supportive of collaborative learning among teachers.
    - ☐ Strongly Disagree
    - ☐ Disagree
    - ☐ Agree
    - ☐ Strongly Agree
19. Our school provide enough time for teachers to participate in collaborative learning.
    - ☐ Strongly Disagree
    - ☐ Disagree
    - ☐ Agree
    - ☐ Strongly Agree
20. Our school provides enough time for teachers to conduct action research.
    - ☐ Strongly Disagree
    - ☐ Disagree
    - ☐ Agree
    - ☐ Strongly Agree
21. Our district allocates adequate resources to facilitate teachers' active engagement in collaborative learning.
    - ☐ Strongly Disagree
    - ☐ Disagree
    - ☐ Agree
    - ☐ Strongly Agree
22. Our district allocates adequate resources for teachers to engage in action research.
    - ☐ Strongly Disagree

- ☐ Disagree
- ☐ Agree
- ☐ Strongly Agree

23. Over the last 12 months, I received appropriate training in the area of collaborative learning.
    - ☐ Strongly Disagree
    - ☐ Disagree
    - ☐ Agree
    - ☐ Strongly Agree
24. Over the last 12 months, I received appropriate training in the area of action research.
    - ☐ Strongly Disagree
    - ☐ Disagree
    - ☐ Agree
    - ☐ Strongly Agree
25. The training I received on action research meets my needs.
    - ☐ Strongly Disagree
    - ☐ Disagree
    - ☐ Agree
    - ☐ Strongly Agree
26. Our school provides ongoing CPD opportunity.
    - ☐ Strongly Disagree
    - ☐ Disagree
    - ☐ Agree
    - ☐ Strongly Agree
27. The school provides sustained CPD.
    - ☐ Strongly Disagree
    - ☐ Disagree

- ☐ Agree
- ☐ Strongly Agree

28. Our school CPD plans have had clearly defined goals based on student learning outcomes
    - ☐ Strongly Disagree
    - ☐ Disagree
    - ☐ Agree
    - ☐ Strongly Agree
29. For the most part, my CPD experiences have improved my classroom practices.
    - ☐ Strongly Disagree
    - ☐ Disagree
    - ☐ Agree
    - ☐ Strongly Agree
30. I have been able to collect verifying evidence on improvements in student learning outcomes to evaluate the effectiveness of CPD experience.
    - ☐ Strongly Disagree
    - ☐ Disagree
    - ☐ Agree
    - ☐ Strongly Agree
31. How many hours of CPD activities you were engaged in over the last 12 months?
    - ☐ Less than 49 hours
    - ☐ 49-59 hours
    - ☐ 60 hours and above
32. What are the challenges you encountered in in your effort to practice effective CPD, if any?

33. What do you propose to be done to ensure effective CPD practice by primary school teachers in Ethiopia?

34. Please provide if you have any other feedback about teachers' CPD practice in Ethiopia.

Thank you for taking the time to complete this survey!

To gain in-depth understanding about CPD, I will be conducting one-on-one cross-sectional interview. If you are willing to participate in the interview, please complete the interview commitment sheet on a separate sheet provided with this survey questionnaire.

APPENDIX B

INTERVIEW PARTICIPANT RECRUITMENT SHEET

If you are willing to be considered to participate in an in-depth interview, please complete the following information and return separately to the researcher.

i. Your name: _____

ii. Gender:
   - Male
   - Female

iii. Your age: _____

iv. How long have you been a teacher? _____
   a. Out of your total service, how many years you served in this school? _____

v. What Grade level do you teach? _____

vi. What Subject do you teach? _____

vii. What is your highest level of education?
   - ☐ High School Complete
   - ☐ College diploma
   - ☐ BA/BSc degree
   - ☐ MA/MSc degree
   - ☐ Other, please specify_____

viii. Your Cellphone Number: _____

ix. In your opinion, how knowledgeable you are about teachers' CPD practice in Ethiopia?
   - ☐ Highly Knowledgeable
   - ☐ Moderately knowledgeable
   - ☐ Somewhat Knowledgeable
   - ☐ Not Knowledgeable

Please note that your contacts will be used only to seek subsequent feedback on the researcher's interpretation and preliminary study findings; if needed.

Thank you for volunteering to be considered to participate in the interview.

APPENDIX C

INTERVIEW PROTOCOL

Instruction: Interview two teachers from each selected school and among those who volunteered for interview and have the highest years of teaching experience.

Thank you for volunteering to schedule this interview with me. I am a doctoral candidate at Rossier School of Education, University of Southern California, USA. The purpose of this research is to investigate the degree to which Barbare District Education Office (BDEO) teachers are successfully engaging in effective Continuous Professional Development (CPD) practices.

It is anticipated that each interview will take approximately 45 minutes and will be recorded. Your responses to the questions will be kept confidential and I will assign assumed names to the interview to keep your identity confidential. Data collected from interviews and self-administered surveys will identify the knowledge, motivation, and organizational challenges for BDEO's teachers to successfully engage in effective CPD practice. The study finding may assist teachers, district policy makers, and school leaders in the quest for effective CPD practice.

In the informed consent you agreed to audio recording; once again I would like to remind you that this interview will be recorded. After transcribed, the digital recording will be destroyed to keep your identity confidential. With this in mind, is it ok if I record my entire interview session with you today?

1. What comes to your mind when you hear the phrase "CPD"?
    - What is CPD?
    - What do you know about CPD framework; if at all?
    - What is the purpose of CPD?
    - Walk me through the CPD cycle?
2. What evidence do you or the school collect about the impact of your CPD at school, teacher and student levels?
3. Tell me what you know about portfolio of CPD?
    - Who is responsible to keep portfolio of CPD?
    - What goes into the CPD portfolio?

- Walk me through the steps of keeping portfolio of CPD; if you know at all.
- What is the purpose of keeping portfolio?

4. Tell me your experience of using the national CPD toolkit?
    - Do you use it? If yes, how? Give me an example of the last time you used it.
    - What do you say about its clarity? Usefulness?
5. In your opinion, what are the characteristics of effective CPD? Give me an example of effective CPD you experienced.
6. Think of effective CPD experience you had, what did you find most helpful?
    - How your classroom instructional practice is different because of the experience?
    - How has your students' learning experience improved as a result of this positive experience?
    - What evidence do you have to support your statement?
7. What makes CPD ineffective? Give me an example of the ineffective CPD you experienced. What was missing?
8. What comes to your mind when you think of collaborative learning?
    - Tell me ways you participate in collaborative learning, if at all.
    - Give me an example of a collaborative learning experience you experienced over the last 12 months.
    - Was your collaborative experience useful? If yes, in what way do you find it useful?
    - How common is the peer classroom observation practice in your school? Tell me more about your experience of it.
    - Do you reflect about your classroom observation with other teachers?
    - How do you judge the trust among the teachers to collaborate?
9. Tell me what you know about action research.
    - Walk me through the steps you would take when conducting action research?
    - What does the first step look like when implemented?

- Provide a recent example of a time when you conducted action research.
- What was your action research about?
- How did you collect the data?
- How did you analyze the data?
- Why about this topic?
- What did you do with the study?
- What do you need to master conducting useful action research?

10. Tell me about the last time you reflected on your learning needs; if at all?
    - Who else was involved in the reflection?
    - What did you have reflected on?
    - What learning needs have you identified in that reflection?
    - What steps have you taken with the outcome of your reflection?
    - What did you reflect on commonly?
11. Tell me about the last time you reflected on your teaching practice; if at all?
    - Who else was involved in the reflection?
    - What did you have reflected on?
    - What areas of your teaching have you identified to improve in that reflection?
    - What steps have you taken with the outcome of your reflection?
    - What did you reflect on commonly?
12. Is there anything more that you would like to share about teachers CPD practice in Ethiopia?

Thank you so much for participating in this interview. For questions or additional thoughts related to this study, feel free to contact me by email using seidamam@usc.edu or call me at 251 935 99 89 16. May I also contact you for any follow-up clarifications?

APPENDIX D

DOCUMENT REVIEW CHECKLIST

Instructions: Review the teacher professional portfolio and action research to examine if teachers have the knowledge, skill and organization support to successfully engage in effective CPD practice. Place a tick (✓) for each activity or document present.

		Is it present?		
	Description of document reviewed	**Yes**	**No**	**Comments**
I	**National Policy documents**			
	The teacher has a copy of CPD framework document.			
	The teacher has a copy of "The purpose of professional Portfolio" document			
	The teacher has a copy of CPD modules			
	The teacher has "The Practical CPD toolkit" manual			
II	**Teacher Professional portfolio**			
	The teacher annually updates her/his professional portfolio			
	The teacher portfolio has been at least annually reviewed			
	In the portfolio, the teacher clearly identified CPD needs and articulated plan.			
	The portfolio includes detail analysis of student's achievement with analysis			
	The teacher documented self-reflection on progress in her/his professional portfolio			
III	**Action Research**			
	The teacher has been conducting action research.			
	The action research conducted by the teacher is inquiry-based.			
	The action research conducted targeted identified teaching and learning problems.			
	The action research conducted lead to deliberate and planned action			

APPENDIX E

UNIVERSITY OF SOUTHERN CALIFORNIA

INFORMATION SHEET FOR RESEARCH

(Effectiveness of Continuous Professional Development in Ethiopia: Evaluation Study)

You are invited to participate in a research study conducted by **Seid Mohammed** at the University of Southern California. Please read through this form and ask any questions you might have before deciding whether you want to participate.

PURPOSE OF THE STUDY

This research study aims to understand the degree to which Barbare District Education Office (BDEO) is meeting its goal of 100% teachers successfully engaging in effective CPD practices.

PARTICIPANT INVOLVEMENT

If you agree to take part in this study, you will be asked to complete a 15 minutes self-administered survey and return it to the principal investigator. You do not have to answer any questions you don't want to. If you are interested, you could also choose to be considered to participate in a 45-minutes face to face in-depth semi-structured interviews which will be followed-up with a 15-minutes document review.

PAYMENT/COMPENSATION FOR PARTICIPATION

Your participation will be voluntarily and there will be no financial incentive for participation.

CONFIDENTIALITY

Any identifiable information obtained in connection with this study will remain confidential. At the completion of the study, direct identifiers will be destroyed, and the de-identified data may be used for future research studies. If you do not want your data used in future studies, you should not participate.

The members of the research team and the University of Southern California's Human Subjects Protection Program (HSPP) may access the data. The HSPP reviews and monitors research studies to protect the rights and welfare of research subjects.

INVESTIGATOR CONTACT INFORMATION

If you have any questions or concerns about the research, please feel free to contact **Seid Mohammed** at **seidamam@usc.edu and/or 251 935 99 8916.**

IRB CONTACT INFORMATION

If you have questions, concerns, or complaints about your rights as a research participant or the research in general and are unable to contact the research team, or if you want to talk to someone independent of the researcher, please contact the University Park Institutional Review Board (UPIRB), 3720 South Flower Street #301, Los Angeles, CA 90089-0702, (213) 821-5272 or upirb@usc.edu.

Thank you!

APPENDIX F

RECRUITMENT LETTER

Dear Participant,

I am a doctoral student conducting research under the supervision of Professor Rob Filback at the University of Southern California. I will explain the study to you in detail and you should feel free to ask me any questions about the study that you may have. If at a later time, you would like additional information about this study, you should contact Seid Mohammed at 251 935 99 8916 and/or e-mail: seidamam@usc.edu.

The purpose of this research is to investigate the degree to which Barbare District Education Office (BDEO) teachers are successfully engaging in effective Continuous Professional Development (CPD) practices. Data collected from self-administered surveys and interviews will identify the perceptions of primary school teachers about their CPD practice effectiveness. Filling out the survey instrument will take about 15 minutes. Also, participants will be asked to volunteer to participate in interview that will last approximately for 45 minutes. The risks involved with participation in this study are no more than one would experience in regular daily activities. The study finding may assist teachers, district policy makers, and school leaders in the quest for effective CPD practice.

If you do decide not to participate, you may terminate your participation at any time with no penalty. If you have concern about this study process, you may send your concerns to Dr. Rob Filback, chairperson of my dissertation, by sending an email to rfilback@gmail.com.

Thank you for your time, I really appreciate your feedback.

Seid Mohammed Signature_____

APPENDIX G

INFLUENCER AND PROTOCOL TABLE

A. Knowledge Influence and Protocol

Assumed Knowledge Influence	Instrument Type	How will it be validated (item)?
Teachers need knowledge of the national CPD framework, toolkit and portfolio (K1).	Interview	13. What comes to your mind when you hear the phrase "CPD"? • What is CPD? • What do you know about CPD framework; if at all? • What is the purpose of CPD? • Walk me through the CPD cycle? 14. What evidence do you or the school collect about the impact of your CPD at school, teacher and student levels? 15. Tell me what you know about professional portfolio of CPD. • Who is responsible to keep portfolio of CPD? • What goes into the CPD portfolio? • Walk me through the steps of keeping portfolio of CPD; if you know at all. • What is the purpose of keeping portfolio? • How often updated? • Who reviews it? 4. Tell me your experience of using the national CPD toolkit. a. Do you use it? If yes, how? Give me an example of the last time you used it. b. What do you say about its clarity? Usefulness?
	Document review	• The portfolio has been annually updated. (Yes/No) • In the portfolio, the teacher clearly identified CPD needs and articulated plan. (Yes/No)

		• The portfolio includes detail analysis of student's achievement with analysis. (Yes/No) • The teacher documented self-reflection on progress in her/his professional portfolio. (Yes/No)
	Survey	7 n and l. Which of the following CPD method have you experienced in your school over the last 12 months (Maintaining professional portfolio, assessment of students' work before and after)? 8f. Which one of the following areas were the focus of your CPD activities over the last 12 months (CPD framework)?
Teachers need to understand the characteristics of effective CPD (K2)	Interview	5. In your opinion, what are the characteristics of effective CPD? Give me an example of effective CPD you experienced. 6. Think of effective CPD experience you had, what did you find most helpful? • Tell me about the teaching strategies that you improved because of your experience. How your classroom instructional practice is different because of the experience? • How has your students' learning experience improved as a result of this positive experience? • What evidence do you have to support your statement? 7. What makes CPD ineffective? Give me an example of the ineffective CPD you experienced. What was missing?
	Survey	35. What do you propose to be done to ensure effective CPD practice by primary school teachers in Ethiopia?

Teachers need to know how to collaborate with other teachers via observation and reflection to improve their own teaching effectiveness and that of others (K3).	Interview	8. What comes to your mind when you think of collaborative learning? • Tell me ways you participate in collaborative learning, if at all. • Give me an example of a collaborative learning experience you experienced over the last 12 months. • Was your collaborative experience useful? If yes, in what way do you find it useful? • How common is the peer classroom observation practice in your school? Tell me more about your experience of it. • Do you reflect about your classroom observation with other teachers? • How do you judge the trust among the teachers to collaborate?
	Survey	7. Which of the following CPD method have you experienced in your school over the last 12 months (7b, 7d-7p) (Often, Sometimes, Rarely, Never)?
Teachers need to know how to engage in conducting action research(K4)	Interview	9. Tell me what you know about action research. • Walk me through the steps you would take when conducting action research? • What does the first step look like when implemented? • Provide a recent example of a time when you conducted action research. • What was your action research about? • How did you collect the data? • How did you analyze the data? • Why about this topic? • What did you do with the study? • What do you need to master conducting useful action research?
	Document review	• The teacher has been conducting action research. (Yes/No) • The action research conducted by the teacher is inquiry-based. (Yes/No) • The action research conducted targeted identified teaching and learning problems. (Yes/No) • The action research conducted lead to deliberate and planned action. (Yes/No)

	Survey	7a. Which of the following CPD method have you experienced in your school over the last 12 months (Action research)? 8g. Which one of the following areas were the focus of your CPD activities over the last 12 months (action research)?
By reflecting on their learning and teaching, teachers need to be able to identify key needs and engage in planning to meet these needs (K5).	Interview	10. Tell me about the last time you reflected on your learning needs; if at all? • Who else was involved in the reflection? • What did you have reflected on? • What learning needs have you identified in that reflection? • What steps have you taken with the outcome of your reflection? • What did you commonly reflect on? 11. Tell me about the last time you reflected on your teaching practice; if at all? • Who else was involved in the reflection? • What areas of your teaching have you identified to improve in that reflection? • What steps have you taken with the outcome of your reflection?

B. Motivation Influences and Protocol

Motivation Construct	Assumed Motivation Influence	Instrument Type	How will it be Validated (item)?
Utility Value	Teachers need to see the value of engaging in collaborative learning as a critical component of effective CPD practice and in supporting students in achieving at least basic proficiency (M1).	Survey	9. Please rate the impacts of your engagement in CPD activities (improvement in Knowledge and Skills, positive change in attitudes, classroom practice, students' behavior, students learning outcome, enhanced collegiality) –(Highly changed, somewhat changed, and not changed)? 10b,10d,10e,10f,10g,10h,10I,10j,10k,10m,10o,10p. Please rate the effectiveness of the following forms of CPD in enhancing your professional Knowledge, skills, and attitude? (Highly effective, somewhat effective, somewhat ineffective, ineffective, never participated). 11. I believe collaborative learning is valuable for me in supporting my students to achieve at least basic reading proficiency.

			(Strongly Disagree, Disagree, Agree, Strongly Agree) 12. I believe learning through peer collaboration worth my time. (Strongly Disagree, Disagree, Agree, Strongly Agree) 14. Active engagement in collaborative learning enables me to become an expert teacher. (Strongly Disagree, Disagree, Agree, Strongly Agree) 31 For the most part, my CPD experiences have improved my classroom practices. (Strongly Disagree, Disagree, Agree, Strongly Agree)
	Teachers need to see the value of engaging in action research as a critical component of effective CPD practice and in supporting students in achieving at least basic proficiency(M2).	Survey	9. Please rate the impacts of your engagement in CPD activities (improvement in Knowledge and Skills, positive change in attitudes, classroom practice, students' behavior, students learning outcome, enhanced collegiality) -Highly changed, somewhat changed, and not changed? 10a. Please rate the effectiveness of the following forms of CPD in enhancing your professional Knowledge, skills, and attitude (Action research)? (Highly effective, somewhat effective, somewhat ineffective, ineffective, never participated). 13. I believe engaging in action research is valuable for me in supporting my students to achieve at least basic proficiency. (Strongly Disagree, Disagree, Agree, Strongly Agree) 31 For the most part, my CPD experiences have improved my classroom practices. (Strongly Disagree, Disagree, Agree, Strongly Agree)
Self-efficacy	Teachers need to believe they are capable of effectively engaging in action research and collaborative learning (M3).	Survey	15. I am confident in my ability to conduct action research. (Strongly Disagree, Disagree, Agree, Strongly Agree) 32. I have been able to collect verifying evidence on improvements in student learning outcomes to evaluate the effectiveness of CPD experience. (Strongly Disagree, Disagree, Agree, Strongly Agree)

C. Organizational Influences and Protocol

Organizational Influence Category	Assumed Organizational Influence	Instrument Type	How will it be validated (item)?
Cultural Model Influence 1	The school needs to cultivate and embrace a culture of collaborative learning(O1)	Survey	16 The culture of our school encourages collaborative learning. (Strongly Disagree, Disagree, Agree, Strongly Agree) 17 We have a strong collaborative learning culture at our school. (Strongly Disagree, Disagree, Agree, Strongly Agree)
Cultural Model Influence 2	The district and school leadership need to be supportive of teachers' engagement in action research and collaborative learning as example of CPD(O2).	Survey	18 Our school principal is supportive in our action research engagement. (Strongly Disagree, Disagree, Agree, Strongly Agree) 19 Our cluster supervisor is supportive in our action research engagement. (Strongly Disagree, Disagree, Agree, Strongly Agree) 20 The school principal is highly supportive of collaborative learning among teachers. (Strongly Disagree, Disagree, Agree, Strongly Agree) 30 Our school CPD plans have had clearly defined goals based on student learning outcomes. (Strongly Disagree, Disagree, Agree, Strongly Agree)
		Document review	The teacher portfolio has been at least annually reviewed. (Yes/No)
Cultural Setting Influence 1	The district needs to allocate adequate resource and provide sufficient time to facilitate and encourage teachers to be engaged in action research and collaborative learning(O3).	Survey	21 Our school provide enough time for teachers to participate in collaborative learning. (Strongly Disagree, Disagree, Agree, Strongly Agree) 22 Our school provides enough time for teachers to conduct action research. (Strongly Disagree, Disagree, Agree, Strongly Agree). 23 Our district allocates adequate resources to facilitate teachers' active engagement in collaborative learning. (Strongly Disagree, Disagree, Agree, Strongly Agree)

			24 Our district allocates adequate resources for teachers to engage in action research. (Strongly Disagree, Disagree, Agree, Strongly Agree) 33 How many hours of CPD activities you were engaged in over the last 12 months? (Less than 49 hours, 49-59 hours, 60 hours and above)
		Document review	• The teacher has a copy of CPD framework document. (Yes/No) • The teacher has a copy of "The purpose of professional Portfolio" document. (Yes/No) • The teacher has a copy of CPD modules. (Yes/No) • The teacher has "The Practical CPD toolkit" manual. (Yes/No)
Cultural Setting Influence 2	The district needs to provide appropriate training in the area of collaborative learning and action research (O4).	Survey	8.Which one of the following areas were the focus of your CPD activities over the last 12 months? (Subject matter content, Teaching methodologies and strategies Classroom management techniques, Life-skills, Continuous assessment, CPD framework, Action research, Other. 25. Over the last 12 months, I received appropriate training in the area of collaborative learning. (Strongly Disagree, Disagree, Agree, Strongly Agree) 26. Over the last 12 months, I received appropriate training in the area of action research. (Strongly Disagree, Disagree, Agree, Strongly Agree) 27. The training I received on action research meets my needs. (Strongly Disagree, Disagree, Agree, Strongly Agree) 28. Our school provides ongoing CPD opportunity. (Strongly Disagree, Disagree, Agree, Strongly Agree) 29. The school provides sustained CPD. (Strongly Disagree, Disagree, Agree, Strongly Agree)

Questions not linked to specific KMO factor

Following are items in the survey which are not directly linked to specific KMO factor.

1. Gender:
   - o Male
   - o Female
2. Your age: _____
3. How long have you been a teacher? _____
   a. Out of your total service, how many years you served in this school? ____
4. What Grade level do you teach? _____
5. What Subject do you teach? _____
6. What is your highest level of education?
   - ☐ High School Complete
   - ☐ College diploma
   - ☐ BA/BSc degree
   - ☐ MA/MSc degree
   - ☐ Other, please specify_____

34 What are the challenges you encountered in your effort to practice effective CPD, if any?

35 What do you propose to be done to ensure effective CPD practice by primary school teachers in Ethiopia?

36 Please provide if you have any other feedback about teachers' CPD practice in Ethiopia?

Question 1 to 6 were to get demographic data including participant's gender, years of teaching experience, subject thought, and qualification. These data was used to segregate the findings by category and compare. Survey questions (34 – 36) are more open-ended question seeking for additional inputs from the participants that might relate to any of the assumed KMO influences.

APPENDIX H

MAP OF THE DISTRICT FOR THE STUDY