PROJECT-BASED LEARNING IN THE PRIMARY LEVEL OF ENGLISH MEDIUM SCHOOLS: PRACTICE AND PERCEPTION OF TEACHERS AND STUDENTS

By

FARZANA AHMED
Student ID: 20357007

A thesis submitted to the BRAC Institute of Educational Development in partial fulfillment of the requirements for the degree of
Master of Education in Educational Leadership & School Improvement

BRAC Institute of Educational Development
BRAC University
May 2023

© 2023. Farzana Ahmed
All rights reserved.

Declaration

It is hereby declared that

1. The thesis submitted is my own original work while completing degree at BRAC University.
2. The thesis does not contain material previously published or written by a third party, except where this is appropriately cited through full and accurate referencing.
3. The thesis does not contain material which has been accepted, or submitted, for any other degree or diploma at a university or other institution.
4. I have acknowledged all main sources of help.

Student's Full Name & Signature:

FARZANA AHMED

20357007

Approval

The thesis titled “Project-Based Learning in the Primary Level of English medium Schools: Practice and Perception of Teachers and Students” submitted by

1. Farzana Ahmed (20357007)

of Fall, 2020 has been accepted as satisfactory in partial fulfillment of the requirement for the degree of Master of Education in Educational Leadership & School Improvement on May 29, 2023.

Examining Committee:

Supervisor:
(Member)

_____
Dr. Dilruba Sultana

Senior Lecturer, BRAC Institute of Educational Development

Program Coordinator:
(Member)

_____
Dr. Manjuma Akhtar Mousumi

Assistant Professor, BRAC Institute of Educational Development

External Expert Examiner:
(Member)

_____
Md. Mamunur Rashid

Senior Lecturer, BRAC Institute of Educational Development

Head of the Institute:

_____
Dr. Erum Mariam

Executive Director, BRAC Institute of Educational Development

Ethics Statement

I, hereby, state that this paper is my original work and throughout the work I consciously kept all kinds of biases, personal beliefs and prejudices away to ensure the neutrality and authenticity of the findings. Through the consent letter I informed the purpose and process of this study elaborately and thus I gained the permission of the site and the participants to interview, to have informal discussions, to observe and analyze products, and documents. The Participants of this study were aware of the topic, duration of the interview and the discussions that had been recorded, class and documents observations. Again, I mentioned to my participants that their identity would not be disclosed and pseudonym would be used to refer to their views. Also, participants were aware that they could withdraw from the interview or any other observation according to their wish. I transcribed all the words verbatim from the recorded version. Only, I had to translate some of the words and sentences from Bengali to English in some cases when the participants spoke both in Bengali and English. During data analysis, I was aware of keeping all the data in its natural form, and I did not omit or added any word or phrase. Therefore, this Qualitative analysis was an authentic study. I mentioned all the sources of references which were used in this research with the proper citation of APA 7th Edition.

Abstract

Project-Based Learning (PBL) is an internationally proven approach. This comprehensive learning approach is an inquiry based instructional model that has gained attention and appreciation by the reputed Educationist and scholars around the world. In Bangladesh, many English medium schools (EMSs) integrated PBL in their regular school curriculum alongside traditional teaching-learning practices to achieve higher level of educational standard appropriate for the development of 21st century knowledge, and skills for the students. In this regard, the aim of this qualitative study was to learn about 'Project-Based Learning in the Primary Level of English medium Schools: Practice and Perception of Teachers and Students'. The research site and the participants were selected with purposive sampling for this study. This research explored the current practices and perception of PBL according to the three English medium schools' five Primary teachers' and six students' views, thoughts, and experiences. As a result, this study found out the common natures of current Project-Based Learning practices happening in EMSs' primary level which were- brain storming with a topic, group activity, hands-on activity, development of research skills, collaboration skills, time-management skills, analytical ability among students and teachers' role as a guide etc. This research findings also revealed that EMSs primary school students were learning effectively with Project work and they enjoyed it. Some additional significant findings were- advantages, challenges of implementing PBL and the strategies the teachers apply to overcome it. This study found out that students were motivated to work and learn independently, they brought and shared ideas with the groupmates which made learning about a topic more joyful. Though, sometimes students were not ready to accept project work as they were very young and showed negative attitude towards working in groups. However, teachers took initiative by motivating them to work in a group, guiding them and scaffolding them with different methods wherever they needed while practicing PBL at the primary classes in the private EMSs.

Keywords: Project-Based Learning; English Medium Primary schools; Student-centered learning; 21st century skills

Dedication

THIS THESIS IS DEDICATED TO THE EVERGREEN MEMORIES OF MY BELOVED ELDER SISTER ISMAT ARA RUMA WHO ALWAYS LOVED READING BOOKS AND LEFT HER INSPIRATION WITH ME TO BE A BETTER HUMAN EVERY DAY, TO MY SONS AND ALL THE TEACHERS AND STUDENTS.

Acknowledgement

I thank the Almighty for blessing me with the strength and support to complete this thesis work. My sincere gratitude to my supervisor Dr. Dilruba Sultana who always mentored me to proceed and to make this thesis better gradually with her time and guidance. I thank to the respected teachers of BRAC IED who had given their effort to approve this work. I also remember with gratitude the kindness of the school authorities, teachers and students for their unlimited cooperation to support this research work. I acknowledge everyone's support who directly or indirectly played role to made this thesis an accomplished one.

Table of Contents

Approval ..... **ii**

Ethics Statement ..... **iii**

Abstract ..... **iv**

Chapter 1 ..... **1**

Introduction and Background **1**

1.1 Introduction **1**

1.2 Research Topic **3**

1.3 Statement of the Problem **4**

1.4 Research Questions **5**

1.5 Purpose of the Study **5**

1.6 Significance of the Study **6**

Chapter 2 ..... **7**

Literature Review and Conceptual Framework **7**

2.1 Concepts, Features, importance and implementation process of PBL as a teaching -learning process **7**

2.1.1 Definition of PBL and its features **7**

2.1.2 Importance of PBL as a teaching-learning process in the Primary classes **10**

2.1.3 Benefits of PBL **12**

2.1.4 Implementation Process of PBL **13**

2.2 Existing teaching-learning practice of English Medium Schools's primary level in Bangladesh 14

2.3 Challenges of practicing PBL 15

2.4 Previous research activities related to the Practice of PBL and Perception of Teachers-Students in the primary level of English medium schools around the world 16

2.4.1 Learning outcomes of students in Social Studies classes with practicing PBL 16

2.4.2 Success of PBL in teaching English Language 16

2.4.3 PBL supports Improvement in performance of low-achievers in mathematics 17

2.4.4 Teachers' perception of PBL implementation 17

2.4.5 Advantage and Challenges of PBL 18

2.5 Conceptual framework 19

Chapter 3 22

Methodology 22

3.1 Introduction 22

3.2 Research Approach 22

3.3 Research site 23

3.4 Research Participants 24

3.6 Data Collection Methods 25

3.6 Role of the Researcher **26**

3.7 Data analysis process **26**

3.8 Ethical Issues and Concerns **27**

3.9 Credibility and Rigor **28**

3.10 Limitations of the Study **29**

Chapter 4 ..... **30**

Results of the Study **30**

4.1 Introduction **30**

4.2.1 Scope of PBL in installing different types of learning strategies according to the learners' need **31**

4.2.2 Importance of PBL for the learning of Primary-level students **32**

4.2.3 Meeting learning goals and objectives in PBL **33**

4.2.4 Traditional Practices vs PBL Practices in teaching-learning **33**

4.2.5 Teachers' & students' views towards learning through Collaboration **34**

4.2.6 Subjects taught at the Primary level of EMSs with PBL practices **35**

4.3 Practices of PBL as a Teaching-Learning method in the Primary Classes of English Medium Schools **36**

4.3.1 Teachers' role in PBL **36**

4.3.3 Use of Resources **42**

4.3.4 Students' Learning Practices in PBL **43**

4.3.5 Group work in PBL 46

4.3.6 Products Created by Students 47

4.3.7 Assessment in PBL 48

4.4. Scope of skill development for students through PBL practices 50

4.5 Challenges in Practicing PBL 58

4.6 Strategies to overcome the challenges in practicing PBL.....62

Discussion and Conclusion.....67

5.1 Introduction.....67

5.2 Usefulness of PBL at the primary level.....68

5.3 Contributing features of PBL that provided students with rich learning experience and achievements 70

5.3.1 Progress through collaborative learning in group Work.....70

5.3.2 Enrichment in learning with hands-on activity 71

5.3.3 Scope of various skill development for students 72

5.3.4 Development of Teacher-student relationship as Learning partners 73

5.3.5 Advantages of employing various Assessment technique in PBL 74

5.4 Requirements to ensure successful implementation of PBL at the Primary Level of EMS.....75

5.4.1 Teacher's roles and responsibilities 75

5.4.2 Model of PBL.....77

5.4.3 Resource development for PBL 78

5.4.4 Professional development for teachers 79

5.4.6 Identifying and approaching the challenges 80

5.5 Conclusion 82

5.6. Recommendations 83

5.6.1 Inclusion of PBL in the curriculum 83

5.6.2 Workshop and sharing sessions 84

5.6.3 Formation of Learning Community 84

5.6.4 Professional Development Training 84

5.6.5 PBL resources Library 84

5.6.6 Creative Space for Students & Material storage 84

5.6.7 Use of Media 84

Recommendations for further study 85

References 86

Appendices 95

Appendix A. Consent Letter 95

Appendix B. Field Note 97

Appendix C. Interview guide 98

Appendix D. Informal Discussion Guide 99

Appendix E. Observation Guide 100

Appendix F. Document Analysis Guide 101

Chapter 1

Introduction and Background

1.1 Introduction

Can we think of an educational arrangement orbiting around the process of providing a meaningful experience to the children? Still, the main practice of a traditional educations system is stuck in lecture method, memorization of facts, exam-based learning to achieve a good GPA (Chowdhury & Sarkar, 2018). However, the world of education changed its focus from mere memorization of information to the development of competent learner with significant enrichment of knowledge, skill and attitude through the practices of Project-Based learning (PBL). So, it's now high time that following the trend of the world's good practices and views our education system should embrace the modern child-centered and student-centered approaches to reach a standard in our education system.

PBL, a child-centered approach, rooted from progressive thoughts of education. Rousseau and Dewey were the two important names in the history of education who shaped up the educational practices with their valuable insights, until now. In a nutshell, in both Rousseau and Dewey's insight learning was considered as a lived-experience where a child discovered by doing. This was termed as 'child-centered' view which placed the traditional education system totally upside down. In PBL approach, the entire teaching-learning process was orbiting around the child and the teacher encouraged to make queries and guided the child to learn through experiences such as queries, observation, groupwork, research, and innovation. Many researchers investigated on PBL and demonstrated that in PBL student learned by doing, inquiring and communicating (Blumenfeld, 1991, as cited in Krajicik & Blumenfeld, 2006). PBL was an effective method for learners of all ages. Particularly, it was a powerful method for the young learners of primary classes (Gultekin, 2005). This phenomenal method transformed the education system around the world to update its teaching-learning practices, means, materials and the whole point of views towards learning.

English medium schools (EMSs) were a recognized education system in Bangladesh. These were known as private schools which followed the International General Certificate of Education (IGCE) syllabus, an internationally recognized qualification provided by UK. Currently, Edexcel and CAIE, these two boards were operating in Bangladesh (Al Noor, 2017). Also, there were EMSs that followed IB curriculum, Canadian curriculum and Australian curriculum. A research concluded that one of the major reasons EMSs were at the peak of popularity in Bangladesh was their standard educational practices which focused on 'analytical and problem-solving skills' instead of traditional lecture and memorization method. Also, EMSs were 'demand-driven'; they developed skilled students fit for the era of globalization (Mousumi & Kusakabe, 2017). Though, another study summarized that alongside their high standard heavy syllabi and trends of memorization for a hall exam was still existing in the education system of Bangladesh including EMSs (Prodhan, 2016). Rahman (2020) comprehended that EMS incorporated various teaching learning methods with focus on inquiry, demonstration, activity, discussion, differentiation and cooperation etc. Among several other class activities, they practiced project work, group work and peer work. Overall, they were emphasizing on holistic methods of teaching-learning to uphold creativity and interaction.

A burning issue that concerned our primary education in Bangladesh revealed that teaching-learning in primary classes was a challenging task. But, how to find solutions to the challenges? Actually, primary students were young and delicate minds who tend to be occupied with activities seemed meaningful for them. In relation to this, researchers found PBL activities were appropriate for the primary levels too (Gultekin, 2005). If we considered education as a journey to enable the young fresh minds to learn and practice to grab life at present and beyond the school boundaries then we needed to equip them with knowledge, skills and attitude. In this context this research found that the purposes and practices of PBL was ensuring to build a self-reliant person within a child who was in the process to be the leader.

Previous researches mostly focused on middle and high school's PBL practices. This research selected English medium schools' primary classes as the research site. This study was keen to learn about the features of PBL practices in the primary level of English medium schools and to understand if it was successful as a teaching-learning practice at the primary levels. The aim of

this study was to learn from practices and perspectives of teachers and students about the different aspects of PBL.

This thesis comprised of five chapters. In chapter one introduction and background, research topic, statement of the problem, research question, purpose and significance of the study were included. Main topic of chapter two was methodology of the study, so relevant topics to methodology were combined here e.g., research approach, research site, research participants, sampling procedure, data collection methods, role of the researcher, data analysis, ethical concern and limitations of the study. Chapter three was designed with literature review and a conceptual framework. Chapter four presented the results gathered from data analysis. Lastly, chapter five included discussions, conclusions, and recommendations. The References and Appendices were attached at the end.

1.2 Research Topic

Project-Based Learning in Practice

Project-Base Learning (PBL) was one of the proven learning approaches to stimulate effective learning among students. Every student learned through unique learning style. Several researches suggested that only focusing on memorization and standardized test hinders the achievement of skills by the students during learning, such as- creative thinking, inquiry, discovery, critical thinking and collaboration etc. In this context, Trilling and Fadel (2009) claimed that different aspects and dimensions of PBL ensured an intensive and learner-centered approach that could achieve all the learning objectives of Bloom's taxonomy e.g., remember, understanding, apply, analyze, evaluate, create simultaneously. Moreover, several researchers emphasized that PBL supported in acquiring 21st century skills necessary for quality education. Also, National Education Policy 2010 asserted an immediate reform to employ innovative teaching to make the learner competent in this fast-changing world. In connection to these views, previous researchers emphasized on exploring teaching-learning practices and perceptions of teachers and students as crucial to make PBL successful. While working as a teacher in different EMSs, I found that many EMSs practiced PBL. Therefore, I selected this topic to learn about the practice and perception of teachers and students on PBL in EMSs' primary levels.

Based on the above topic the title of my research was 'Project-Based Learning in the Primary Level of English medium Schools: Practice and Perception of Teachers and Students'.

1.3 Statement of the Problem

A study identified various issues in EMSs concerning quality education (Rahman, 2020). Although EMS incorporated international practices in teaching-learning, still it was clinging to traditional practices. The finding showed that teachers were under pressure to complete a time-bound huge syllabus, teaching-learning was book-based, curriculum and teaching-learning material did not follow a specific framework and teacher-student classroom ratio was not maintained according to the private school registration rules 2007 (Mousumi & Kusakabe, 2020, as cited in Rahman, 2020). Another concern was that teachers in the same school had differences in opinion about teaching method for the lack of no specific frame to follow. These issues resulted in less room for interaction between student to student and student to teacher. Nevertheless, 'Introverted' learners, slow or shy learners had little scope to avail teachers' attention. Overall, it hindered scope for creativity and interaction (Rahman, 2020). On the contrary, researcher also found that EMSs followed better practices of analytical ability and problem-solving skills that are developing competent students.

EMSs adopted Project-Based Learning (PBL) as an internationally recognized approach. We mentioned earlier that PBL was supporting students in learning different subjects, multiple concepts in a realistic context, while setting higher standard in learning and developing 21st century skills (Bell, 2010; Thomas, 2000). Previous studies also found that PBL was a highly engaging activity-based student-driven 'Intensive' 'learning experience' where teachers' role shift from transferer of knowledge to 'Supportive coach' (Barron et al., 1998; Bell, 2010; Fleming, 2000; Thomas, 2000, Trilling & Fadel, 2009). Thus, scholars around the world set top priority on teachers as facilitator to make planning and implementation of PBL successful (Flemings, 2000; Ferrero, Vadillo, & León, 2021; Thomas, 2000). However, the research gap exists as very few qualitative studies had been conducted to explore its appropriateness and main features practiced in primary level through discovering both teachers' and student's views and practices on PBL (Ferrero et al., 2021; Fragoulis & Tsiplakides, (2009). Therefore, the main

purpose of this study was to explore teachers' and students' perspectives and practices of PBL through their views, knowledge and experience at the primary level of EMSs.

1.4 Research Questions

1. What is the practice of Project-based learning in the Primary Level of English medium schools?
2. How do the teachers and students perceive about Project-Based Learning?
3. What are the advantages and challenges teachers and students face while practicing Project-based learning in the Primary Level of English medium schools?

1.5 Purpose of the Study

The main purpose of this study was to learn about the Primary teachers' and students' perception and practices of the Project-Based Learning (PBL) in EMSs of Bangladesh. Many EMSs recognized the need for PBL as an effective learning tool, as it was a proven learning approach around the world (Kingstone, 2018). PBL catered to the need for incorporating modern teaching techniques and enriching students of all level with achieving grade specific knowledge, skills and competencies. Several researchers showed the evidence from their studies that PBL was a comprehensive learning strategy that included multiple activities in one approach. Overall, the main significance of this learning approach was in the shift of the role of the teacher and the student from the traditional style of 'transmission-acquisitions' of knowledge to student-centered approach where the teachers' played role as facilitator and guide (Krajcik & Blumenfeld, 2006). So, this research was keen to explore the current practices of PBL in some selected EMSs. This study also analyzed the teachers' and students' perceptions about how they found it to be helpful and challenging in the process of PBL as a 'student-centered approach'. As an additional result, we also found out the advantages, challenges of implementing PBL and the strategies the teachers applied to overcome it while practicing PBL at the primary classes, in the private EMSs.

1.6 Significance of the Study

The main aim of this study was to develop specific knowledge on Project-Based Learning practice in the primary level of EMSs. Both teachers and students practicing PBL were at the center of this qualitative study. So, this study explored teachers' and student's perspective, their role and experience through qualitative approach with a research design of Descriptive Phenomenological study which brought out the rich description of experiences and explanation on current PBL practices, its benefits, possibilities, and challenges. Therefore, learning and understanding from teachers' and students' viewpoint provided explicit guidance in certain areas and further improvement opportunity. This research created an opportunity for Teachers to know about what was going on in other reputed schools. Firstly, they could earn knowledge from other teachers' experiences which would add positive influence in their practices too. Secondly, new teachers or potential professionals would learn about PBL practices in details with proven process and design. Lastly, learning from veteran and young professionals' experiences may enhance the motivation and productivity in teachers who were already practicing PBL. Also, practitioner of PBL would get the opportunity to come under an umbrella for forming a Professional learning community. Policy level decision making for EMSs e.g., Curriculum reform and Teachers' professional Development would get more attention through specific guidelines. Curriculum specialist, education reformer and other relevant stakeholders would pay attention to the need of 21st century's teaching and learning practices and thus they could also initiate to bring the specific and useful changes to curriculum to encourage innovative teaching and learning. This research identified the lacking in PBL model, need for relevant resources, teaching learning material and training for professionals to practice PBL. So, professional development experts might get guidelines on where to bring improvement considering PBL as a significant teaching practice. Moreover, training need of teachers would be benefitted on PBL instruction, Scaffold teaching process, and assessment techniques etc. Finally, English medium primary students' achievement would be improved with the increased awareness and emphasis on PBL as this study was keen to find out the significance of creative learning practices through PBL, such as- inquiry-based, realistic, learner centered, collaborative and creative activities to reduce dependence on rote learning, standardized testing, and terminal exams.

Chapter 2

Literature Review and Conceptual Framework

PBL as an innovative learning approach was researched thoroughly around the world to explore and understand its meaning, background context, characteristics, its important components, design and implementation process, contributing factors and challenges that it offered with change of context. These studies added remarkable research-based and evidence-based knowledge on PBL practices from around the world in different subjects and contexts. The main focus of this research was to learn about the PBL practices of the Primary levels in EMSs through practices and perceptions of teachers and students. Therefore, to enrich my study with the previous researcher's viewpoint, I reviewed those literatures through reading books, journals, research reviews, articles and blogposts on PBL and formed fundamental concepts on different components, processes and strategies related to PBL and its practices. I organized my literature review under the following major themes:

2.1 Concepts, Features, importance, Benefits and implementation process of PBL as a teaching -learning process

2.2 Existing teaching-learning practice of English Medium Schools in primary level

2.3 Challenges of practicing PBL, and

2.4 Previous research activities related to the Practice of PBL and Perception of Teachers-Students in the primary level of English medium schools around the world

2.1 Concepts, Features, importance and implementation process of PBL as a teaching -learning process

2.1.1 Definition of PBL and its features

A research-based review reported that the core of Project-Based Learning (PBL) was the 'Project'. However, some projects, such as- 'laboratory exercise', regular 'group work', 'field trip' or 'hands-on' activity and working on 'interdisciplinary themes' were not PBL projects (Thomas, 2000). After a thorough investigation of PBL in a study conducted for ten years in

elementary and secondary level teaching-learning, Thomas (2000) formed a five criteria-based model to clearly define the key features of PBL. These five criteria as described by the researcher were: '**Centrality**' that suggested projects were at the center of Curriculum so that students could learn the main concept of the subject through project; ' **a driving question**' to bridge between activity and underlying concept to be culminated; '**investigation**' to construct fresh knowledge, understanding, explanation; '**autonomy**' of the students to choose their topic, method, process, work schedule and '**realism**' to connect to the real-life context where student could replicate a real scenario or problem to reach a realistic and reliable solution . The researcher also emphasized that project in PBL was not a simple straightforward task which could be completed with previous knowledge and predetermined outcomes. Rather, project in PBL transformed knowledge, understanding, and constructed fresh ideas with relevant skills.

Later, Krajcik and Blumenfeld (2006) designed five key features of PBL environments through 7 years of collaboration with school teachers in an initiative to design, develop, test science curriculum materials for next generation middle schools with their involvement in Center for Learning Technologies in Urban Schools (LeTUS). They claimed that these features were applicable to all PBL, those were- 1. Driving Questions, 2. Situated Inquiry, 3. Collaboration, 4. Using Technology Tools to support learning and 5. Creation of Artifacts. They identified the driving question as 'hallmark' of PBL because this was the main instruction to guide and drive the task to be meaningful and important to the learner throughout the process. It kept the project work ongoing. It directed the process of PBL with providing a context, a problem to solve, helped student to set a specific learning goal, to organize step by step inquiry, connect and apply ideas, think critically to find a solution and finally to create an end product or artifact. It kept students motivated throughout the project. Teachers needed to focus on the driving question to let the student connect various ideas they come across during the PBL work. An effective driving question entailed five characteristics-1. 'Feasibility' for students to design and investigate, 2. 'Worthwhile' for rich content, 3. 'Contextualized' as connection to reality, 4. 'Meaningful' to the students, and 5. Ethical, not harmful in any sense. Second feature, situated inquiry referred to true investigation in the realistic context through problem solving. Third feature demanded collaboration among teacher, students and other community members to find the solution. This was a scope for building 'shared understanding'. Teachers needed to motivate the students to listen, ask and give feedback to the fellow learner. The fourth feature 'using technology tools'

worked as a scaffold for learners as it ‘enhances active construction of knowledge’, created scope of collaboration through net, student could watch different presentation of data, gathered data, analyzed it and used tools to create models. Students learning advanced when they created an artifact, a visual and tangible representation of the reconstruction of students’ solution and ideas. Ideas are constructed and converted in a novel form through artefact. This artefact should be in public display. When students got review from the community it enriched their understanding and provided them ideas to revise their understanding in the future work. Researchers also reorganized these key features in the recent studies. Krajcik and Shin (2014) proposed six key features of PBL- 1. Driving Questions, 2. Learning Goals, 3. Scientific Practices, 4. Collaborations, 5. Using technological tools and 6. Creating an artifact (as cited in Markula & Aksela, 2022). In a later research review on PBL, Condliffe (2016) confirmed that there was the need of a standard design principle of PBL which would measure its effectiveness, so that the teachers could understand and assess if their implementation of PBL was acceptable in relation to the design elements. It was claimed by Thomas (2000) and later researchers that for reaching learning goals, and overcoming challenges, establishing alignments of PBL practices with the proven models needed. In such context, Larmer and Mergendoller (2015) published ‘Gold Standard’ of PBL from Buck Institute For Education (BIE) that supports teachers and organizations with training and resources on PBL Works. According to Larmer (2020) the term ‘Gold Standard’ indicated ‘highest quality of process or product’ in any field. Therefore, he asserted that ‘Gold Standard’ of PBL was research-based, evidential, classroom-tested, a comprehensive model which could be used in measuring, calibrating, and improving’ practices of PBL by the teachers and schools. Gold Standard PBL consisted of three parts (Larmer,2020): 1. Student Learning Goals, 2. Essential Project Design Elements and & 3. Project Based Teaching Practices.

Researchers identified that this Gold Standard provided learning goals for students in two domains: deep knowledge of subject-matter and the transferability skills for solving problems in different context. Also, it was instrumental and inspiring for practitioners to design and ratify complete and more creative project-based instruction (Dias & Brantley-Dias, 2017). In Gold Standard PBL, there were 3 learning goals- Key Knowledge, Understanding and Success skills which could be attained via 7 design elements as mentioned here verbatim: (1) a challenging

problem or question, (2) sustained inquiry, (3) authenticity, (4) student voice and choice, (5) reflection, (6) critique and revision, and finally (7) a public product (Larmer,2020).

2.1.2 Importance of PBL as a teaching-learning process in the Primary classes

Researchers showed that the PBL was originated from Constructivism and American Educationist John Dewey's (1859 – 1952) educational philosophy (Du & Han, 2016; Krajcik& Blumenfeld, 2005). Dewey's educational views of 'Experiential Learning' advocated for hands-on, investigative and collaborative learning experiences that help students in gaining knowledge and new skills. Dewey believed that the aim of education was to enable a continuous process of interaction between child's life and his experiences, so creating such environment was most important to ensure that the child gathered social-competence and life long experience (Sikandar, 2015). Dewey was the pioneer of 'Child-centered' approach where a child was at the center of the learning process learned through experiences, and meaningful activities with the teacher as guide or mentor. Remembering, memorizing, applying ideas happened in learning through 'Hands on activity'. practices and reinforcements of task in the form of activity made knowledge practical and useful, therefore memorable to the child (Ross, 2005). Dewey stated that Active inquiry 'deepens understanding' in students. Student would completely get involved and engaged in learning if it was a real and meaningful task that the process of doing it imitated or similar to the way professionals were doing it in real world situation. In connection to Dewey's proposition, PBL offered students a real problem that demanded their absolute concern, something that mattered to them and their surroundings, thus it seemed meaningful to them. Then they took interest in it and engaged in real-world activities alike the scientists, mathematicians, writers and historians to find for the solution (Krajcik& Blumenfeld, 2006). Similarly, Fleming (2000) claimed that importance of PBL dwelled within projects that brought in 'intensive experience' with rich opportunities for students to learn through innovative process and investigation. It motivated them with activity relevant to subject matter, individual curiosity, and special ability. Other important features included- adults involvement, setting and a final product, exhibition or presentation with a social purpose and a two to eight weeks of time length for work. A unique significant opportunity was to gather information outside the school. Also, PBL offered scope of collaboration with members of social communities and parents and variety of options to work and motivational factors such as scope to pursue individual interest. Teacher-Student relation and role were transformed; students shifted from 'recipients of information' to

‘meaning maker’ and teachers played as ‘supportive coach’ to facilitate queries and discussion. Students made choice, acted, and played the key role. PBL ensured higher order thinking in learning through interdisciplinary connection, problem solving, collaborating, communicating, reasoning, experiential learning, and technology usage (Fleming, 2000). Gultekin (2005) approved that PBL was an ‘influential approach’ which could enable meaningful learning in the primary schools. The researcher called the primary schools’ traditional practices ‘dull’ and rote-learning, instead she suggested that learning in primary schools should be restructured around PBL activities. Similarly, Bell (2010) mentioned that ‘Reggio Emilia Approach’ was a child-centered PBL approach where children being guided by the teacher learned to collaborate, explore, investigate ideas, document and present their thoughts in a social environment. This early practice made them competent learners through beginning PBL.

Blumenfeld et al. (1991) recognized learning outcome of PBL as ‘an important intellectual purpose’, because the student immersed in learning reached a new destination in an innovative way through this integrated approach of PBL (as cited in Thomas, 2000). Krajcik and Blumenfeld (2006) shared significant observations while forming Project-Based Science curriculum. They found that PBL works had improved students’ attitude towards science learning to a more positive mind-set. This influenced their academic results to get high scores than students in traditional classrooms. The researchers repeatedly emphasized on teachers’ feedback and assessment process in PBL. They considered creation of artifacts as a learning outcome to reveal students’ highest level of cognitive skills. Therefore, the teacher should assess the artifacts to assess cognitive outcomes e.g., asking questions, designing investigations, collecting and interpreting data to organize explanations.

According to Bell (2010) PBL culminated various learning outcomes such as enriching understanding of a topic, reading ability, and improved motivation to study. As a key strategy it created independent learners. Students could drive the process of learning; they applied multitude of strategy to explore learning matters, design, plan, revise, rethink, organize and present the final products. Thus, PBL prepared them as a global citizen. Hasni et al (2016) pinpointed that effective learning outcome of PBL was its grand purpose and deign that let students realize the link between scientific practices (of asking questions, observations, reasoning, investigation) and the real-world implication of learning, making inquiries and the

‘open-endedness of the problems’ under investigation (as cited in Markula & Aksela, 2022). According to research, learning outcomes of PBL were also learning to take responsibility, setting goal, self-reliance, and discipline (Aksela & Haatainen, 2019). Also, Krajcik and Blumenfeld (2006) noted improved attitude of students towards learning.

2.1.3 Benefits of PBL

PBL as a process was beneficial to teaching-learning practices from different perspectives. It comprised of vast range of learning styles; therefore, it favored different types of learners, addressed learning difficulties and supported skill development appropriate for 21st century.

2.1.3.1 Integration of Bloom’s taxonomy in PBL

Trilling and Fadel (2009) asserted from their rigorous study on PBL learning process that this was such a ‘powerful’ way of learning which transformed learning ‘beyond memorization’ to ‘meaningful understanding’ as it employed a huge range of learning styles such as- ‘remembering’, ‘understanding’, ‘applying’, ‘analyzing’, ‘evaluating’ and ‘creating’ -all the objectives of Bloom’s taxonomy could be designed together in PBL.

2.1.3.2 Differentiation in PBL

Researcher noted differentiation in PBL was beneficial for students because every student showed different learning style. PBL put preferences to student’s choice and difference of learning styles which played a vital role in student’s academic achievement. As students could choose on their own, it escalated interest in them naturally and deepened learning (Aksela and Haatainen, 2019).

2.1.3.3 Acquisition of 21st century skills:

Trilling and Fadel (2009) claimed with realistic examples of student’s high achievement that ‘critical learning skills’, such as: ‘critical thinking’ and ‘problem solving’, ‘communication’ and ‘collaboration’, ‘creativity’ and ‘innovation’ -these 21st century skills could be achieved through the practices of PBL. According to Aksela and Haatainen (2019) accomplishment of communication, negotiation, and collaboration -all these 21st century skills through practice and

various application in learning context children obtained ‘Social Learning’ important beyond school.

2.1.4 Implementation Process of PBL

To design, implement and evaluate PBL approach, Barron et al. (1998) described PBL approach that enriched learning --and developed four design principles integrated in SMART blueprint (Special Multimedia Arenas for Refining Thinking) which emerged from a long-time study with teachers. These principles are- Setting Goals suitable to learning that defines how and why of a project; ‘Embedded teaching’ or ‘teaching tools’; open-ended questions as ‘Scaffolds’; scope of several Formative and Self-assessments. It also mentioned the need for social participation and collaboration. ‘A major hurdle’ was that meaningful implementation of PBL required changes in curriculum and assessments as claimed by this study.

One of the most essential factors was teachers’ implementation of PBL must ensure understanding of content and development of skills among students, so teachers need to understand the criteria of effective PBL for successful implementation (Han et al., 2015; Kokotsaki et al., 2016, as cited in Aksela & Haatainen, 2019). Han et al. (2015) demonstrated with an example from STEM education that student performance increased when teacher implemented and instructed PBL appropriately, on the contrary, students showed poor performance when the teachers implemented ineffectively (as cited in Aksela & Haatainen, 2019). In this regard Krajcik and Blumenfeld (2006) emphasized from their study on Project based Science that it was crucial to support teachers with explicitly designed and developed curriculum materials. The materials should clearly specify the design principles, guidance on teaching practices, learning goals. There should be provision of resources for both teachers and students. It should integrate various usage of technology too. They specified that providing an explicit ‘Model’ would help teachers in effective implementation of PBL.

To ensure successful implementation of PBL, Kokotsaki et al. (2016) emphasized on a balance between ‘didactic instruction’ and systematic ‘in-depth inquiry’, and ‘well-aligned’ assessment system with the whole process of PBL with many other important supporting factors. A recent study showed that teachers could make the process of PBL simple by using formative assessment

and providing continuous feedback and revision alongside supervising student's inquiry, creation and product (Kolodner et al., 2003, as cited in Almulla, 2020).

'Gold Standard for PBL teaching practices' included 7 elements:1. Design & Plan, 2. Align to Standard, 3. Build the culture, 4. Manage activities, 5. Scaffold student learning, 6. Assess student learning and 7. Engage and coach (Larmer, 2020). This framework was helpful for both new and experienced teachers to follow the steps in their work procedure of planning and implanting PBL and overcoming some challenges.

2.2 Existing teaching-learning practice of English Medium Schools's primary level in Bangladesh

A study conducted by Rahman (2020) found that English Medium Schools were practicing different types of teaching method in Bangladesh. These methods included- inquiry-based teaching, demonstration, empathy, classroom discussion, auditory, kinesthetic, visual learning styles, and collaborative learning. Also, different activities such as- project work, group work and peer work were also in practice. This study identified that teachers had differences in opinion about teaching methods. They applied teaching methods and approaches according to the need of the content and there was no strict rule to follow any frame. Moreover, teachers were under pressure to complete a time-bound syllabus too, which in turn hindered creativity and interaction with the students. This research suggested that curriculum and teaching-learning materials in EMSs needed a change and a specific framework to follow (Rahman, 2020). Another research claimed that EMSs focused on analytical and problem-solving skills in their teaching-learning practices (Mousumi & Kusakabe, 2017). Based on the collected data from the teachers, students and parents of EMS, this research stated that EMSs were practicing international learning models, because they were building skilled students competent for the global market. Shahadat (2016) noticed in her study that EMSs' classes were communication-based; Interaction between students and with teachers were in practice. So, according to the researcher's observation teaching-learning in EMS education was Student-centered. Rahman (2020) also confirmed that the teachers used learner-centric teaching methods. According to the learner's need and difference of ability, technique of differentiation was in practice in EMS. However, Rahman (2020) highlighted the problem of huge class size where student-teacher ratio was not maintained

according to the government policies and regulations of EMS. In that case the researcher admitted that learning gap still existed, and slow or shy learners remained unattended to some extent though there were huge arrangement of teaching and learning processes.

2.3 Challenges of practicing PBL

Researchers also identified several challenges and barriers that hindered success of PBL practices. Blumenfeld et al. (1991) mentioned that PBL practices often failed because of the misfit between day-to-day activity and concept of subject-matter and 'a driving question (as cited in Thomas, 2000). Later, Krajcik and Blumenfeld (2006) specified the challenges in PBL activities while describing the major key features of PBL. They found that sometimes the students did not give importance to the driving question. Also, teachers failed to form proper driving question suitable to the learners' interest and curiosity. Another issue was for the lack of 'prior knowledge and experience' it was difficult for the students to take part in inquiry and investigation. Most common problems were that students did not want to collaborate because they lacked this skill of collaboration and they expected the right answer from the teacher as they had this mindset of 'Transmission-acquisition style' of traditional teaching and learning. Also, because of insufficient time allocation, lack of teacher's interest and strategy effective collaboration did not happen. Another crucial challenge was keeping a rubric to provide intensive feedback on artefacts remained unavailable. Sometimes teacher did not give quality feedback to the large classroom for the lack of time.

Barron et al. (1998) identified the lack of 'Learning appropriate goal'. Many other critics of PBL remarked that it was often led to 'doing for the sake of doing'. 'A major hurdle' was that meaningful implementation of PBL required changes in curriculum and assessments. Similarly, scarcity of materials, resources, large class size, tight administrative rules, lack of opportunities for teachers to practice innovative approaches, and no specific goal for learning by doing etc. impeded implementation of PBL. Considering these Barron et al. (1998) recommended two things for teachers: to take support from learning community through collaboration & peer-coaching and to learn about previous successful practices of PBL from tools such as previous artefacts or products. Also, teachers training could lift the barriers (Ferrero, Vadillo, & León, 2021). Trilling and Fadel (2009) repeatedly mentioned that for the overall success of PBL teachers needed training and experience. (Challenges)

2.4 Previous research activities related to the Practice of PBL and Perception of Teachers-Students in the primary level of English medium schools around the world

2.4.1 Learning outcomes of students in Social Studies classes with practicing PBL

A study conducted by Gultekin (2005) investigated on 40 students of fifth grade in Social Studies to explore the effects of PBL approach on learning outcome. According to the researcher, teachers and students reported that students gained skills and tasks were interesting, enjoyable and meaningful. Also, some other findings were reported e.g., disagreement among the group members and problem in doing the project. The study found that students learned to research, learning was enjoyable, meaningful and permanent, students were motivated to be busy with searching information, cooperative in sharing of studies and developed many skills. The researcher also found that the students were happily learning and PBL practices provided them with rich experiences. The study suggested that careful attention to the main features, implementation process and steps of PBL approach could make it successful.

2.4.2 Success of PBL in teaching English Language

In a study, Fragoulis and Tsiplakides (2009) implemented PBL in teaching English as a foreign language to motivate teachers and students to work with new method. The study found that most of the cognitive, emotional and psychomotor aims were achieved through PBL practices. Significant improvement was visible such as- students' enthusiasm to participate in learning activities, curiosity in experimenting with new language, since they had less anxiety to be judged, most students showed an improvement in all four language skills. Their speaking and listening skills improved a lot as they had the opportunity to participate in real and authentic communication activities. Even low-achieving students were motivated and had improved self-esteem. Their content knowledge was highly improved with the gathering of information from new sources- books, internet, local history, and through researching they had gained deeper understanding. 'Grammatical competence' improved less but their communication skills improved a lot. Cooperation skills, solving conflicts, and sense of responsibility improved in

students. Also, their computer skills increased, mainly, the ability to use the internet to search for information.

Researchers noticed some difficulties too. At first student didn't understand the group work, therefore some were dominant and others did very little work. Teachers took initiatives to overcome this with modelling of the process. Also, student couldn't accept the new role of the teachers as facilitator rather than source of knowledge. Students felt 'uncomfortable' when they were given freedom to choose topic and form groups. Despite school infrastructure, lack of training and resources teachers showed positive attitude in the implementation of PBL. They expressed need for training for successful implementation of PBL.

2.4.3 PBL supports Improvement in performance of low-achievers in mathematics

A study explored that the implementation of PBL model significantly improved the performance and achievement of low-achiever students. The results showed significance of using PBL model in connecting different subject matters, learning through activity, meaningful learning as learning was embedded in the student's real life and personal experiences, and abstract concepts of mathematics became real when connected to real life context. This study emphasized on incorporating PBL from the early years of schooling for students to let them view practicability and connectivity of mathematics and other subjects in everyday life. This study also identified that learning complex matters of mathematics through PBL was difficult which needed more planning (Lazic et al., 2021).

2.4.4 Teachers' perception of PBL implementation

A qualitative study by Tamim and Grant (2013) revealed six teachers' teaching in grade 4 to 12 perception on definition and meaning of PBL implementation. These teachers had not received any professional development training on PBL method. Three of these teachers taught math, science, Social Studies in fifth grade and reading, math, social studies in fourth grade.
This study found that even though Teachers had no professional development training on PBL practices, they had better knowledge on PBL as a student-centered approach. The teachers had identified that differentiation in PBL practices helped to understand individual student and it enriched learning. They had characterized PBL as motivating that engaged students and provided opportunity for collaboration. They had mentioned about using scaffolding learning through goal

clarification and guidance. They had assessed the students individually and as group during the project work and after finishing the projects. These teachers also collaborated with other teachers and integrated different subject matters in one project. These teachers had differences in their perception of PBL to support learning. According to their beliefs and thoughts on the variety of learning process of PBL, their implementation style also varied. They had implemented PBL with four different purposes at different level of learning- to build content knowledge, to extend learning, to reinforce learning and based on the need of the students.

This study found that the belief system of the teachers that PBL supported students' learning as a constructivist-model motivated them to implement PBL around its challenges. So, the researcher suggested that Professional development training would support these teachers to extend its application and the training should be built upon the teachers' existing beliefs and knowledge.

2.4.5 Advantage and Challenges of PBL

Aksela and Haatainen (2019) revealed the perception of teachers practicing PBL on advantage and challenges of PBL. 99 teachers who participated in StarT programme teaches from early childhood to secondary level. 57% of the 99 teachers teach in Primary schools. According to the study, these teachers found that PBL supported teaching with learning and motivation for students and teachers, through collaboration the school gained a sense of learning community, PBL promoted student-centered learning and allowed 'versatility' in their instruction. Teachers had also reported on the challenges they encountered, such as- Time management in organizing project work, students' attitude, collaboration challenges, lack of technical support, and lack in pedagogical knowledge of the teachers. Additionally, some other common challenges that hindered implementation of PBL had been identified in this study. Sometimes teachers did not accept this student-centered approach for the fear of losing control over class and for the habit of practicing traditional styles. Due to the lack of knowledge and training teacher could not form proper inquiry-based instruction, relevant hands-on activities, scaffolding in learning and authentic assessment. They also failed to motivate students to take part in team work and to use critical thinking skills. Also, insufficient time allocation and missing linkage of curriculum were some common problems found in the practice of PBL.

2.5 Conceptual framework

The main purpose of this research which was to explore and learn about the primary level of EMSs' practice of Project-Based Learning from the practice and perception of the teachers and students. Through the rigorous Literature Reviews this study was enriched with the understanding of some major aspects that highly concerned and influenced the practice of PBL, for example- Teaching and learning practices, teachers' perception, and students' perception etc., which were completely complying with the purpose of this research. Additionally, it helped in understanding that PBL brought many advantages as its motivating factors, along with many challenges. The literature review explored while investigating and forming characteristics, key features, design principle and elements regarding PBL that researchers mainly focused on the need for a suitable model of PBL. Researchers also approved the linkage of PBL with Dewey's Experiential learning theory, and concepts of Bloom's taxonomy while exploring its features, learning objectives, goals, implementation process and outcomes.

Bloom's Taxonomy

Researchers emphasized that a major learning outcome in PBL was the outcome regarding 3 learning domains of Bloom's taxonomy- cognitive, affective and psychomotor domain (Meng et. al.2023). Trilling and Fadel (2009) established through their findings on different literatures that all cognitive skills mentioned in Bloom's taxonomy could be learned and practiced through PBL. Making of Artifact as an outcome (Guo et. al.,2020, as cited in Meng et. al., 2023) demonstrated complex set of skills with focus on psychomotor domain. Meng et. Al. (2023) summarized from the researchers' findings that affective domains were developed with development of certain skills- reading, social, collaboration, communication, critical thinking, problem solving, and conflict resolution etc.

Dewey's Experiential learning Theory

While investigating and discussing the fundamental features of PBL, researchers agreed that PBL rooted from Dewey's experiential learning theory (Krajicik & Blumenfeld, 2006). Through the literature review this study gathered findings on experiential learning theory that played a key role in forming the PBL approaches and its key strategies in teaching and learning as a student-

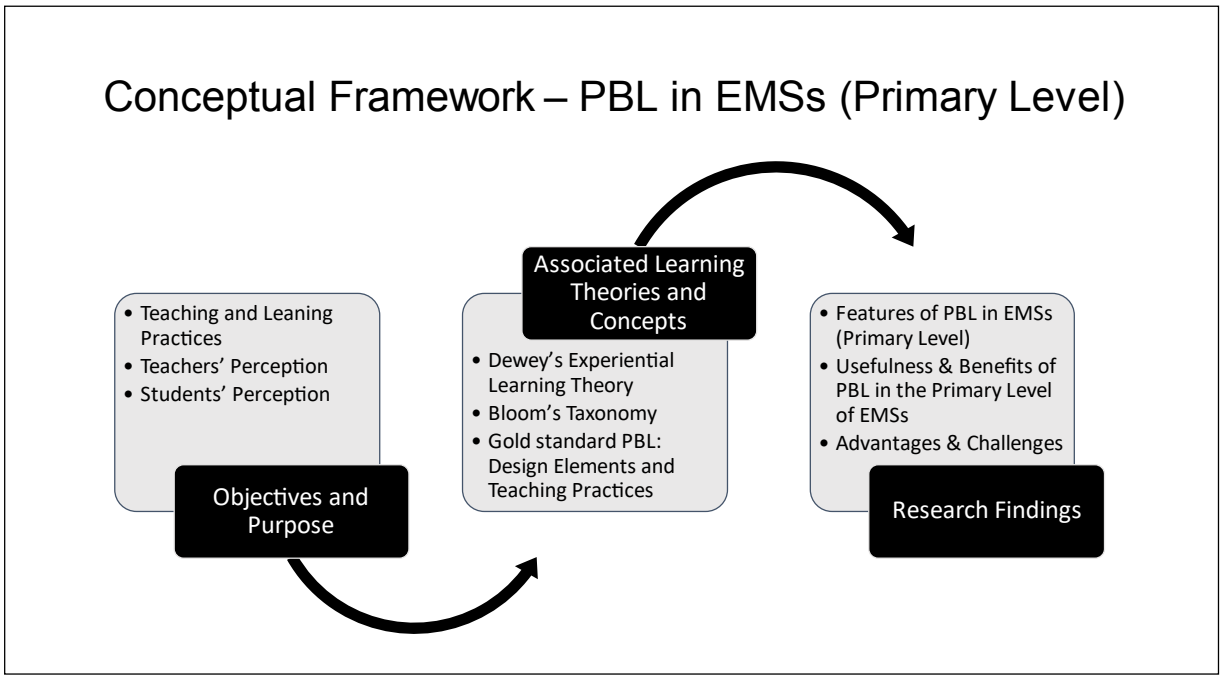
centered approach. It could be summarized that Dewey viewed that the authentic learning experience connected to real-world situations with collaboration, hands-on activity and reinforcement could bring meaningful learning experience to the students.

Design elements of Gold Standard PBL

From Thomas (2000) to Condliffe (2016), researchers identified through their reviews and findings that there was a need for a standard guideline on PBL for practitioners and teachers to compare and contrast to understand the acceptability of their PBL components and processes. In this connection, researchers were keen on forming characteristics, key features and design elements of PBL (Barron et. al., 1998; Krajicik & Blumenfeld, 2006; Krajicik & Shin, 2014; Larmer & Mergendoller, 2015; Thomas, 2000). In this context, 'Gold Standard' of PBL was recent research-based and evidence-based work that established criteria for 'Design Elements' and 'Teaching Practices' of PBL that comprised previous researchers' main concerns regarding a PBL model. According to Larmer (2020) 'Gold Standard' of PBL was research-based, evidential, classroom-tested, a comprehensive model which could be used in measuring, calibrating, and improving' practices of PBL by the teachers and schools. Gold Standard PBL consisted of three parts (Larmer,2020): 1. Student Learning Goals, 2. Essential Project Design Elements and & 3. Project Based Teaching Practices. In Gold Standard PBL, there were 3 learning goals- Key Knowledge, Understanding and Success skills which could be attained via 7 design elements as mentioned here verbatim: (1) a challenging problem or question, (2) sustained inquiry, (3) authenticity, (4) student voice and choice, (5) reflection, (6) critique and revision, and finally (7) a public product (Larmer,2020). Researchers assured that it was instrumental and inspiring for practitioners to design, ratify, complete and more creative PBL instruction (Dias & Brantley-Dias, 201). 'Gold Standard for PBL teaching practices' included 7 elements:1. Design & Plan, 2. Align to Standard, 3. Build the culture, 4. Manage activities, 5. Scaffold student learning, 6. Assess student learning and 7. Engage and coach (Larmer, 2020).

From the above discussions this study constructed a conceptual framework that represents the connection of the Purpose of this study with associated learning theories, concepts, & PBL model to proceed towards the findings of this study.

Figure 1: Conceptual Framework of PBL



Chapter 3
Methodology

3.1 Introduction

This chapter discussed on research methodology of this research that were described in details under different headings, such as: research approach, research site, research participants, sampling procedure, data collection methods, role of the researcher, data analysis, ethical concern and limitations of the study.

3.2 Research Approach

This was a qualitative study with the phenomenological approach. The key features of Qualitative Approaches were- gaining a deep understanding through exploration of participant's viewpoint e.g., how they 'construct meaning', their lived experiences in the natural setting or 'social context', and perceptions. Moreover, qualitative approach contained other vital aspects such as, 'Purposeful sampling' for 'information rich' participants, data collection through in-depth interview, 'open-ended questions', observation, noncontrolling 'naturalistic inquiry', flexibility and creativity of 'emergent design', rich description, 'interpretive nature', and 'reflexibility' as researcher' role -to form 'Holistic Stance' to create a large picture (Creswell, 2012, 2014; Gay & Airasian, 2003; Patton, 2002, as cited in Johnson & Christensen, 2004). Along with this, Phenomenological approach explored 'Particular' participants' perspectives on their 'experience of an activity or concept' (Patton, 1990, as cited in Gay & Airasian, 2003).

So, I chose this Qualitative study with the Phenomenological approach to learn about the perception of teachers and students on PBL practices including their previous and current experiences, their learning environment, thoughts about the concept of PBL, its advantages in teaching-learning processes and the challenges they faced. Overall, as a researcher I found qualitative phenomenological approach befitting with the purpose of this study.

3.3 Research site

According to Creswell (2012) in qualitative study we select our research site purposefully so that the place could provide us with 'best' information to 'understand our central phenomenon'. Similarly, as the major feature of the qualitative study 'the natural setting'- ensured the focus on 'the research context' (Gay & Airasian, 2003).

This research was conducted on Primary classes at three EMSs. These schools, teachers and students were purposefully selected for this study with criteria that they practiced PBL regularly or occasionally and they got at least one year of experience in practicing PBL. Two of these schools were located at the heart of Dhaka city and only one was located in Chattogram. Among them one of the schools was following Cambridge curriculum (CAIE) for 9 years. This school practiced PBL as a mandatory approach in their curriculum alongside traditional teaching-learning. They provide regular professional training for the teachers' development too. In this school new teachers observed experienced teachers' classes and receive documents to gather experience on PBL. Similarly, another two schools were following Cambridge curriculum (CAIE). These schools practiced PBL regularly with all the subjects and they were also continuously developing their teaching-learning processes to maintain high standard. Among these two schools one was located in Chattogram city and overall, five years old. It was a franchise of an internationally reputed educational institute. This school adopted the Experiential learning as a whole school approach. So, they also incorporated good practices of different learning methods such as 'Provocation Installation', 'Design for change' that were equipping learners with modern skills and knowledge. They got a good balance of veterans and young professionals. The other school was forty-six years old and it created great impact in the English medium education in Dhaka city. Most of their teachers were veterans, though they also had young professionals. This school's professional development department provided diploma in teaching and training and other continuous training to the teachers. Their curriculum unit played important role on developing curriculum, textbooks and other materials to enrich learning and PBL practices.

I selected these three Primary schools because they were well-known for their PBL practices. Also, these were helpful for this research to make a comparison of data between these schools, where some schools were new, growing, less resourced, and some schools were very old, famous, well equipped.

3.4 Research Participants

Participants of this study were the 5 female teachers who were both new and veteran working in the selected English Medium schools based in Dhaka and Chattogram. These teachers were from diversified background in terms of age, experience of practicing PBL and professional training. For the convenience of this discussion on individual teachers we named the schools as School A, School B and School C and numbered the teachers as Teacher1, Teacher 2, Teacher 3 and so on.

From School A, we have interviewed two teachers. Teacher 1 had seven years of teaching experiences. She completed B.A. She taught Science and Mathematics in class III and IV. She received training from an internationally reputed educational institute. She received regular professional development training which was a culture in the school. Teacher 2 had 3 years of teaching experiences and she taught Bangladesh and Global studies in Class IV and V. She obtained B.A. She also received other professional development training. They regularly received special training to conduct PBL classes.

In School B both the teachers received diploma in teaching from the school's professional development department. Here the teacher 3 was a veteran teacher who taught Bangladesh and Global studies in class III and she had twenty-one years of teaching experiences. Teacher 4 was a young professional and had been in teaching for last three years. She taught English and Science in Class 3.

Teacher 5 from School C had five years of teaching experience. She completed B.Sc. She had been practicing PBL for last three years. She did not receive any professional development training. She learned about PBL and other teaching methods by observing her experienced colleagues' classes and with the guidance of previous documents e.g., lesson plan. She taught Science in class 1, 2 and 3.

I also used Informal Discussion with six students from these three schools. Two girl students joined the discussion from school A. one of them were studying in class four and the other was in class five. They gathered a lot of experience in PBL as PBL practice was a part of regular teaching-learning process in their school. Two students Joined from School B. One of them was a girl another is a boy. Both the students read in class 3 but in different sections. According to them they practiced PBL many times since class one. Another, two students Who participated the informal discussion studied in class five in school C. One of them was a girl and another was a

boy. They shared their experiences and views on Project work in a friendly manner. They were doing project work from class 1 and every year they did project work at least for 3 to 4 times. They mostly did their project work in Science, History and Global Studies.

3.6 Data Collection Methods

This qualitative study collected data through Interview Guide, Informal Discussion Guide, Field Note, Observation Guide, and Document Analysis Guide.

This study used '**Interview**' to collect data from the Teacher participants. In-depth interview was very helpful for its conversational mode that gathered target participants' valuable views and also, it could draw large amount of data quickly (Marshall & Rossman, 1999).

The **Interview guide** was constructed carefully aligned with the research questions. I used open-ended questions in face-to-face **interview** to draw teachers' 'in-depth' perceptions and practices on PBL in the form of text data. Teachers could share their views elaborately and freely as the questions were open-ended. Each interview with teachers consisted 15 questions. Total 5 interviews were conducted with 5 teachers and the duration of each of the interview was 45 to 50 minutes.

The **Informal Discussion** guide for students were constructed with semi structured questions. Total 6 informal discussions were conducted with 6 students. Duration of each discussion was 10 to 12 minutes. Considering student's age group, the guiding questions for informal discussion were formed in a simple and open-ended manner, and mostly were semi structured. The number of questions were 10 in total for students.

I used the **field notes** to keep systematic notes and description of the artifacts, agricultural products, graphical presentations, and charts etc. that were on open display for visitors. These were made by the students as the final learning outcome of PBL practices. I took detailed, neutral and concrete descriptions of those products on display (Marshall &Rossman, 1999).

For class observation, I created an **Observation guide** with a detailed checklist that I could observe during a class. As an observer my role was 'nonparticipant', so I observed inconspicuously and took notes relevant to the study, such as- class arrangement, instruction process, students' working style, and other discipline they were following to conduct the work. However, I could observe only one class related to PBL in one school.

I constructed a document analysis guide to note down about different types of documents such as Lesson Plans, Project preparation guidelines and assessment rubrics. We could only read through two Lesson plans provided by two schools. We took notes of those lesson plans in details.

3.6 Role of the Researcher

Since September 4, 2022 I started studying the research participants who were teachers and students in different EMSs. I was a teacher too of EMSs for more than a decade. Though currently my profession was to develop educational books and stories which were read in several EMSs. Therefore, schools and teachers know me well as an author and Curriculum specialist. For the sake of my research to remain focused on the purpose, I paid keen attention to the participants' views, thoughts and philosophies during the interviews. I, intentionally and very carefully kept my teaching experiences and other professional views completely quiet as I played the role of a learner as a researcher. During informal discussion with the students, I was aware of the fact that students of primary schools were very young and delicate. I was also concerned about their emotion and delicate manner. I talked to them in a friendly manner to make sure that they feel comfortable to carry on this conversation, so I kept only 10 to 12 minutes to talk with them. However, from the beginning to the end of this research, I was aware of my role as a researcher to learn, learn and learn from the participants' insights, artefacts, displays, classroom practices and available documents.

3.7 Data analysis process

In order to be more careful, specific and to meticulously perform the data analysis process we followed Creswell (2012) who divided and explained the rigorous tasks of data analyzing process more methodically in six interrelated steps with useful elaboration and examples. In light of these suggestions, this study performed data analysis accordingly. At first, I recorded the collected interviews, informal discussions, written the details of the observations, lesson plans and then I transcribed the data verbatim from audio records to a reliable computer storage i.e., in google drive which is password protected. Later, I decide on analyzing the data through hand. In data analysis I followed in the footsteps of scholars around the world. For an instance, Rossman & Rallis (2003) outlined the procedure of qualitative data analysis and interpretation in three

valuable words: ‘Immersion’, ‘Analysis’ and ‘Interpretation’. With this guidance I could create a meaningful ‘coherent story’ at the end that involves ‘deep immersion’ -a time consuming repetitive reading of the collected data as text, quotes, notes and other materials, organizing them into ‘relevant’ ‘themes’ and ‘patterns’ and finally writing it up to share with the readers.

I analyzed the interview and informal discussions data with the process of Thematic analysis. So, as a process of thematic analysis I first generated codes from the data as small phrases and segment of text. For the purpose of coding, I read and reread the texts, and other documents several times. I labeled the ‘code’ to each of the descriptions provided by teachers, students, artifacts and class observations and lesson plans on PBL practices. The codes reflected the key findings from each of the sources of data. Later, I categorized the codes under the five broad themes that emerged during the analysis. Then I represented the findings in details under the themes in the result section. Finally, in discussions I compared the findings with my reflections as the researcher, existing literature and reached a conclusion.

3.8 Ethical Issues and Concerns

As a researcher I had to prioritize Ethical concern throughout the process. Therefore, I maintained certain manners. At the beginning, to seek permission from each of the site I emailed my biodata along with the details of my research to the Head of Schools and Academic Supervisors. In the email I elaborately described about myself, my university, topic of my research, Purpose of my research, duration, process and confidentiality concerns e.tc. After receiving permission from the school authorities, I discussed the dates and time slots which were fixed by the schools according to the teachers’ convenience and availability. In the meantime, I sent the consent form to the school authority to share this with the teachers who would participate in the interviews.

The head of schools also gave me permission for informal discussions with the students. Altogether in four to five emails I discussed the whole process of my research with the schools. At the beginning of each of the interview teachers submitted me the consent form with their sign and dates. I requested them to read the consent form again in case if they had any query or objection. I also shared the interview and informal discussion questions with the teacher and student participants and asked for their permission to start the conversation. Particularly, I asked the students if they were comfortable with this sort of discussion, as they were young children of

primary classes. However, though it was written in the consent form that participants could withdraw from this research at any time, I mentioned it verbally again to make them feel free to withdraw from the interview at any point. Thus, I prioritized and secured the participants' rights and safety.

Overall, I was always keen to identify my biases that can hamper the study to be authentic, e.g. I had a bias that some old and reputed schools had better practices of PBL. To overcome this, I also included new and unknown schools in my study.

3.9 Credibility and Rigor

As a student I attended two mandatory courses on research methodology, planning and preparation of research. Also, to enrich my knowledge further as a new researcher, I attended training on qualitative research approach conducted by BRAC IED and also as this research was a part of my master degree, my professor was guiding me to update my knowledge with her continuous feedback. I worked as a teacher for a decade in EMSs, so I have a good deal of experience on Project-Based Learning and its practical application. I was always aware that my experience and knowledge of practicing PBL should not affect the interpretation of the data. So, while transcribing I listened to the records several times to make it verbatim and thus accuracy was maintained. This research also obtained data from observation of artifacts school environments and few lesson plans supportive to practice of PBL. For further clarification of some terms and processes, I talked to the teachers and authority through phone and chatting which ensured validation of data. To maintain authenticity of the data member-checking was done. For this purpose, after transcribing the data, I sent the transcripts to the teacher-participants requesting them to read it thoroughly and correct it if they found any discrepancy of information or if they wanted to add anything later which they missed to mention during the interviews. Transferability was ensured through thick description to establish the connection of the PBL practices in different educational context. To ensure dependability, I had to gather data that were stable and consistent and that might not change over time; with that purpose experienced and veteran teacher's opinion were given preference. Triangulation of data were done as I accumulated data through multiple sources such as- interviews, Informal discussions, observations and document analysis.

3.10 Limitations of the Study

This study was conducted through several limitations. First of all, number of participants was very small to establish generalizability of the findings. We believe that more participants could add various views and dimensions to this study. Secondly, the informal discussions with the students were fruitful, but again small number of participants was the concern. During the discussions with the students, sometimes I had to break down the questions in more simple sentences, for the young participants to understand easily. So, many times I had to change the structure of the discussion questions keeping the main queries unchanged to reach individual students. Even then, I found that some of students were very confused that they didn't know what to share and they needed clue as they sometimes forgotten about the previous experiences. So, sometimes I mentioned the examples of their work which I gathered from their teachers' interview and then they could relate and speak up. Sometimes students showed very positive attitude which could happen sometimes due to awareness on social prestige. Students didn't share much about the challenges or negative sides of PBL practices. Thirdly, I could only observe one class in one of the schools for 15 minutes and I could not observe classes in other two schools due to unavailability of PBL classes at that time when school sessions just started. I was allowed to see only two lesson plans from two schools because there was strict restriction to see official documents. Lack of time was an important issue. As a Qualitative Phenomenological approach more interviews and observations could bring more useful data which couldn't be done due to restriction in access to schools and limitation of time allocation to complete this study. Lastly, positive thinking as preconceived attitude might affect my study as a researcher. Also, as the most of the participants were selected from known sources, so they might give only positive examples to maintain social prestige than sharing the challenges.

Chapter 4

Results of the Study

4.1 Introduction

In this chapter, I presented the findings that I gathered from this qualitative study. This qualitative study gathered its data through interviewing the teachers, Informal Discussions with students in the Primary levels of EMSs, observation of PBL products such as- artefacts, rooftop agricultural farming, chart papers in display, classroom activity in the schools and documents such as- two lesson plan, Project preparation guidelines and Rubrics analysis. Therefore, I learned about the ongoing practices of Project-Based Learning (PBL) and teachers' and students' perception about PBL through face-to-face interview, observation and document analysis.

As I mentioned earlier in the Methodology section that I analyzed the data with the process of Thematic analysis. So, as a process of thematic analysis I first generated codes from the data, through repeatedly listening to the recorded interviews and reading the transcripts, as small phrases, words, quotes and segment of text. Finally, I categorized the codes under the five broad themes as mentioned below:

4.2 Perception of teachers and students regarding PBL in the Primary level of EMS

4.3 Practices of PBL as a Teaching-Learning method in the Primary Classes

4.4 Scope of skill development in students through PBL practices

4.5 Challenges in Practicing PBL

4.6 Strategies to overcome the challenges in practicing PBL

4.2 Perception of teachers and students regarding PBL in the Primary level of EMS

In the interview teachers and students shared their perception on different aspects of PBL. Those aspects were presented in this section under the relevant subheadings, such as- 4.2.1 Scope of PBL in installing different types of learning strategies according to the learners' need, 4.2.2 Importance of PBL for the learning of Primary-level students, 4.2.3 Meeting learning goals and objectives in PBL, 4.2.4 Traditional Practices vs PBL Practices in teaching-learning,

4.2.5 Teachers' & students' Views towards learning through Collaboration, and 4.2.6 Subjects taught at the Primary level of EMSs with PBL practices

4.2.1 Scope of PBL in installing different types of learning strategies according to the learners' need

According to a teacher she found PBL useful because she could approach to her different types of learners through different ways and means (Interview# 2, September 4, 2022). She stated that, "To talk about teaching, there are some topics you cannot actually ask them to memorize, there is no memorization. Then if I go with the project-based learning, like some learners are kinesthetic learners, they then can learn it with hands-on activity" (Interview# 2, September 4, 2022).

She emphasized that it helped her to make them understand the topic better. Also, she illustrated more on the features of PBL which was helpful in learning,

> So, I think we can let the children learn more if we give them this opportunity to learn while doing. The most important thing I don't need to do much; I just show them the path and the rest of the thing student can do. So, I actually prefer this- not to do more but to show them the way to do. (Interview# 2, September 4, 2022).

Also, she shared that, "In some theoretical learning they need to memorize things, but in project-based learning the first thing they learn is hands-on activity" and as it was a step-by-step process, so students learned to work with enthusiasm and in a disciplined manner.

Similarly, a teacher shared her insight on children's liking towards hands-on activity in PBL. She said, "Only when they're loving to do something, they can learn in a very simple way. They will enjoy, they will play and they will be playful and learn. So that is the first step" (Interview# 5, November 2, 2022). She also added another point that, Primary students could learn with PBL, and could manage to work, though for students of class one and two teachers had to stick with them.

4.2.2 Importance of PBL for the learning of Primary-level students

A teacher recognized PBL as an "important" approach for primary students (Interview# 1, September 4, 2022). She conferred that, "When we give them to read or memorize something that is very specific and there is nothing to do for them, no creativity or nothing. But here the PBL give them the opportunity to be creative in their own way. That is very important." She further added that PBL was the best technique for Primary students, "Because if they get the opportunity to bloom themselves, the way they want, because it's like a flower garden, where all the flowers are not same and they are different from each other." She also informed that hands-on activity in PBL provided children the 'physical experience' as they could learn by doing and also, they could relate the topic to the real life. She gave an example that,

> Because for multiplication if I tell the student that it is two two za four, than it works more if I give him four cups and two sticks for each. They can do it themselves. So, whenever they are getting the physical experiences, the real-life experiences then it is very easy for them to relate with their real life. (Interview# 1, September 4, 2022)

And she emphasized, "So if they can relate to their real life then it is easy for them to remember" (Interview# 1, September 4, 2022). She also said that the PBL could create the leaders for our society because like the traditional system it did not tell them to do a thing in a fixed way. She highlighted that, "But the way PBL is giving us the opportunity that the way they are choosing and that way we will get the leaders in our society, not the way they have to do whatever they want" (Interview# 1, September 4, 2022).

A teacher shared her students' feelings about PBL work (Interview# 4, September 18, 2022). She described that, "Well, seeing it from an educator's perspective, when I see my learners, yes, they enjoy project-based learning a lot. Because it's a hands-on activity, so they are always pumped up, they are always ready to do these stuffs" (Interview# 4, September 18, 2022). She emphasized on the learning through hands-on activity. In her words,

> Those are very fruitful if I say it as well. At the end of the day when they do hands-on activities and they go home, after three to four days they come back and you ask them about it, automatically they remember what they have done. So, from that angle, yeah, it is really helpful and becomes interesting as well. (Interview# 4, September 18, 2022)

4.2.3 Meeting learning goals and objectives in PBL

A teacher focused on an issue that PBL adhered to certain goals and objectives. She highlighted that,

> So, yeah, when you have a specific goal, targeted goal to meet the objectives, so you know, at the end of the day, I need to make sure my students are fulfilling those objectives, they receive those objectives instead of going like here and there. (Interview# 4, September 18, 2022)

Similarly, a teacher agreed that they followed goals and objectives in order to achieve the learning outcome (Interview# 2, September 4, 2022). According to a teacher they set goals which helped the learners to find the path on their own (Interview# 1, September 4, 2022).

4.2.4 Traditional Practices vs PBL Practices in teaching-learning

A teacher compared between the traditional way of teaching-learning and the PBL (Interview# 5, November 2, 2022). She explained that in traditional learning teachers came to class and gave lectures on some important things. There they could not include different styles as the scope was limits. On the contrary, she added that in PBL classes, "I give them 15 days or 20 days, that means you come to know more about the topic, in that case knowledge becomes vast" (Interview# 5, November 2, 2022). She also mentioned that it helped learner to become independent. She said that, "As I said that they will try to become independent because as I always ask them to find out a specific information."

A teacher reported that PBL practices provided her with Freedom (Interview# 1, September 4, 2022). She stated that, "Like in traditional way teaching we had a very limited boundary, limited areas, arenas to do our job. But here it's very what its very large." But PBL let the teachers and

students to make choices, as she said, “there is no boundaries” and teacher could share a lot from their real-life experience as it was not bookish and permitted learning to relate with practical life. So, she stated that, “So, I think, as a teacher this process is very very helpful for me” (Interview# 1, September 4, 2022). And she also added that as a facilitator she became learning partner with her students and got to learn new things. Similarly, a teacher agreed that she learned new and different things from her students (Interview# 4, September 18, 2022). However, according to a teacher it was a hard work too. She stated that,

> For teachers, I would say- it's a hard-working task because, since I did it with grade 1, 2 and 3 it's okay, but 1 and 2, I need to stick with them, I need to observe them, I need to show them the right path, sometimes I need to work with them, that is why I would say it's interesting but hardworking as well. (Interview# 5, November 2, 2022)

She added an insight that as primary students were kids, they needed to form prior knowledge, basic understanding on the topic. So, teachers needed to give some information through lectures, and information sheet. So, she believed that, “So, for primary section, I would say we need to have both traditional and PBL” (Interview# 5, November 2, 2022).

While sharing her thoughts on PBL a teacher said that she came out of Traditional classes as those were lecture-based and she found that her learners were enthusiastic in PBL classes as they could do and learn lot of things in PBL. In her words, “I think their qualities opened up through project-based learning. They enjoy it” (Interview# 3, September 18, 2022).

4.2.5 Teachers’ & students’ views towards learning through Collaboration

Students shared their views on learning through collaboration in Groupwork. They said they loved it most when it was a group work with their friends where they could express themselves with more freedom, “It’s just interesting and I like it. In group projects I like it a lot because I am always with friends and I am a speaker, I am extrovert so I like talking with friends” (Informal Discussion# 1, November 2, 2022).

According to a teacher in PBL, groupwork helped each and every student and they got the opportunity to include their ideas and present it together as a group (Interview# 1, September 4, 2022). Further, the teacher emphasized that,

> Rather than knowing alone, knowing together creates discussion on what actually they want to know, and what the child wants to know something maybe he can learn that think from the group member. They develop inquiry skill, here collaboration matters. (Interview# 1, September 4, 2022)

A teacher said that group activity influenced and inspired the children to do better (Interview# 2, September 4, 2022). A teacher stated that, "They have this tendency that if he is doing than I will do it too. They grow this tendency. So, we think a lot to prepare each group, so that learners of different ability can participate" (Interview# 3, September 18, 2022).

4.2.6 Subjects taught at the Primary level of EMSs with PBL practices

This study found that the practice of PBL was limited to some subjects. A teacher said that all subjects could not be taught with PBL, and it also depends on the topic as some topic demands lecture and memorization (Interview# 2, September 4, 2022). She said that she practiced PBL in Global Studies. According to a teacher they practiced PBL mostly in teaching Science (Interview# 4, September 18, 2022) and she shared that literature should not be taught with PBL. Similarly, a teacher confirmed that she practiced PBL mainly in science subjects (Interview# 1, September 4, 2022). Also, a teacher ensured that she practiced PBL in Science classes (Interview# 5, November 2, 2022). Another teacher said that she taught History and Bangladesh and Global Studies with PBL (Interview# 3, September 18, 2022). According to a student she learned with PBL practices in History, Science and Social studies classes (Informal Discussion# 1, November 2, 2022). Another student agreed that he practiced PBL in History, science and social studies classes (Informal Discussion# 2, November 2, 2022). A student said that they learn topics of Science and Bangladesh & Global studies with PBL (Informal Discussion# 3,

November 14, 2022). Also, a student confirmed that they studied same subjects e.g., Science and Bangladesh & Global studies with PBL (Informal Discussion# 4, November 14, 2022).

4.3 Practices of PBL as a Teaching-Learning method in the Primary Classes of English Medium Schools

4.3.1 Teachers' role in PBL

According to a teacher, "So, conducting a PBL class is kind of like a way that the main portion of work happens beforehand" (Interview# 4, September 18, 2022). She detailed that she took all sorts of preparation earlier and then she made sure if the instructions were clear enough or she needed to add something to make the students understand the work process, "Because, in project-based work what happens is that you guide them, you don't show it properly and they do it hands-on activities. Or for example research, as I said, I need to make sure that the documents that I am giving to them, resources that I am providing them are they appropriate enough" (Interview# 4, September 18, 2022). She said she investigated and researched by herself a lot to ensure that the resources such as- online books and links that were given to the children were appropriate and not misguiding. So, to ensure all these she needed to do a lot of thinking and research. She added that she also prepared herself to guide students with their particular queries. She also shared her thoughts on her duties towards primary students as a teacher that,

> I would probably say some resources that we share with the students, some vital points, some information those are quite new to them and they do not actually know about that so they come to school with a hope to learn that from us. So, minimalizing it and giving that appropriate sense as well as doing the hands-on activity, I believe that is needed in a teaching, a process. (Interview# 4, September 18, 2022)

She also shared about her another role. She said sometimes lesson plans were made with long descriptions to give a thorough idea to conduct the classes in generally, addressing all students. In that case, she observed that while one kind of instruction was perfect for a section of a class, but was inapplicable for another section due to the differences in learners. Because, "Students

vary from section to section" (Interview# 4, September 18, 2022). So, in that case she needed to break down the instruction and delivered it accordingly. As she stated, "So, I try my best all the time to break down the instructions thoroughly and repeat them again and again. So that they understand it, do it, they do it on their own" (Interview# 4, September 18, 2022).

A teacher described the process through which she incorporated PBL. She stated that,

> First of all, I choose the topic, then while making the lesson plan I think of how they will receive that theoretical part. There are some topics, like the agriculture topic was boring for them to learn- where in the location in Bangladesh, these crops are growing, the farmers are doing this this. I think, instead of doing it like this, if I let them do something in project-based learning, then when I will give them other information, they will pay attention to it. (Interview# 1, September 4, 2022)

While making the lesson plan she considered many issues. She described that according to the learning objectives and enduring understanding she incorporated PBL with a topic. So, at first, while planning she decided on whether the lesson needed lecture, memorization or hands-on activity with an ample amount of time. She said, "So based on enduring understanding and objective we plan Project-Base Learning. Normally, we do it before 1 month, whether it is PBL or what" Interview# 2, September 4, 2022. She shared that some topics demanded PBL and to grab students' interest it worked better, "To actually get their enthusiasm, to get their interest, to grab their interest I actually announce this in the very beginning that this is what we are going to do from this topic - so I tell them this in the beginning" (Interview# 2, September 4, 2022). Further, she elaborated on time management and formation of team,

> And then give them specific guidelines that what time, I feel the time frame that in the first week we will do this and second week our objectives to get these things. So, this is how I tell them a time frame, specifically, a group, if it is a teamwork, I form that team at the very beginning, in the first two three classes I form the groups and I choose that all types of students are in a group. There are some leaders, those who have good leadership

> qualities. There are some who lag behind, they have problem in understanding. Then I make sure that all types of students in one group. (Interview# 2, September 4, 2022)

She gave instances from her experience on how she made a work plan. She brought changes to her LP when students needed more time and for this she had to coordinate with other teachers and admin to allocate time and space for the students. She stated,

> So, these things need to be done during the work plan. I mean that, I have to give them space to do it, then I need to arrange everything, I mean, with different departments in the school. So, I had to actually, and get the time, the, I mean the specific area to make their own project. So, these things need to be preplanned with different departments and other teachers. So, we need a key plan. (Interview# 2, September 4, 2022)

According to a teacher (Interview# 1, September 4, 2022) in the beginning of PBL it was important for a teacher to have the mindset to prioritize her/his students' need. Though they followed format of a precise lesson plan which consisted gradually developed different steps, but sometimes she modified the plans according to her students' need. She also emphasized on her roles saying that students of grade three did very well in their paper project because they chose the way they wanted to do it. As a teacher she supported them with the basic information, hands-on activity and in understanding and working towards the goal. In her words, "We gave them the way or we gave them the like opportunities to do the work" (Interview# 1, September 4, 2022). She discussed that the medium of her instruction was not only Auditory, but also, "We have to make it visual. So that time we…to reach to each and every kind of students whoever have special needs or not so we used to give the verbal instructions also, we use the board and sometimes we use pictures to give them the instructions to make it clear" (Interview# 1, September 4, 2022). She shared an example of PBL process where she kept a full session on hooking up. In her words, "So, see they are touching the leaves and flowers and they started discussion. So kept a full session only on 'hooking up'" (Interview# 1, September 4, 2022). Thus while discussing about different parts of trees and its importance, children wanted to write down things to remember but the teacher didn't allow them. In this process as the teacher shared,

> It was a very casual discussion and from that point suddenly it popped up in the children's mind that yes, we get a very important thing from plants and that is paper. And without paper our life is incomplete. We cannot read books, cannot write and we cannot remember so many things. Then they found that paper is very important and they became so interested on this. We then thought that the topic children chose by themselves is very beautiful idea and they can learn many things from here. So, this is how they chose their topic. (Interview# 1, September 4, 2022)

However, a teacher informed that she selected topic from the syllabus. She elaborated,

> So, there are six chapters in their book for half early and I choose a topic which I find they are feeling more interested in and they are responding well-enough, I go for that topic since they are kids, I am not going to do something against them. I would like to do what they are loving. (Interview# 5, November 2, 2022)

Further she described,

> Secondly, I take one class to talk about the topic to let them know the basic thing and then I give them information sheet, I give them the information sheet, that yes, what are the materials that you will need, what sort of papers you will need, how you will color and what are the headings you will write, I give them a knowledge. Sometimes I show them a prepared project through maybe YouTube or maybe if a ready project is here in the school, I bring and I show them but while showing I always tell them not to copy exactly the same thing. (Interview# 5, November 2, 2022)

She shared an experience about how she guided class one and two for making a project for a science fair. She described,

> For grade one and two there were science fair this year so in one they made a 3D representation of how a plan grows from the seed and I also taught that how to represent that. I gave this speech, they have learned and said it in their way. They are kids, of

> course, there are flaws, but yet it is appreciable because they work together and from seed to the grown-up plant, they did it perfectly. (Interview# 5, November 2, 2022)

A teacher informed about her roles and responsibilities while describing about history Project-Based Learning classes. She said, “So, for example- today we have a project work in class three. They are working on “first civilization.” (Interview# 3, September 18, 2022) Later she illustrated,

> They have worked on- Sumer civilization, ancient Mesopotamia, ancient Egypt, ancient China, Indus valley civilization and ancient India. We have taken individual class on each of these topics. Now the children know about all the civilizations. Now this lesson plan is allotted for 32 days. Today is the 26th day of the 32 days. In 26th day, today they will start a project work for which we are giving instructions for last two days. (Interview# 3, September 18, 2022)

She also talked about the guidelines that, “Let me show you the instructions, the guidelines we are providing them on how to do the project work, which area they will work on, which site they can research on to gather related information, -all these guidelines are mentioned here groupwise.” (Interview# 3, September 18, 2022) About rubric and resources she said, “During presentation day we use this Rubric. This rubric will help us in judging their presentation skill. So, we write such a plan before every project work. Additionally, we upload everything (guidelines, instructions) groupwise in the google classroom” (Interview# 3, September 18, 2022). She added, “Actually, in an organized way we are proceeding especially for class three and four. But in earlier classes they are young kids, so they need teachers’ guidance.” She also mentioned about the use of worksheet in PBL. She stated, “For example, let me show you a worksheet. We have asked those who will present on Ancient Egypt to keep the answers of these worksheet in your presentation. For any groupwork guidelines and instructions are very important” (Interview# 3, September 18, 2022). She also reported that, “Today I will also talk about the rubric with them, I will talk about what things I will look into in their work. We will also discuss if they have faced any problem while collecting this information. After that they will work on their project for thirty minutes” (Interview# 3, September 18, 2022). She mentioned that she remained vigilant when student did their group work, repeatedly reminded them on their

assigned task, and encouraged reluctant student to do things like cutting papers and pasting it etc., thus they were involved. She also added that, "Also, when they are working, we ask them different questions such as- why are you doing this, where did you collect this information from, why is it important -that kind of things" (Interview# 3, September 18, 2022).

4.3.2 Lesson Plans & Guidelines

Teachers of all three schools said that they followed a lesson plan either made by themselves or provided by the school authorities. We could see two lesson plans and one PBL guideline. One of the lesson plans (LP) provided by a teacher (Interview# 2, September 4, 2022), mentioned the class and subject in the beginning. It was on the subject 'Social Studies' for class 5 (Document# 1, September 4, 2022). It consisted 6 sections with day and date, such as- 1.Topic/ Subtopics- the topic was Our Economy: Agriculture and Industry, 2.Specific Learning Objectives, learning outcomes to be SMART as they wrote it, Enduring understanding and Project preparation was included here, 3. Assessment section mentioned about rubric, types of question and answer and list of tools to use and scores, 4.Methods and Strategy section was totally based on 'Activity', the list of activity included brain storming, brain gym, memory game, lecture, briefing, presentation, discussion, game, research & investigation, group activity, individual activity, demonstration project work, board work, reading, guided practice, independent practice, Guest speakers appearance, interviews, Reflective presentation, Physical or virtual excursions etc., 5. Differentiation included peer support, special activity and one-to-one explanation time; and final section 6.Back-up Plan to add alternative resources and Extension or shrinking of time-frame. Then the lessons were divided into daily plans for 8 days. Daily plan included 3 phases of teaching-learning strategies- Introductory Phase focused on asking questions by teachers and students, Developmental Phase included more discussion & explanation and Closing Phase recapitulated key Understanding of the subject matter, and also added instruction for Class work, Homework and Diary writing. The second lesson plan (Document# 2, September 18, 2022), a teacher (Interview# 3, September 18, 2022) shared with me from another school, organized its planning as follow: it was made for class 4, on the subject Bangladesh and Global Studies and the book 'Amazing Bangladesh Book 1'. The three major parts of this LP were Topic/ sub topics, Major goals, and Specific objectives. The main topic was 'Independent kingdoms of South-East

Bengal' and sub topics were Archaeology and Ancient Bengal. In Major goals section two goals were specifically written- 1. Learners will describe the locations, main events, personalities, and the development occurred in East Bengal from 6th to 11th century AD; and 2. Learners will bring an archaeological approach to the study main features of the Kingdom. In a nutshell, the specific Objectives section added different verbs to develop learners' cognitive ability, such as- understand, recognize, investigate, create, learn and link etc. Then the whole LP was divided into daily plans with timeframe for each activity. The daily plan was divided into 3 phases as the document showed: 5 minutes for Greetings & Warm-up, 30 minutes for Group work & presentation and the last 5 minutes for wrapping-up. It was a 27day long plan. LPs for PBL included a detailed Project Preparation guidelines **(**Document# 3, September 18, 2022) for the students and the rubrics (Document# 4, September 18, 2022) for assessment. The Project Preparation Guidelines I received, was written for class 3 and the subject was 'First Civilization', so it was the part of another LP, but the structure was same as the teacher reported. However, the guidelines contained Topic Name, 6/7 website links on the specific part of the topic for research, questions on focus area for each group, instructions on duration of presentation for each member, total time limit, preparation of the Chart paper with bullet points, style of oral presentation such as- Student should Speak and explain in their own words and should not read it out from a written speech etc.

4.3.3 Use of Resources

About learning material collection and usage, a teacher informed that since her students were from grade 1 & 2, so she preferred making projects by crafting and painting. Therefore, they used materials such as- bottles, newspaper, color etc. which were easily available (Interview# 5, November 2, 2022). According to a teacher she used resources from technology,

> Here, teacher's role is very important to decide age-appropriate videos that children can understand. Teachers had to do their research to find appropriate videos. So, we take preparation for that. Then we show them in their visual class and they they take notes on it. Here we use some note taking sheets for science. (Interview# 1, September 4, 2022)

Another teacher reported that school provided all the necessary resources, “Maker Space” a space for making their projects and important learning material e.g., reusable materials like plastic products, KWL chart too (Interview# 2, September 4, 2022). Teachers also provided online links, books, research sheet, and Information sheets (Interview# 4, September 18, 2022; Interview# 3, September 18, 2022).

4.3.4 Students’ Learning Practices in PBL

A teacher conferred that child made their work plan with the help of KWL chart in PBL practices. The teacher described that,

> This chart is basically like a roadmap. It includes how they are starting, what do they, how do they want to do it. So, to them make them workplan and keep it visible we use this chart. K stands for what already we know, W stands for what we want to know and L for what we learn. So, initially the chart starts with what we know, so what so they know about paper we talked about it. The children already know a lot. So, they write those things. We don’t write. (Interview# 1, September 4, 2022)

Also, “Every day they fill up what they have learned and if they find that they need to know more they would add it to the chart on their own. So, here we need to prioritize, because we cannot add everything” (Interview# 1, September 4, 2022). She also added that children got so inspired after visiting a factory where they could see and touch different types of paper sheets made for different kinds of paper products and came up with ideas to make paper. She described the process of learning,

> Suppose, see here they are writing the resources needed to make paper. So, they make the chart accordingly, drew pictures, if they need or want, they can take print out also. Then we found that it needs a lot of resources, for example it needs to cut a lot of trees. Then we made them thought is that fair to cut a lot of trees? What do you think. So, when we gave them the opportunity they explored, like no, why we are using so much resources. We

> provoked them to think. Like when we tell them this much trees are cutting down for paper there, we thought of three R- Recycling, reusing and reducing. (Interview# 1, September 4, 2022)

She emphasized about students' observation and making connection as a part. She gave an example that,

> So, we showed them many things, we gave them some garden materials-leaves, flower, all natural things. So, you can see from there they observed the leaves, flowers, and then they discussed on their own that on what topic they want to do PI (Provocation Installation). As they are in grade three, they have experience in PI as they did it in class one and two. So, they know. (Interview# 1, September 4, 2022)

According to a teacher, her students remained involve in the queries through discussion. Later, they researched to find out more. She said that, "So, they actually do some research and the books they got idea that there are some crops we can grow in the kitchen garden. So, they suggested me those options - miss! Can we do that? I said, yes you can" (Interview# 2, September 4, 2022). She also added that students correlated between different kinds of knowledge. For example, while doing a project on 'Model Town' students correlated different issues e.g., environmental issue, Different kinds of pollution, the population, measured the area of their model town etc. The teacher illustrated the whole activity,

> Then they give me a design of a model down, then based on their design they make the model. I think that, these are very effective. There are many skills - they will measure the area, then they have to sort the recycled material - what should be the material they need to use. (Interview# 2, September 4, 2022)

She emphasized that, "They think on- what are the materials to use, then if those are available, then whether they can use it by themselves, they measure everything, they find out dos and don'ts" (Interview# 2, September 4, 2022). she also mentioned about the survey form that the

students fill up at home with their parents to learn about related information e.g., for the town project they found out about the local government, city mayor and their responsibilities.

However, a teacher shared about learning practices of her students (Interview# 3, September 18, 2022). She said that after discussions on a topic students received the guidelines to work on their presentation. In her words,

> Every learner will present individually. While working together in group they decide who will do which part. If you see, in group there are so many things, one kid may be talk about the physical features, another kid may talk about two cities in Indus valley and another kid may talk about the main features. So, they divide all the work among them, then they organize and present it on their own. (Interview# 3, September 18, 2022)

She also shared that how she involved children in listening actively, “So, while one group is presenting what should rest of the kids do? To keep them occupied we provide them a worksheet which they have to fill up while listening to the presentation” (Interview# 3, September 18, 2022). While talking about resources for projects making a teacher informed that students bring materials needed to do the project (Interview# 5, November 2, 2022). A teacher said, “Today they will bring the information they have gathered. Then we asked them to collect images too if possible. We will provide them chart papers and necessary stationaries like glue, scissors anything. They will organize the information and stick it on the chart paper” (Interview# 3, September 18, 2022).

A student shared about the activities they performed while making a presentation. He said,

> We always have a plan, first we make sure that everyone in my group understands the instructions, then we divide the, then we organize who will play which role, like someone will make the base, someone will draw, someone will prepare the presentation. We also used it, we also try to perfect it as much as we could, we see if there are any other facts that they might ask in the presentation. (Informal Discussion# 4, November 14, 2022)

4.3.5 Group work in PBL

Teachers said that they set priority to grow skills in each child so they took the advantage of group work. According to a teacher every child showed different ability (Interview# 1, September 4, 2022). Another teacher shared that, "So, while collaborating in group work, they can show their capability. In our classrooms we are using it frequently and it's helping them in a (not audible) and they are taking leadership and they are making something on their own as a group" (Interview# 1, September 4, 2022). Another teacher shared that,

> I form the groups and I choose that all types of students are in a group. There are some leaders, those who have good leadership qualities. There are some who lag behind, they have problem in understanding. Then I make sure that all types of students in one group. (Interview# 2, September 4, 2022)

A teacher reported that,

> When I involve a group of kids in a project, the number of groups depend on how much kids are there in the class, so we divide them in small groups, while dividing we can identify every kid's individual skill. (Interview# 3, September 18, 2022)

She also mentioned that group work inspired slow learners too to perform better,

> When we make a group, we include children to ensure mixed abilities. So, there is a high achiever, average kids, and slow learner. So, when children with mixed abilities work in a group the high achiever takes the leadership role. Other kids get inspired by him/her. They have this tendency that if he is doing than I will do it too. They grow this tendency. So, we think a lot to prepare each group. (Interview# 3, September 18, 2022)

In accordance with her words while observing one of her Project-based classes (Observation# 5, September 18, 2022) of the subject Bangladesh and Global Studies, I saw the things listed below:

1. It was class three and the section was named with a color. The total number of students were 18 in that class. It was the group work day. They were working on the topic First civilization. Students attitude showed that they had a clear understanding on the subject matter and they know what they would do exactly.
2. The students brought photos, drawings, information, maps to paste it on the chart paper. They were engaged in organizing things on the chart paper.
3. I saw that the children were working in five groups. Every group was working on different topic related to 'First Civilization'. Each group had 4/3 members.
4. In one group, a male student was absent on the previous day and didn't bring the resources he was supposed to. His group mates were cooperating him to link up with last activity of the previous class and gave him the task to assist them in organizing the information on the chart paper. So, he didn't feel helpless or left alone.
5. Every member in each group was doing something to progress the work and make it look better. Each group had their- written guidelines for the project and ground rules to follow. The ground rules emphasized on respecting others and a motto on team spirit that said work together to learn more.
6. Teacher was monitoring every group from time to time in a comfortable manner, and she gave them a sudden little break by singing 'la la la' melodiously for some seconds, when the students were bit out of focus as they were small kids, and students looked happy and showed friendly gesture with the teacher.

4.3.6 Products Created by Students

Different types of products of PBL i.e., artifacts, chart papers, garden, models, materials created by the students of primary levels were in display in two schools. A school Located in Chattogram displayed different artifacts at different corner of the school premises. I saw several artifacts of 'Town Project' in the display. Students group effort and understanding of the topic were visible in the models (Observation# 2, September 4, 2022). In the same school after the interview the teacher took me to the rooftop garden (Observation# 3, September 4, 2022). She showed me potato beds that were growing to be matured plants, chili plants. These were planted by the students of class 3 & 4 as a part of their project work on Agriculture that focused on

growing different types of crops in different spaces such as at the small land, big land and rooftop. The teacher also showed me a photo of a chart paper that student designed with manmade and artificial things in previous years. Another teacher showed the whole process of making handmade paper by the students from the previous project (Observation# 1, September 4, 2022). Another school displayed students' projects done in chart paper. Bangladesh and Global Studies teacher took me to two classes to show the chart papers. One of them were on different occupations (Observation# 4, September 18, 2022). It showed image and facts on different levels of worker i.e., skilled, semi-skilled, and highly skilled etc. Another chart was made on the concept of civilization.

4.3.7 Assessment in PBL

Teachers shared about the features and process of assessment in PBL classes. A teacher stated that she marked every project work from grade one, two and three. She set some criteria for marking different things in a project. She said that,

> In that case what happens that I always take the marks for each project and then I divide, like a way I used to find out the title of the project. there should be a title, a nice title so there will be marks for title, for, is there is drawing, then there will be marks for drawing if there is cutting and pasting there will be marks for that, if they are making any 3D projects, in that case I will see the crafting - how is it, coloring, then what information they are including, are they missing an important information or not. I divide the marks in this way. (Interview# 5, November 2, 2022)

She added that after marking, she shared her feedback with the students to let them know why did they miss marks, so that they could improve later.

According to a teacher as she knew her students very well so she could make sure that everyone was participating and contributing in the group work (Interview# 4, September 18, 2022). She said she knew that there was somebody in the group who always took the leadership and did most of the tasks. So, she made sure if number one student was taking leadership, then what work number two and rest were doing and she assessed them accordingly

with marks. A teacher said that "Through assessment we keep the track of their performance" and she followed a rubric to assess her students' skills and performance during PBL (Interview# 3, September 18, 2022). She mentioned that, "While they are working in group how they are communicating with each other, who is taking the leadership, how is their communication and speaking skills, how they are doing the presentation -we can identify all these areas" and she also added that, "We assess their listening and understanding through the worksheet" (Interview# 3, September 18, 2022).

For individual assessment she mentioned that, "we keep note on how they are participating. We also observe who is doing what in every group" (Interview# 3, September 18, 2022). She also shared a document on Rubric with me (Document# 4, September 18, 2022). The Rubric was made to assess project work of class three on the topic 'First Civilization'. It was designed with 5 major components and some questions with a 5-point liker scale. The 4 components were- Presentation Skills, Content, Visual Aids, and Teamwork & Organization. Also added a Comment section. The Likert scale measured the performance of the groups with points 1 to 5 and labels from poor to excellent.

A teacher reported that she did not assess her students from the beginning rather she followed a process. At first, she observed them to find out if they understood the group activity and then she started to assess them based on a set of criteria. In her words, "We mainly observe their creativity, critical thinking skill then communication and collaboration skill. We emphasize on these. We follow a rubric" (Interview# 1, September 4, 2022).

And she also added, "another thing is inquiry, how the child is pursuing the inquiry as a group because when a child wants discover something with 4/5 students the knowledge becomes more filtered" (Interview# 1, September 4, 2022).

A teachers shared that she did not assess her student's individual performance, she assessed them as a team, but she observed every student to find out if she or he could understand the work and cope up. She described about her assessment criteria that,

> For example, if he is developing communication skills, if he has grown cooperative mindset, if he grew interest on the task or not. I assess that is if he felt interested or is the

> topic. So, I don't assess them individually in project-base work, 'as a team whether they can do it or not. (Interview# 2, September 4, 2022)

4.4. Scope of skill development for students through PBL practices

Teachers mentioned about several skills that the students developed as an outcome of practicing PBL. In PBL practices students had the opportunity to hone different skills such as- Communication, collaboration, creative, research skills. A teacher stated that,

> Then group work help in growing communication and collaboration, then leadership also grows as they lead a group. So, I think, there are so many positive sides of project-based learning. It has a certain time frame, that within this time I have to finish - it is a positive side as they grow a sense of time. (Interview# 2, September 4, 2022)

She emphasized that,

> As a teacher I would say, project-based learning supports in developing skills among children. As I said, empathy grow in them, leadership grow in them, communication grow in them. What is collaboration, what is coordination, how to coordinate one thing with the other thing – all these, I think, are positive sides of project-based learning. (Interview# 2, September 4, 2022)

A teacher confirmed that,

> As I already told the skills- these skills are increased, their level of confidence increases, they remain confident and in upper classes they have confidence from the beginning. So, through project-based learning they are improving in leadership quality, communication skills, presentation skills, speaking skills -in all these sides. So, this appropriate for them. (Interview# 3, September 18, 2022)

Communication and independence of learning also grow as a teacher illustrated that,

> As I said that they will try to become independent because as I always ask them to find out a specific information, say suppose I am teaching them leaving things and non-leaving things, I tell them what is the difference and the next day I tell them to find out ten living things at their home and ten non-living things at their home. So, they will go home and they will try to think. If they don't find they will ask them more to their elder brothers and sisters. So, they will develop communication skill, they will develop how to think. Thinking ability is also important. Always memorization cannot lead someone to the best place, you know, of course I would say that independence of learning and communication skill is also developed. (Interview# 5, November 2, 2022)

A teacher acknowledged in her students that while doing project work children got the scope to understand team-building process, "Students themselves identify their new characteristics that yes, I can give instructions, I can take my team towards forward. So, they sort builds this kind of, you know, skills among the students. So, I believe that from that angle as well PBL is quite helpful" (Interview# 4, 18-09-22).

A teacher said that When children worked together, they could work quickly, also power of tolerance increased with group work, while collaborating with different types of people children learn to accept each other (Interview# 1, September 4, 2022). She also compared between studying alone with studying in a group and said learning alone could be frustrating, but learning in a group provided more help. She mentioned about other aspects of collaboration, "So, different mind can think different ways. So, they can find out any way out from there and as a group that's why the success is more achievable when they work as a group" (Interview# 1, September 4, 2022).

She again emphasized on development of collaboration mindset among students that,

> The group work is like that. One thing is tolerating others' opinion, that what I'm saying, acceptance increases, versatility increases, obviously flexibility increases. A kid never

> wants, a kid sometimes thinks: the way I think everything will happen in that way, I want like this, and it will happen in this way, but when they do it in the group then they grow this mindset that- no, I have to do it together with others. I can achieve it together with others. (Interview# 1, September 4, 2022)

A teacher highlighted with an example on how collaboration created team spirit and thus helped in completion of the task,

> There are two three groups that I have whose work have been impressing me so much not the project they are putting up in front of me but their work, the way they are working because there is not one leader in there, four of them are working together and it comes up so beautifully when four of them are putting hundred percent of their own self. No one is telling them, you know, guiding, it's like they are all working together, that feels so good at the end of the day. (Interview# 4, September 18, 2022)

A teacher shared a story of a shy child who developed communication while collaborating with team,

> The kid who doesn't talk will be forced to say something when I will make him work with a talkative kid. They will be inspired. For example, a kid in class two does not talk, he is studying for two three years but not talking. He can understand and do everything, but doesn't talk. Recently, he has started to talk. So, this improvement came from team work. (Interview# 3, September 18, 2022)

Further the teacher confirmed that,

> Their strength, their, the kid who doesn't talk in the class when he work in a group communicates with the team mates that can be non-verbal or through the work. So, we can identify all these in each and every child. So, later it helps us to assess them. (Interview# 3, September 18, 2022)

A student assured that collaboration with group members helped him to develop many skills,

> For one thing, we have lot of pair work and group work and for projects we have learned how to cooperate, coordinate and communicate, with each other so that we can finish this in time. And the project work also helped us by improving my creativity, concentration and critical thinking skills. (Informal Discussion# 4, November 14, 2022)

According to the student "Another place we collect information is ourselves. We talk to our classmates and see if anyone knows that what your query is. They answer to your query" (Informal Discussion# 4, November 14, 2022). Similarly, a student emphasized from her experience that,

> Project works are great, you can learn so many new things and you can learn so much more, for an example, one day I was doing a project work with my partner 'S.' He is really good at study and I learned a lot of new things from him, for example, I learned how to make the Deltas in like when we were making a river model and I have also learned how to make a Levee. (Informal Discussion# 3, November 14, 2022)

In another instance she said that she had learned some technique of art from a friend while working on a project which helped her to make her later projects too. A student shared that how she developed speech as she was shy before to express herself, and finally she got rid of her public speaking fear, "I also learned how to present myself to give a speech clearly and specifically. I also learned that from doing project works explaining to other people visitors or anyone. I have also improved in that" (Informal Discussion# 5, November 16, 2022). A student assured that they learn to collaborate in group work through helping each other in case if anyone was not understanding something and simultaneously while working, they had fun (Informal Discussion# 6, November 16, 2022). She also added they listened respectfully to each other's thoughts, opinions and ideas. The student said "so communicating and socializing- it helps me really a lot because I'm bit shy" (Informal Discussion# 6, November 16, 2022) and to understand others. Further, she stated that,

> Sometimes all of my group members, they may not participating actively, they may not be listening, we were disagreeing with each other, arguing, in sometimes even fighting. So now I know to deal with them better, because of those many groupwork, projects we did together. (Informal Discussion # 6, November 16, 2022)

Another student shared her views on different aspects of communication in case of difficult situation,

> I think the best thing about project work is communication because when you disagree and argue it feels bad, but in the end of the day there is only one answer and we just end up agreeing on it that just help us overcome some difficulties and get through a new, love with our friendship. This way gives me more communication skills. (Informal Discussion# 2, November 2, 2022)

A very young student of class 3 shared a different insight on teamwork, “As I said you can expose your creativity to the other people and you can also show how you are together as a team, and you can learn a lot from other members” (Informal Discussion# 3, November 14, 2022). Further, with an example she explained,

> The latest project work we did was the 3D river model. We did that on our BAGS (Bangladesh and global studies) class, we like showed how river flows and the paths of a river, and how it starts. And we showed like explained everything why does a, for example, ox-bow lake, a lot of people are confused what’s a OX-bow lake! When somebody else came to our table and is like what is a ox-bow lake. We introduced, explained how is it created and why is it created and how is it created. (Informal Discussion# 3, November 14, 2022)

According to a student in a group presentation they choose their topic themselves, and presented it in a science fair on a chart paper with visuals and description, and they enjoyed presenting it to the visitors (Informal Discussion# 2, November 2, 2022).

A teacher found that students grow leadership skills while doing PBL (Interview# 2, September 4, 2022). Another teacher assured that “So, through project-based learning they are improving in leadership quality, communication skills, presentation skills, speaking skills -in all these sides. So, this appropriate for them” (Interview# 3, September 18, 2022).

A teacher shared from her experience,

> Secondly, when they become the leader, they learn how to do all the tasks like a leader. Like, I tell them that you observe that your members are doing it correctly or not, properly or not, take the updates, come to me, give the update of your project work. So, yes, this is very, what to say, this is an advantage for them, because in traditional learning if I don't assign them for any task, they are not going to learn all these things. (Interview# 5, November 2, 2022)

A teacher explained that this practice of leadership quality helped children understand their roles and responsibility,

> Also, by doing this sort of project-based learning you can identify who has a leadership quality. Students themselves identify their new characteristics that yes, I can give instructions, I can take my team towards forward. So, they sort builds this kind of, you know, skills among the students. So, I believe that from that angle as well PBL is quite helpful. (Interview# 4, September 18, 2022)

Students can grow critical thinking and problem-solving skills while working in a Project. As a teacher stated that “we want to make sure that the children go through a systematic process” (Interview# 2, September 4, 2022). She also explained in details how the students demonstrated critical thinking skills through making several queries and comparison between towns. Finally, they built their understanding themselves on ‘Model town’.

> Then they found out that this is not a perfect town, we should have these things outside our town. This factory should not be beside our school. Why is that? Then they give many kinds of answer, like it has environmental issues, traffic issues. So, what could be the model town? Then they first draw the design of a model town. (Interview# 2, September 4, 2022)

She also mentioned about children's capability to identify and define problems,

> When we coordinate different issues, such as - environmental issue, then population then the area of a town - when we discuss and compare these issues then they realize - no miss, it is very polluted, the area should be very polluted. It is not convenient for the children. The pollution, air pollution, traffic - so they can correlate among all these. (Interview# 2, September 4, 2022)

And they think about the solutions too as the teacher mentioned,

> So, what can we do? Can you actually solve the problem on your own? so how can we do this? Miss! So, what are the government system in my locality. So, they can correlate and they also have learnt this topic on local government. So, who is responsible in your locality? Do you know his or her name? No, then ask your parents. Then, I have a survey form, which they have to fill up. So, with the survey from they have discovered that these problems are there. (Interview# 2, September 4, 2022)

The teacher also shared another experience where as a part of problem-solving skills while working on a project for making traffic signal and zebra crossing students wrote application to the city mayor asking for permission to do the design. For this they also found out about who was the person responsible for their city.

A Student said that they made choices of resources and work strategy using critical thinking (Informal Discussion# 5, November 16, 2022). Another student mentioned that they used critical thinking skills, "Well, we used critical thinking to see how we can improve it, like perfect the

things, which roles will the people paly and how will we organize it, how will we say it in the presentation, we used critical thinking skills for those reasons and many more" (Informal Discussion# 4, November 14, 2022).

Moreover, this student gave an example of performing critical thinking to solve a problem they faced in making the project of 3D river model on river erosion, "We used creativity to find out how to solve problems, like, well, for example, some of the river project started to fall down, we used some foam to fix it, like that. We used this creativity to find out a way to fix it" (Informal Discussion# 4, November 14, 2022). A student reported that she used critical thinking skills to sort out specific informative videos that might be helpful from the bulk of videos, in her words

> For example, one time we were doing research about paper, the history. So, when I thought that I should search about the one video of paper, like I searched about a history of paper and in a more specifical way so many videos came, and then I watched the videos, I wrote in a paper the specific ones that the video mentioned. (Informal Discussion# 5, November 16, 2022)

A teacher shared from her experience that students developed research skills in PBL practices. She said that while doing a project on agriculture, students found out all the necessary information on how to grow Potatoes on a rooftop garden, what amount of the time needed for the crop to be matured, what tools and fertilizers were needed and what kind of fertilizers were harmful for soil worms. They learned all these by themselves as the teacher mentioned (Interview# 2, September 4, 2022). Similarly, a teacher mentioned that,

> Not only hands-on, project-based I can consider as research-based as well. Research can be a part of project-based work as well. So, when they are researching about something, may I want them to research about a particular thing, but while they are researching, they get to know hundred more things. So that is also expanding their horizon. (Interview# 4, September 18, 2022)

She also added from her experience of class 3 students, specifically those students who were not comfortable with reading online books and resources but developed research skills doing project work during pandemic (Interview# 4, September 18, 2022). She explained that she provided them some online books to read and also briefed them on endangered animals. Then for further research she gave them questions to find out about different things such as which animal habitats were endangered and why those were endangered. Later she found, “And, they came up with beautiful ideas that yes teacher, these animals are in endanger, and we are trying to save them doing this or that. So came up with these ideas by themselves” (Interview# 4, September 18, 2022).

According to a teacher researching was interesting to students, “Of course, it's interesting, especially for the students because, you know like, coming to the class and letting them know about something - it's kind of boring. So, they love to doing research kind of things” (Interview# 5, November 2, 2022).

Aligned with teachers’ views a student confirmed that research skills made them enthusiastic to do more, and bring more interesting information, “We can do a lot of positive besides, that we learn about lot of other things when we are doing the research work” (Informal Discussion# 3, November 14, 2022). Similarly, another student said that, “Like when my teacher tells me to do a project work to write about an information about topic paper, I can decorate the chart and put on more facts, like she told to give five facts, but I can make six or seven and decorated more” (Informal Discussion# 5, November 16, 2022). A student said that, “I check the information, understand it and write it in my own words. I like to find information myself then present it to people” (Informal Discussion# 2, November 2, 2022). A student shared her experience from a science fair where she made a robot with plastic bottles to show about the idea of ‘Recycling’. She said that through researching, “I love the finding ideas to put into my robot” (Informal Discussion# 1, November 2, 2022).

4.5 Challenges in Practicing PBL

A teacher threw light on an issue, “Sometimes in a class there is students who are always lazy, alright and it doesn't matter how much I give effort they are not working or maybe they are not understanding or maybe they are weak students” (Interview# 5, November 2, 2022). A teacher

said that sometimes some students reported that they didn't understand anything from the beginning and they didn't know how to do the project (Interview# 4, September 18, 2022). Likewise, a teacher reported about inattentiveness and self-centeredness that hindered the expected output from the children. In her words, "From the students side it is sometimes challenging. Sometimes some of them lack attention(interest), it's a challenge. Sometimes we find some students as self-centered. In that case, you cannot get that output what she or he can" (Interview# 1, September 4, 2022). She added another challenge was that, "Learning process is also not same for all the kids" (Interview# 1, September 4, 2022)

One of the challenges a teacher spoke about that as the students of primary levels were small kids, they needed continuous guidance from the teacher otherwise they would navigate towards the wrong direction while gathering information,

> Of course, it is my job, for example, if I say so…um that, you know, sometimes I told them to do a project work, since I did not give them any sort of pre-hand idea, or any sort of information the work takes them to another work and they sort of make another sort of a portion or they learn another sort of a thing which is most probably perhaps can be linked with the study but not always. (Interview# 4, September 18, 2022)

A teacher reported a problem about the lesson plan that was made to address all the sections and all kinds of students in general, "And, lesson plans are prepared keeping in mind all sort of students, but then again since you spend time with your students, you understand them more. So, you know that this portion of instruction needs more clarification, so then you provide them" (Interview# 4, September 18, 2022). She highlighted another challenge that she faces regularly that when students of a particular group did not understand the work properly, she felt pressurized and thought that it was her failure (Interview# 4, September 18, 2022).

According to a teacher one of the "Problem, actually students of three and four are kids" (Interview# 3, September 18, 2022). So, for this the teacher needed to give the instruction repeatedly and clearly to make them understand and reminded them continuously to focus on the project. Sometimes some students would not be able to collect the information. She gave an example of a situation where student could not collect an information,

> Today, for example, class 4 will do a project on 'human resource' based on interview. For example, I am saying, If they have any relative or familiar person as overseas worker or in foreign, they will ask them some questions. We have given them the questionnaire. Some children said that they have nobody in abroad. (Interview# 3, September 18, 2022)

She also added some more challenges, "These problems that we face that the children remain absent, they don't collect information, many children do not participate enthusiastically, these are what we face"(Interview# 3, September 18, 2022) And she emphasized that, "Time management is another big issue." Similarly, a teacher said, "Time management is a big thing here since they are kids, sometimes they don't even understand what is the meaning of deadline" (Interview# 5, November 2, 2022). About time-management a teacher shared her experience,

> Time-frame, in doing the project, I think, I feel like I should give more time to the students. Sometimes we need to push them to finish quickly. Can you finish, I mean, in 2 days or 3 days? Because at that time they get clash with other topics. I cannot manage a lot of time, because they are children, small kids they are very young, so, I think that I should give them more time to actually do this better. So, for the time frame I face the difficulties and nothing else. (Interview# 2, September 4, 2022)

A teacher highlighted the main challenges along with time-management, "As I said about the time-management, about dealing with the parents, about resources" (Interview# 5, November 2, 2022). She shared her experience of facing challenges with small kids. She said that she needed to observe her students very closely and needed to take continuous update. She stated, "Many a time, I have made separate groups, but they are not working or maybe some of them are absent, or maybe they are not meeting the deadlines. So that is why I am saying for a teacher monitoring the whole thing is hard working" (Interview# 5, November 2, 2022). She also reported about lack of motivation in students to do project work. She described that,

> Miss! why are you giving this? How will we do this? My mom is not helping me or my elder brother and sister is not helping me, or I don't have this material, how can I do that' - in that case sometime from school so we need to provide, I need to ask the schools authority to arrange and yes for one and two, not for the upper kids because they somehow manage their parents or maybe their taking help from the elder brothers and sisters; they know how to grab the things but for one and two when their mom says, no, you don't need to do this. (Interview# 5, November 2, 2022)

She also added that sometimes students disliked their group members, "In my subjects what I do, yes this happens even in grade 3,4, 5 also this happens. Like they would say Miss I don't like that member, she is not my friend, he is not my friend" (Interview# 5, November 2, 2022).

Similarly, another teacher highlighted the same issue of disliking among the students in groupwork. She said that, she had found a lot of issues regarding personal conflict among the students and she also said many times she found that students were uncomfortable to work with a new face sometimes at the beginning of groupwork (Interview# 4, September 18, 2022).

Alongside disliking each other another issue was disagreement among the group members, as a teacher illustrated, "Since the students are communicating, they are always in the rush. Then, if there is one group, maybe two members are not agreeing with each other, there will be huge amount of chaos" (Interview# 4, September 18, 2022).

According to a teacher, "project-based learning is to ensure that each and every member participate", in that case she described the challenge that,

> It's one of the concerns that we have, what happened is that as I have said leadership quality -the student who have leadership quality and it can sometime be misguided that particular student can instead of leading can do the work by him or herself and leave the others behind. (Interview# 4, September 18, 2022)

A teacher highlighted that some parents were sometimes reluctant about project work, "Problems are, like some of the parents sometimes say they are too little why do you we have to do this." Further she elaborated,

> The main problem is sometimes the parents are not interested, since they need to buy lots of things, sometimes they feel that yes this is hassle. And some of the parents may also say that they are kids, what are they going to do after learning this, why not in grade two, why not in grade 3. So, I need to convince them, so that's the difficult part. (Interview# 5, November11, 2022)

4.6 Strategies to overcome the challenges in practicing PBL

As students sometimes were confused and misguided while gathering information, so a teacher suggested the ways she addressed it. She detailed in her words, "So, from a teacher's perspective, as I said, yes, I love PBL, but I would personally like to mold it a bit in a sense that a bit of knowledge beforehand, so that go to the right path and do the project on a very right direction" (Interview# 4, September 18, 2022). When lesson plans were made with a general view to address all kinds of students then the teachers faced that the same plan was not applicable to all, so the teacher solved the problem, "So, I try my best all the time to break down the instructions thoroughly and repeat them again and again. So that they understand it, do it, they do it on their own" (Interview# 4, September 18, 2022). She added that sometimes the lesson plan prohibited the teacher to reach to the children when they started to work, but personally she felt responsible to address individual student's problem in understanding any part. She said that,

> I go to them give again set of instructions so that they can as I said when they are not able to do a work, I feel like that's a failure of mine to provide instructions thoroughly. So, I again go to them and give them appropriate, more specific instruction so that they can at least complete the work. (Interview# 4, September 18, 2022)

In the interview, a teacher shared that she used strategies such as when due to lack of resources students couldn't collect the information which needed to interview an overseas worker, and also some students were absent too, the teacher came up with the solutions, "So, in that case we instructed them to search the internet to collect answers for the questionnaire that what kind of problems the overseas workers face." Those who were absent we will include those children with

the group who were present so that they don't face any problem regarding information gap" (Interview# 3, September 18, 2022). She also highlighted some more strategies that she applied. One of the strategies was to involve the parents in case children were absent, "As I have already mentioned that if someone is absent, we give them guidelines if we have time before project work and if they are present. Or we phone the parents to inform them." Another way she applied regularly, "Then, we include them with those children who have already collected the information. We instruct them to help her as she was absent. This is one process that we follow." And for slow and reluctant learners she has other solution, "Those children who do not collect information we try to provide them some information through IE (Information sheet) sheet. So, we tell them to read the IE sheet to do the work. We encourage reluctant kids. We sit with him individually to find out what you know" (Interview# 3, September 18, 2022).

To get students attention a teacher shared her strategy,

> We use more strategies: we don't provide them same kind of learning experience all the time, this is very monotonous. If I show the visuals, videos in a same manner, or ask them to write in same way rather than this better we give them hands-on activities. (Interview# 1, September 4, 2022)

On the contrary a teacher said that when students did not understand anything then she discussed the whole thing from the beginning as one to one (Interview# 4, September 18, 2022). She also added that, "So, then again, I go there, I try to give them more hints and clue that- 'how about you think from that angle? Is that way of that? So, conducting a PBL class is kind of a like a way that the main portion of work happens beforehand" (Interview# 4, September 18, 2022).

A teacher shared that she motivated children and parents to make them feel comfortable with project work when they showed reluctance. She stated that

> You know, they are not motivated at all so when they come to school, I have to motivate them again, like, no, tell your parents in this way or maybe I talk with your mom, that is

> how I encourage them to feel more interested. To remove fear that they're having. (Interview# 5, November 2, 2022)

According to the teacher she needed to motivate the parents too, as she described

> I need to encourage them first and then I have to come to the, like... I need to do two-way task- like I need to convince the parents and then I need to come to the students to encourage to let them know, 'no' if you do this you will learn better, you will develop yourself and it's fun. First of all, for grade 1 and 2 I need to let them know that it is fun. yes, they feel that it is fun. (Interview# 5, November 2, 2022)

When students didn't like each other in a group then the teacher again motivated them. In her words, "I try to make them understand in the very first class that this school is your family, Second family. You love your first family- your mom, dad, brother and sister and secondly this classroom" (Interview# 5, November 2, 2022).

A teacher stated her different strategies of solving problems among group mates,

> We take different instant strategies like if they are not getting the instruction, maybe they are unable to implement their ideas with their group mates in that case we also provide them one to one session. That time whatever struggles they are having we solve that. Even if they are having any problem with the team mate, this can happen, so that time we have a peace table in our school where they can resolve their conflict. They can talk together. Because if you are not talking to each other (inaudible). In peace table there is a teacher too but the teacher does not interfere. So, we give them the opportunity to be them whatever they are. We are not pressurizing them. I told earlier, whenever they are getting the freedom to be themselves then you will get the best output from them. (Interview# 1, September 4, 2022)

Also, regular group work helped, as she added further saying, "We have to give them opportunity to sit together as a group, they have to do some hands-on activity or they have to go outside also" (Interview# 1, September 4, 2022).

A teacher shared that as a means of conflict management during groupwork, “I make sure that all my groups have someone at least who has a leadership quality, who can guide them” and she also ensured to include friends while making groups that group members are satisfied to work with (Interview# 4, September 18, 2022). She also added that she used ‘Ground rules of groupwork’ and continuously roamed around students for conflict resolution and to ensure safety,

> I always remind them about the ground rules. During the 40 minutes, I am always talking about the ground rules and ground rules because, this is one thing that I do. Another one is constantly roaming around, seeing that nobody is fighting over anything - this is another one I tried to do, always roaming around. (Interview# 4, September 18, 2022)

According to a teacher a solution she applied to ensure that everyone was participating,

> So, we make sure if there are four students in a group, we often divide work to them or we tell them to divide work among yourself that you do a particular portion another one will write a particular portion. So, for this year they are doing it themselves I don't need to assign a particular student with one task they have been doing it by themselves. **(**Interview# 4, September 18, 2022)

For time-management a teacher said that she followed a rule,

> So, I need to keep on poking them and since it is a mark for CT, I need to make them understand. Look! this is a CT for you, if you don't maintain that time then you will lose your mark. Yes, in Mark distribution I also allocate some mark for deadline, that if you submit on the exact date, I will not deduct this mark. (Interview# 5, November 2, 2022)

On the other hand, a teacher reported that when her PBL class was demanding more than one month, she informed her colleagues and the authority and reduced one chapter to allocate more time for the PBL work for students. In her words,

> Then I had to change in year at a glance, I mean the whole planning of the Year. Then I had to skip one-chapter last year – this is the most challenging thing because sometimes um but we get everything and every other cooperation in the school. (Interview# 2, September 4, 2022)

About resources a teacher said that they asked for resources from the parents and when they did not provide then the school arranged it (Interview# 5, November 2, 2022). A teacher shared about the resources that "In our school we are getting every facility, everything from the departments like the accounts and admin departments. So, we have every zone, all the facilities available" (Interview# 2, September 4, 2022). Similarly, another teacher agreed that, "So, if you get support from the institution and the institution is ready to give you the support for PBL then as a teacher maybe you will not get that problem. So, in our case we didn't face any problem" (Interview# 1, September 4, 2022).

In conclusion, the interview data presented that PBL was interesting to the children of primary classes as they learned by doing and collaborating. Teachers found PBL effective in teaching many topics and found that the learners were more enthusiastic and engaged while doing PBL activities. They also mentioned that they used the freedom to incorporate different learning styles and scaffold which in turn helped students with different abilities, leaning difficulties. Development of cognitive and social skills was a crucial learning outcome which heightened students' motivation in learning more. Teachers also shared that practicing PBL was sometimes difficult and challenging for various reasons like children of grade 1 and 2 needed continuous motivation and support of the teacher in every step and sometimes parents were found reluctant about project activity and also sometimes children didn't understand anything of PBL. Though gradually, with more experience with PBL works students of class 3 to 5 had increased motivation to learn with PBL activities. Teachers said that assessment in different forms such as observation, continuous feedback, marking etc. helped students to be aware of their scope of improvement. Teachers also reported that with support from both school & parents, enough time and proper planning PBL practices could be improved further.

Chapter 5
Discussion and Conclusion

5.1 Introduction

This qualitative study as titled 'Project-Based Learning in the Primary Level of English medium Schools: Practice and Perception of Teachers and Students' was conducted in three EMSs. I Interviewed five teachers who were teaching in class 1to 5. I also conducted Informal Discussions individually with six students in total; two of them were studying in class three, one in class 4 and 3 in class five. I observed one class, observed four productions- artifacts of model town, rooftop potato garden, two chart papers on display and analyzed relevant documents e.g., two Lesson Plans, one project preparation guidelines, one rubric. The main purpose of this qualitative study was to learn about the PBL practices in the primary level of EMSs through the practice and perception of teachers and students.

This study about PBL practices in the primary classes of EMSs were important because EMSs were considered to practice many standard teaching learning practices. So, they were in the demand in our society. As a teacher of some reputed EMS, I directly observed that their practices were exemplary in many ways as it nurtured holistic learning catering to the students' need conformed with 21st century educational demand. Though, there were also issues of malpractices in EMSs due to many lacking as other researchers claimed. However, this study explored many aspects of PBL practices from the perception of teachers-students and observations in EMSs which could help many professionals and schools to learn about good practices of PBL in the primary classrooms. These findings shed light on Importance of Planning, organizing, requirements of successful Implementation of PBL Practices, preparedness for addressing challenges -these lessons learned from experiences would guide Schools, educational leaders in implementing PBL practices successfully. Also, this study created the scope to learn from very young primary students' perception, which added the most crucial knowledge to this study. These views of children gathered the points of their liking, disliking, motivation and demotivation which would guide teachers, schools, parents and experts to set the direction accordingly to update the Teaching-learning process and materials.

The findings of this study unveiled many aspects regarding PBL practices in the EMSs' primary level constituted in-depth knowledge in me as the researcher and accomplished this research project. In this chapter, I detailed on the points of discussions supported by the findings of the results, my reflection as the researcher and the literature review. The points of discussions were mentioned below:

5.2 Usefulness of PBL at the primary level

5.3 Contributing features of PBL that provided students with rich learning experience and achievements

5.4 Requirements to ensure successful implementation of PBL at the Primary Level of EMS

5.2 Usefulness of PBL at the primary level

As a researcher, while interviewing the teachers and students in 3 different EMS I learned that these teachers were well-informed about PBL and some were continuously receiving training to update their knowledge on teaching-learning styles. Also, they have their own way of practicing PBL that were added from their experience and beliefs. The teachers expressed a positive attitude while talking about PBL practices from their classroom experiences and thus I deduced that PBL was useful and applicable in primary classes. They all agreed upon one major point that, PBL was absolutely appropriate for primary students. In order to describe PBL I heard the teachers uttering the two words in common- 'helpful' and 'Important'. Similarly, the students defined it as 'Interesting' and 'Fun-filled'. To summarize, both teachers and students preferred PBL as Important learning strategy as it was not limited to memorizing facts, but exposed them to the path of creative and social perspective. Here, students were provided the scope to develop independence while making choices, sharing ideas, gathering visual, kinesthetic and logical experience. So, a positive outlook on PBL practices were common in both teachers and students. Eventually, all the gathered data deepened my knowledge about the current practices of PBL and perception of teachers and students in the EMSs.

I learned from the teachers that to form key understanding of a topic PBL was helpful as a step-by-step process. Rather than lecturing, it lets teacher and students built the basic concept together through question-answer, finding solution to a problem and then hands-on activity in pairs,

mostly in groups of four which was formed with mixed abilities students. In one instance, I learned that a teacher showed different parts of a plant to the students to make them think about something totally different but she supported the learners with indirect clues. Students saw and touched the parts of the plants. Then while discussing they wanted to write the information on a paper, then they understood the importance of trees in making of papers and finally they identified the problem that process of paper making used a lot of plants which needed to be preserved. They visited a factory where different types of papers were made. Then after returning back to class, they again had class discussion and group sharing on finding alternative ways to make papers to save trees. And they finally made papers with reusable newspapers and other materials. They learned saving the nature, sustainable leaving through reuse, recycle and reduce and the 'Handmade paper' was the learning outcome. In another project, teacher asked them about what was a model town according to their views, what were the things missing in their model town or what should be in a model town- these questions nudged students' thinking and through continuous inquiry they found out several anomalies, e.g. location of a factory beside a school, distant waste bins, lack of parks in residential areas, traffic and pollutions due to unplanned structure. Then they worked in group and made their own model town as part of the project work 'Model Town and Caring for town'. I saw the models were well-structured and students included their knowledge of measurement and mapping skills from mathematics and geography. So, it reflected that several interdisciplinary knowledge was used to make this project. In another project they wrote letter to the City Corporation Authority asking for permission to make signals and Zebra crossing in their school. I saw these things in the school premises. Letter writing, planning and designing and also communicating with authority these all combined various ways of learning. This is the comprehensive interdisciplinary and realistic approach of PBL that let student to connect facts with real practical life they were seeing every day. In another school, students recycled plastic bottles to make toys. I found that the students were happy to talk about it as they could apply this idea of recycling to reduce plastic pollution while making affordable toys for kids. In another school, we observed a Project making class on First Civilization. I observed in that class that students made ancient maps, drew people of that time, wrote information and were thoughtfully organizing those on a chart paper with pasting. They seemed very engaged to make their presentation informative and organized. The teacher helped them to form the basic knowledge in the earlier classes, and they also researched and

discussed their queries in the class and in group work which created their level of confidence. The teacher believed that PBL opens up the quality in students. In connection to this, researchers found PBL useful, meaningful and suitable for the teaching-learning of primary schools. Tamim and Grant (2013) confirmed in their study about the success of PBL in the primary level. They found that a teacher in her PBL practice guided the learning of her students with research questions which motivated the students to walk through the path of discovery with continuous inquiry and critical thinking that finally turned into the creation of an artifact that proved their learning. Moreover, the teaching-learning in primary level should be restructured to move out from uninteresting memorization-oriented tasks and embrace the productive, original, and procreant activities as PBL offers (Gultekin 2005).

5.3 Contributing features of PBL that provided students with rich learning experience and achievements

This study found several features of PBL that were contributing to ensure rich learning experience and achievements in students. Those were discussed under the sub-headings:

5.3.1 Progress through collaborative learning in group Work

5.3.2 Enrichment in learning with hands-on activity

5.3.3 Scope of various skill development for students

5.3.4 Development of Teacher-student relationship as learning partners and

5.3.5 Advantages of employing various Assessment technique in PBL

5.3.1 Progress through collaborative learning in group Work

I could comprehend from the interview data that group dynamics was always a vital aspect which encouraged both high and low achiever students to work together to learn from each other in PBL classes. A student of class 3 said that she loved group work because she likes to share ideas with her friends and at the same time, she learned new things from her group members. Another student said that she was bit shy in talking or expressing herself, but group work helped her communicate better. Moreover, the tasks seemed no more difficult, and stressful when they

worked in groups. Therefore, I realized that group work played a 'Domino Effect', and learners were influenced by each other to work better towards a great purpose. Thus, they built a common understanding of knowledge and sense of accomplishment with a meaningful work. This reminded me of Lev Vygotsky's (1896-1934) perspective on social process of learning and development where through exchange of ideas with peer students were able to create common understanding and it improved individual performance too (Wink & Putney, 2010). From teachers we gathered the views that working in groups help slow learners to achieve more as they work with their high achiever classmate. So, I could see that the peer-support and working in mix abilities group worked as scaffold for some learners and teachers were aware of using students' collaborative efforts for that purpose. This also helped in employing differentiation in learning styles which allowed students to perform task according to their ability and preference, e.g., teachers shared that some students were better in gathering information, some were in planning & organizing and some were well in art & crafting. So, group method let them work according to their abilities.

Trilling and Fadel (2009) marked the distinctive benefits of working in groups in PBL from their reviews on different researches on PBL and Group work. They found that students working in groups rather than working alone experience 'powerful learning'. They pinpointed the learning outcomes e.g., better shared and individual understanding, improved level of confidence and motivation, development of more social interaction and empathy. As a result, student who worked in cooperative learning, outperformed students working individually in any tasks. Also, some students' learning styles were compatible with mode of group work who suffered learning from textbooks and lectures. Additionally, another research identified that students' accountability to their group members or friends made them more time-bound and resourceful in comparison to when they were only liable to their teacher (Bell, 2010).

5.3.2 Enrichment in learning with hands-on activity

The most important perspective that we learned from a teacher that the students liked to learn through Hands-on activity, and as an iterative process it reinforced the leaning and thus learning was internalized. Therefore, they even recalled it after many days. Teachers also mentioned that they needed to stick to the students all the time as they were kids. A teacher observed that

students innate qualities opened up while doing things. Students also sounded charmful to talk about hands-on activity. They shared that they were always happy to make things in a project. I understood from their words that with hands-on activity they learned in very simple and playful manner with their friends and they loved to collect new ideas and added it to their creations. Two students expressed that they liked to show their creativity through arts, painting and crafting in their product. A Teacher described that it gave students the 'Physical experience' of touching, seeing and making things. So, I presumed that served their auditory, visual and kinesthetic needs. I mentioned earlier in the examples of students' activity with cups and sticks to learn time-tables, models of town project, making a river model, and recycling plastic bottles to make toys etc. These findings clearly evidenced that hands-on activity helped students to deal with things relatable to practical life. For instance, in the interview students shared that while building river model they learned to make 'Leave', 'Delta' and shape of a 'Ox-bow Lake'. Researchers noted that differentiation in PBL was advantageous for students because it focused on 'student's choice' and 'difference of learning styles' which played a vital role in student's academic achievement (Aksela and Haatainen, 2019). It was also evident that they built their knowledge into concrete things through hands-on activity. As a result, I found that it helped them to learn difficult things in a natural manner of 'Doing'. Dewey and later researchers emphasized on Hands-on activity. Particularly, Dewey avowed that learning with doing provides students 'High-quality experience' and reinforcement in activity helped them recall and construct the knowledge firmly (Bell, 2010).

5.3.3 Scope of various skill development for students

PBL as comprehensive method presented students with the scope to hone different skills compatible to 21st century learning need. In the interview, both teachers and students emphasized on the development of various skills, such as- communication, collaboration, creative & critical thinking, leadership and research skills, that they were equipped with while doing PBL. Alongside these major skills students also developed time-management, decision making, team-building, presentation and speaking skills. A student said that they learned to cooperate, communicate and coordinate for finishing their project timely. I deduced from the interviews of the students that it helped them to improve many issues like shyness, anxiety, accepting others, and understanding group effort. These students showed a higher level of confidence while

discussing about their projects in the interview. A student of class three explained that their group members were source of information to them. This reflected their respect towards their classmates. A student of class five said that she had fear of public speaking which she gradually improved with clear and specific speech delivery as an influence by her group mates. She also shared that while working in groups of different types of persons, she learned to resolve any conflict in any disagreement that sometimes happened. This was how children developed a mindset to accept others and more social skills. I found that 'How could they improve to a better project, add more information and creativity' -these thoughts encouraged the students depend on critical thinking, researching and collaborating. They knew that there were lots of information on the online, but they focused on relevancy at this age, and they also thought of solutions to an existing problem such as- life of endangered animals, a model town and making toys with plastic bottles. This also enhanced their reasoning skills. A group of students visited the city corporation to submit an application seeking permission from the city mayor to work on making of Zebra crossing and signals at their school. These activities instilled the process of coordination among the young learners. A study assured that a dramatic change was seen in students' development of social and cooperative skills through PBL. Students could solve conflicts in groups, showed responsibility towards assigned tasks and technological skills to search proper information was enhanced through collaborative mindset (Fragoulis & Tsiplakides, 2009). Bell (2010) identified children developed different skills in the process of PBL, such as listening actively increased collaborative skills, creativity, meaningful communication skills, respecting other's opinion, producing ideas together as a team, solving problems and negotiating mutually etc. Aksela and Haatainen (2019) comprehended that accomplishment of communication, negotiation, and collaboration -all these 21st century skills through practice and various application in learning context children obtained 'Social Learning' important beyond school.

5.3.4 Development of Teacher-student relationship as Learning partners

An outcome of PBL was while working together teacher and student become learning partner, so the shift of role was visible in their learning relationship too. Teachers also learned new things form new views from their students which they admitted happily. While working together they made choice of certain things together e.g., students ensured that what kinds of crops were

suitable for growing on the small rooftop garden, tools they needed, and the awareness of using fertilizer that was not harmful for good worms dwelled in the soils. These finding were brought by the students through research and discussion with friends, family members and use of technology. In another instance, students took initiative to make models of cars and other toys according to their choice. All the teachers shared that they felt they were learning too with their students while discussing, thinking, researching, sharing ideas, managing time and giving feedback. In PBL practices, this collaboration between teacher and students motivated students to engage in active learning, higher order thinking and grabbing holistic learning while reducing anxiety and confusion. I found that this bonding helped 'sustain motivation and thoughtfulness' among students, most crucial part of PBL and the role of teachers in creating the classroom environment when teachers employed motivation with instructions that held students accountable for active learning and understanding (Blumenfeld et. al., 1991). Also, it developed sense of ownership among learners (Tamim & Grant, 2013).

5.3.5 Advantages of employing various Assessment technique in PBL

A work done by the students but not assessed, not given feedback timely, remained unattended and therefore further learning stopped. Therefore, assessment was always the key part of the whole process in enriching learning. Assessment in the form of feedback, observation, guiding and marking kept students aware of their performance and motivated them to think about further improvement. In my experience, I found that continuous feedback in PBL helped student to be productive, learning became deeper and permanent and students were ready to take more initiative. In this study teachers described about different assessment techniques that they apply according to their plan and need of the students. A teacher said that she marked the project work based on the set criteria such as- information, chart paper or artifact, presentation, vocabulary, grammar, group effort and time management. Another teacher shared a Rubric with five-point Likert scale to measure the different aspects of the projects. This teacher also used a worksheet to mark students' listening skills that students filled up while listening to other's presentation. She said she also provided them verbal feedback at different steps of the project work. Another teacher said that she looked into students' communication skills, research skills, collaboration and gave feedback accordingly. She pinpointed that she observed if any students had any issue

with understanding or coping with others and instructed that individual in that particular issue to proceed further. A research-based study suggested that assessment in PBL should be 'multifaceted' to assess the skills, artifacts, learning materials such as portfolios, whole class discussion, weekly assessments, written journals, and self-assessment etc. Also, for a better assessment students should get a specific guideline from the teachers (Tamim & Grant, 2013). Researchers also emphasized on receiving feedback from both teachers and peers and revising the work as needed in a repetitive manner which targeted mainly on formative assessment as a continuous process (Almulla, 2020). Researcher also demanded to include a model of self-evaluation, reflection and peer feedback to form a suitable assessment process for 21st century (Bell, 2010).

5.4 Requirements to ensure successful implementation of PBL at the Primary Level of EMS

From this study findings I comprehended that successful Implementation of PBL required thorough understanding of certain important aspects. Those were organized and discussed under the sub-headings as mentioned below:

5.4.1 Teacher's roles and responsibilities, 5.4.2 Model of PBL, 5.4.3. Resource development for PBL, 5.4.4 Professional development for teachers, 5.4.5 Other supportive roles and 5.4.6 Identifying and approaching the challenges

5.4.1 Teacher's roles and responsibilities

A teacher's role in PBL was crucial because it shifted the role of the teachers from transferrer of knowledge to guide, facilitator, coach and supervisor (Krajicik & Blumenfeld, 2006; Thomas, 2000). Evidences from the interview data of this study showed that teachers in EMS primary schools were aware of their role because they verbally uttered verbs 'Guide', 'Monitor', 'Facilitate' and 'Supervise' in describing their roles. The interview data reflected that teachers perceive traditional teaching was limited to lecturing, and memorizing, meanwhile PBL allowed them to go beyond the boundary to include various types of teaching-learning styles. Though traditional teaching could not be excluded completely from PBL practices in EMS, because

teachers experienced that young kids needed to form prior knowledge and basic understanding of the main concept of a topic. So, they maintained a balance between Traditional and PBL practices as appropriate to develop students' knowledge and skills. Larmer (2020) in a blogpost of PBL WORK, approved that though teachers played as guides in PBL classroom, they also could teach, and traditional approaches could stay as reformed manner complied to the project-context. We found that Teachers preferred PBL because it was not Bookish only, it permitted to gather related knowledge from the daily life, life in school and beyond. In this context researcher identified teachers' role in PBL in a study that basic knowledge was formed by the teacher at first as a necessary step that empowered the students to reach 'higher order thinking skills' and 'deepened' key understanding of the content. As a result, students learning was transformed to the making of a product or artifacts with that knowledge and skills (Tamim & Grant, 2013).
From the results it was obvious that teachers were aware of setting goals and specific objectives to meet the learning outcomes as suitable to the project need. Teachers told me that they recurringly made their students aware of the goals and objectives. Teachers were also aware that project should not become doing something for the sake of doing (Barron et. Al. 1998). They were aware that it was a step-by-step process and they needed to stick to the goals and specific objectives to achieve the learning outcomes, otherwise learners will be trackless, and devoid of key learning. This was aligned with the findings of researchers that in 'primary classes teachers scaffold the learning process through clarifying goals and expectations, facilitating, and providing guidance (Tamim & Grant, 2013).
One teacher showed a document on Project preparation guidelines and Rubrics. According to teachers they need to reinstate the goals and objectives to keep their students proceed towards the target, otherwise they might be pathless in the journey of PBL as young learners. So, it is visible in teachers' attitude, in their words and analysis of some of the lesson plans, and guidelines that teachers were putting emphasis on targets and meeting learning outcomes at the implementation stage of PBL. However, a concrete model or design was missing to make PBL a success. For an instance, in most of the EMSs practice of PBL, that I learned from the interviews, one class observation and 4 documents analysis, it was evident that the type of 'challenging' problem or questions were not clearly defined, it was mostly a topic students gathered information on, inquiry was limited to discussion of questions and website browsing, mostly students voice and choice were not in priority because teachers thought that they were kids, reflection by the

students were present sometimes, critique and revision was not regular in practice and creation of a final product was always a mandatory part of the project work; these are the7 elements of Gold standard PBL adapted from "Gold Standard PBL: The Essential Project Design Elements" white paper by John Larmer and John Mergendoller (2015). In addition, 3 learning goals- Key Knowledge, Understanding and Success skills as advocated in Gold Standard PBL (Larmer, 2020) were clearly visible in teachers' perception and practices of PBL. Gultekin (2005) pinpointed that teachers should pay careful attention to 'main characteristics and implementation stages' so that students could benefit from PBL outcomes. Larmer (2015) outlined a specific guideline in the blogpost of PBL WORK on 'Gold Standard for PBL teaching practices' adapted from Setting the Standard for Project Based Learning: A Proven Approach to Rigorous Classroom Instruction, by John Larmer, John Mergendoller, Suzie Boss (ASCD 2015). These included 7 elements presented here verbatim:1. Design & Plan, 2. Align to Standard, 3. Build the culture, 4. Manage activities, 5. Scaffold student learning, 6. Assess student learning and 7. Engage and coach. This framework was helpful for both new and experienced teachers to follow the steps in their work procedure of planning and implanting PBL and overcoming some challenges.

5.4.2 Model of PBL

This study found many interesting PBL approaches EMSs were using currently. Most of the design and planning of PBL were generated from long time of practices. In general, I found that the basic characteristics of PBL that the EMSs followed were common in many ways, such as- beginning the lesson with small briefing on the context of the topic followed by query or question, discussing and researching by teachers & students, learning & working in groups, finding different aspects around the topic, exploring ideas, gathering information, allowing innovation and creativity, preparing a model or chart paper, and finally an oral presentation in the classroom, and sometimes in a program. To meet the learning goals teachers and students followed a guideline. However, the implementation and outcome of PBL in each of the schools were not same. Teachers showed difference of opinion on major issues such as- selection of topic, student-led query, time frame, guiding or scaffolding low achievers, group work for children, researching, use of technology, use of materials and most importantly ways of assessment. So, we find that whether developed internally by the school or included from

external resources, a design of PBL were crucial as a guideline to complement and endorse the practices. Larmer (2020) pointed explicitly that PBL could be a failure if not done well and therefore to alleviate the problems Larmer and Mergendoller (2015) generated a research-based design principle, a complete guideline for PBL Practitioners around the world. Earlier I mentioned the 7 design principles published by BIE the Gold Standard PBL, there were 3 learning goals- Key Knowledge, Understanding and Success skills which could be attained via 7 design elements: (1) a challenging problem or question, (2) sustained inquiry, (3) authenticity, (4) student voice and choice, (5) reflection, (6) critique and revision, and finally (7) a public product (Larmer,2020). However, Condliffe (2016) emphasized that the design principle 'adopted or adapted' needed to be explicitly shared throughout the school to reduce malpractices or teachers who were doing PBL might be practicing some other method. The researcher also asserted that meaning of the design principles needed to be defined by the teachers and schools as according to their local context for its effective implementation.

5.4.3 Resource development for PBL

As a teacher I found that a simple resource could be a powerful learning material, but it all depends on the purpose, the learning goal and the ways to meet it. In one of my colleagues PBL class I saw that the students made bags from reusable clothes such as Jeans. I also noticed students making the digestive system with cork sheet in a biology PBL class. The most interesting part, I remembered that my students made a memorable model of Egypt with structure of pyramid made with cork sheet, and hard paper. Amazingly, they pasted sands on the board. The pyramids were looking realistic standing on the brown sparkling sands, expressing my students' imagination and efforts. Now as a researcher, I learned from this study that the use of resources be it natural, man-made and technologically created and Places etc., made the PBL work versatile. Moreover, students found more interest in using resources which they could touch, see and make newer meaning according to their assumptions. I found that teachers brought parts of plants, visual aids, charts and materials like plastic bottles, cups-spoon to enhance students' interest on a topic. Even an Information sheet were useful to guide students to form their basic knowledge on subject matter. I found a wonderful idea in a school located in Chattogram. This school kept a separate room named "Maker Space" where they stored reusable

materials collected by the teachers and students and also students worked on their project in that space. Most of the teachers said in their interviews that they inspired students to use easy to get materials for making their artifacts such as- foam, cork sheet, cardboards, popsicles, newspapers, colors, crafting materials etc. A student said that he collected visuals on Optical illusions for presentation from the websites. In another instance, an EMS provided students with farming tools for gardening. Even the school took children to the city corporation office to know about the authority of the town and their responsibility. In the same school students visited paper making factory and made queries with the staffs about their making process of paper before making their own product. These resources supported the practice of PBL. So, we found that EMSs were encouraging children to do their activity with enthusiasm with available and versatile resources along with the use of technology to support 21st century learning need. Resources were the means to shape knowledge and skills into 'tangible' products or artifacts (Krajcik & Blumenfeld, 2006), so selection of resources play a vital role. Also, according to the Gold Standard of PBL students should choose their resources by themselves as students voice and choice mattered in PBL (Larmer, 2020).

5.4.4 Professional development for teachers

It was observed and claimed by the researchers that even a super and bullet-proof method failed in absence of professional development of teachers. Teachers play the vital role to plan and implement PBL. Teachers knew the demand of the class and subject, but if teachers were not well-equipped with training than everything- a well-designed curriculum, instructions, assessment technique, students' performance, learning environment would suffer with inappropriate practice of PBL. So, to ensure proper development of pedagogical knowledge training on Professional development were needed for the teachers to understand the meaning, potential and process of PBL. For this substantial changes in teachers' views and attitudes, Barron et. al (1998) emphasized on continuous professional development of teachers in the form of teaching-learning community, discussion group, supportive learning environment for teachers in the schools. Researchers also found that the teachers needed access to a model of PBL and more collaborative and long-term teachers training so that teachers could share their best practices, hear from others and with time could gradually shift to PBL (Aksela & Haatainen, 2019).

5.4.5 Other supportive roles

At different level of my professional career as a new teacher, as an academic supervisor and finally a curriculum specialist, I experienced directly and sometimes indirectly that any educational situation needed not only a well-trained teacher and well-thought-out methodology, but also many other internal and external supports and motivation in different forms from the organizations, parents and relevant experts. In this regard the school as the key role player should provide all sorts of supports to make PBL practices successful. Schools should make arrangements of free places for students to work on their projects at different times. Also, they could have booth for storing reusable materials to help children work with them in their projects. While interviewing the teachers, we found that they need different types of support at every steps. Teachers who were happily and successfully practicing PBL assured that from the planning to the implementation stage they got support from their colleagues, organizations and the parents regarding time management, allocation of place, collection of information and materials. We learned that the parents motivated their children when they were researching on a topic adding their real-life experience. For instance, a teacher said how through a survey form students built their knowledge from their parents on different issues regarding a town. However, sometimes parents found PBL to be worthless, particularly in case of very young learners as teachers shared. So, considering all these, we found that parental involvement was a priority to keep students motivated and make the work of PBL extended to the family too. Experts' role was indispensable since PBL demanded that children should feel and work on their projects like expert did (Krajicik & Blumenfeld, 2006). Involvement of experts through sharing their knowledge, observation and feedback was suggested repeatedly as an integral part of PBL by the researchers. Participation of parents and experts was one of the important features to connect and extend learning within the social community (Fleming, 2000; Larmer, 2020).

5.4.6 Identifying and approaching the challenges

As I summarized from the findings that one of the main challenges was coping up issues of primary level students as they were new to this learning style, so some of them remained

inattentive, uninterested, sometimes self-centered not to cooperate in the group activity. Due to difference of learning ability, they didn't understand the process, so teachers needed to stick to them and repeated the process verbally. Then children were also confused, they brought irrelevant information, and parents were reluctant about PBL which also influenced the students. Because, parents didn't find PBL helpful, children also needed parents support at home to do research and they needed to supply resources, so they were more reluctant. Sometimes disagreement in the group, disliking towards mates hampered the process. Sometimes, teachers were frustrated to repeat and guide continuously. Teacher had to be on their toe to address all these. Also, time management was a huge issue as reported by the teachers and students.

While discussing the challenges teachers shared their strategies to address these. We inferred from the data that teachers were planning earlier for every issue according to their level of experience which was very pragmatic. Lecture and discussions were held at the beginning to form basic knowledge on the topic to set direction for the learners. Generic LP needed to be broken down according to individual class-need. Instructions were more lecture-based; though to address monotony some teachers provide different kinds of learning tools at different times, such as- videos, visuals, discussions, hand-on activity, peer work and tour. Teachers were working on forming groupwork habit among children in casual manners too. When individual support was needed teachers provided scaffolds as instruction, as a teacher said she broke down the information into small chunks. Also, peer support, IE sheet were provided in bridging information gap, support of technology to find resources when they could not interview an overseas worker, they learned about them from the online resources using the questions provided by the teachers. Teachers also worked with the reluctant kids. Teachers motivated the students of class 1& 2 who were uninterested to do PBL activities, encouraging them verbally about learning in collaboration and to develop their mindset. Moreover, teachers allocated marks for timely submission, changed the plan to extend time for students to work comfortably, and reduced syllabus. Many research identified the challenges of PBL practices. One research said that as a new process children were found to be in discovery mode about the learning process of PBL. Hence, this research suggested that teachers should ensure more support, monitoring and to address learning gaps with scaffolds like organizers, instructions to help them build confidence in the learning process (Bell, 2010). Trilling and Fadel (2009) recommended that teachers

needed to be equipped with expertise to manage these new classroom dynamics where students were working independently in several groups, gathering knowledge and skills for 21st century.

In this study we have found that some common subjects that were mostly practiced through PBL were Science, History and Bangladesh & Global studies. I asked teachers in informal conversation that if they saw subjects such as Bengali, English Literature and Language to practice PBL. Some said they had no idea as they didn't teach those subjects. A teacher of English literature said PBL was not suitable to teach subject matters of literature as literature needed individual work, might be it was applicable to language classes to some extent. But I wondered why not practicing exchange of dialogues in grammar & vocabulary building, creating stories as part of character analysis in literature, writing and playing a drama in groups possible following the process of PBL. However, many research-based study encouraged that PBL should be used to teach all the subjects at the primary level, since students learned in a happy and meaningful manner in PBL (Gultekin, 2005).

5.5 Conclusion

As a researcher my purpose was to learn about the PBL practices in the primary level of EMSs through the practice and perception of teachers and students. I learned that PBL practices were not difficult, but it needed careful planning, preparedness and continuous effort. The participants thoughts and experience thrown light on several aspects related to PBL. First of all, though there were challenges to make students understand and perform the tasks as PBL demanded, but teachers' continuous thoughtful efforts made it possible to achieve the success. Second of all, once students gripped the process, they were more interested about PBL works gradually, with time. So, students needed time to get involved with the practice which was not unexpected for young kids of primary level. Thirdly, teachers' role was crucial in forming groups, choosing a topic, motivating students to perform queries, applying timely scaffolds, becoming learning partner with their students while guiding, sticking to learning goals and objectives and using different techniques in assessment etc. Fourthly, students from class 3 to 5 proved their enthusiasm, interest and capability for innovation through enriching learning with queries and construction of knowledge as an artifact and presentation. This productive learning was the target outcome of PBL. Although, some gaps existed in the implementation process as I didn't find any specific guideline on the steps of PBL that were in practice, and sometimes inquiry seemed

limited to some specific questions, but I believe with gathering of more experience, Professional development and access to the proven models of PBL the teachers would do better practices. However, teachers' awareness on PBL practices made it successful in many instances, though occasionally some teachers were prone to more traditional practices of setting a task with lectures and receiving an answer from the students. Actually, PBL requires a complete shift in the characteristics of teaching-learning practices and in the perception of teachers and students to form habits to work through this approach. The schools I selected as the research sites were in the process of forming these habits. Two schools built the culture of PBL successfully as their effort was present in the teachers' preparedness, display of artefacts, charts and in keeping a separate "Maker Space" for PBL practices. I believe teachers and students positive outlook towards PBL practices which I learned through this study would bridge the gaps soon. Considering my learning about the PBL practices through the participants perception and practices, my purpose for this study was achieved, though some limitations existed. I learned about the three schools PBL practices, and I learned about the teachers'-students' perception and practices with ample data.

I always believed that learning was a continuous process. So, I decided to study on PBL practices in higher studies too, because in my views this learning method seemed pragmatic, productive and a suitable approach to meet the learning needs of 21st century students. Also, as a curriculum specialist of Bengali language and writer of several textbooks at private sector, this study enriched me to prepare guidelines and instructions for teachers and students to practice PBL with various topics. From now on, I would consider to incorporate PBL in the curriculum design to nurture and spread this comprehensive learning strategy. Moreover, I would look into the process of PBL to make more readymade materials for teachers to follow with ease.

5.6. Recommendations

From the findings of this study, I generated some recommendation as mentioned below:

5.6.1 Inclusion of PBL in the curriculum

School Curriculum should include PBL practices in the master planner, and teaching-learning material so that teachers can find readymade design and material to follow in PBL.

5.6.2 Workshop and sharing sessions

Scheduled and frequent workshop should be arranged in the schools to take feedback from teachers' experience and to provide them new ideas, updates and knowledge with hands-on activity so that teachers can build their confidence and mindset to practice PBL. Also, sharing sessions should be held on a regular basis to discuss with parents, experts, students and teachers to find motivation and build confidence towards PBL practices.

5.6.3 Formation of Learning Community

Students' Learning community should be formed to think together about the innovations, to resolve dispute, exchange ideas, form a mindset, share struggles in presence of teachers. Teachers' learning community can be formed to gather all the practitioner to support each other when they face a new challenge, to share exciting idea learned from experiences and thus to build the mindset.

5.6.4 Professional Development Training

Professional Development training should be arranged frequently for novice teachers to understand the process of PBL and a well-structured model of PBL should be provided too.

5.6.5 PBL resources Library

A PBL resource corner can be formed in the library with videos, books, research, materials, documents, previous artifacts and charts to encourage new teachers to learn more.

5.6.6 Creative Space for Students & Material storage

Schools should allocate a creative Room to encourage children to store their collected materials and work on their projects at different times. Also, student can use this room to keep their work in display.

5.6.7 Use of Media

To develop a learning culture media, such as- Newsletter, website or social media, newspapers should be used to disseminate information on students' innovation, good news from classroom practices, teachers' achievement and Open education fair on PBL should be spread in the society.

Recommendations for further study

- Further qualitative and quantitative study should be conducted on primary, middle and high levels of EMSs.
- Further qualitative and quantitative study should be conducted also in Bangla medium Schools (BMS) to understand the scope of installing PBL as a nationwide approach.
- Study should be conducted to understand the type of support teachers need for professional development, and also research on Professional development Trainings should be done to understand their ability and scope of improvement. Additionally, studies should be conducted to identify and measure capability of teaching-learning material used in PBL.

References

Aksela, M., & Haatainen, O. (2019). Project-based learning (PBL) in practise: active teachers' views of its' advantages and challenges. In Integrated Education for the Real World 5th International STEM in Education Conference Post-Conference Proceedings. Queensland University of Technology. http://hdl.handle.net/10138/304045

Almulla, M. A. (2020). The Effectiveness of the Project-based learning (PBL) approach as a way to engage students in learning. *SAGE Open*,10(3), 1–15. DOI: 10.1177/2158244020938702 https://journals.sagepub.com/doi/full/10.1177/2158244020938702

Al Noor, M. (2017). Education System and its importance in the context of Bangladesh Education System. *Advances in Social Sciences Research Journal*, 4*(15)* 36-45. DoI:10.14738/assrj.415.3499.

Barron, B. J. S., Schwartz, D. L., Vye, N. J., Moore, A., Petrosino, A., Zech, L., Bransford, J.

D., & The Cognition and Technology Group at Vanderbilt. (1998). Doing with understanding: Lessons from research on problem and project-based learning. *The Journal of the Learning Sciences*, 7, 271-311. https://eric.ed.gov/?id=EJ584623

Bell, S. (2010). Project-based learning for the 21st century: Skills for the future. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas*, 83(2), 39-43. https://www.tandfonline.com/doi/abs/10.1080/00098650903505415

Blumenfeld, P. C., Soloway, E., Marx, R. W., & Palincsar, J. S. (1991). Motivating project-based learning: Sustaining the doing, supporting the learning. *Educational Psychologist*, 26(3-4), 369-398. DOI: 10.1080/00461520.1991.9653139

Chowdhury, R., & Sarkar, M. (2018). Education in Bangladesh: Changing contexts and emerging realities. *Education in the Asia-Pacific Region*, 44, 1-18.

Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (4th ed.). Pearson Education Inc.

Creswell, J. W. (2014). *Research design: Qualitative, Quantitative, and Mixed Methods approaches* (4th ed.). SAGE Publication Inc.

Condliffe, B. (2016), Project-based learning: A literature review. Lucas Education Research, https://s3-us-west 1.amazonaws.com/ler/MDRC+PBL+Literature+Review.pdf

Dias, M., & Brantley-Dias, L. (2017). Setting the standard for project based learning: A Proven approach to rigorous classroom instruction. *Interdisciplinary Journal of Problem-Based Learning*, 11(2). https://doi.org/10.7771/1541-5015.1721

Du, X. and Han, J. (2016). A Literature Review on the definition and process of project-based learning and other relative studies. *Creative Education*, **7**, 1079-1083. DOI: 10.4236/ce.2016.77112.

Ferrero, M., Vadillo, MA., Leo´n, SP. (2021) Is project-based learning effective among kindergarten and elementary students? A systematic review. *PLoS ONE* 16(4). https://doi.org/10.1371/journal.pone.0249627

Fleming, D. S. (2000). *A teacher's guide to project-based learning*. https://eric.ed.gov

Fragoulis, I. Tsiplakides, I. (2009) Project-based learning in the teaching of English as a foreign language in Greek primary schools: from theory to practice. *English Language Teaching*, 2(3) 113-119. DOI:10.5539/elt.v2n3p113

Gay, L. R., & Airasian, P. (2003). *Educational research: Competencies for analysis and applications*. Merrill Prentice Hall.

Gultekin, M. (2005). The effect of project-based learning on learning outcomes in the 5th grade social studies course in primary education. *Educational Sciences, Theory and Practice*, 5 (November), 548-557. Retrieved from, http://www.academia.edu/1456133/The_Effect_of_Project_Based_Learning_on_Learning_Outcomes_in_the_5th_Grade_Social_Studies_Course_in_Primary_Education

Johnson, B., & Christensen, L. (2004). *Educational research: Quantitative, qualitative, and mixed approaches*. Pearson.

Kingston, S. (2018). Project based learning & student achievement: What does the research tell us? *PBL Evidence Matters*. 1(1), 1-11.

Kokotsaki, D., Menzies, V., & Wiggins, A. (2016). Project-based learning: A review of the literature. *SAGE journal*, 19 (3), 267-277. https://doi.org/10.1177/1365480216659733

Krajcik, J., & Blumenfeld, P. (2006). *The Cambridge handbook of the learning sciences* (R. K. Sawyer, Ed. Cambridge University Press.

Larmer, J. (2020, July 22). Gold Standard PBL: design elements. *PBL Works.* https://www.pblworks.org/blog/gold-standard-pbl-essential-project-design-elements

Larmer, J. (2015, April 21). Gold Standard PBL: teaching practices. *PBL Works.* https://www.pblworks.org/blog/gold-standard-pbl-project-based-teaching-practices

Larmer, J., & Mergendoller, J. R. (2012). 8 Essentials for project-based learning. *Educational Leadership, 68*(1).

Lazic, B. D., Knezevic, J. B., & Maricic, S. M. (2021). The influence of project-based learning on student achievement in elementary mathematics education. *South African Journal of Education*, 41 (3), 1-10. DOI: 10.15700/saje.v41n3a1909

Markula, A., Aksela, M. (2022) The key characteristics of project-based learning: how teachers implement projects in K-12 science education. *Disciplinary and Interdisciplinary Science Education Research*, 4(2), 1-17. https://doi.org/10.1186/s43031-021-00042-x

Marshall, C., & Rossman, G. B. (1999). *Designing qualitative research*. Sage.

Meng, N, Dong, Y, Roehrs, D, Luan, L. (2023). Tackle implementation challenges in project-based learning: a survey study of PBL e-learning platforms. *Educ Technol Res Dev*, 28, 1–29. DOI:10.1007/s11423-023-10202-7.

Mousumi, M.A. & Kusakabe, T. (2017). Proliferating English-Medium schools in Bangladesh and their educational significance among the ―Clientele‖. *Journal of International Development and Cooperation,23* (1.2),1-13. https://doi.org/10.1.1.1084.4987&rep=rep1&type-pdf

Ministry of Education. (2010). National Education Policy 2010. Ministry of Education.

https://reliefweb.int/report/bangladesh/national- education-policy-2010-enbn

Prodhan, M. (2016). The Educational System in Bangladesh and scope for improvement. *Journal of International Social Issues*, 4, 11-23. https://www.winona.edu/socialwork/Media/Prodhan%20The%20Educational%20System%20in%20Bangladesh%20and%20Scope%20for%20Improvement.pdf

Rahman, J. (2020). *Teachers-Students' classroom interaction in English medium schools*

[Master's Thesis, BRAC Institute of Educational Development, BRAC University]

Ayesha Abed Library Institutional Repository. http://hdl.handle.net/10361/14887

Ross, A. (2005). *Curriculum construction and critique*. Falmer Press.

Rossman, G. B., & Rallis, S.F. (2003). *Learning in the field: An introduction to qualitative research.* Sage.

Shahadat, F. (2016). *A Comparative study on Learning styles of Bengali and English Medium Schools of Bangladesh* [Bachelor of Arts Thesis BRAC University] Ayesha Abed Library Institutional Repository. http://hdl.handle.net/10361/7635

Sikandar, A. (2015). John Dewey and his philosophy of education. *Journal of Education and Educational Development,* 2 (2),191-201. https://doi.org/http://dx.doi.org/10.22555/joeed.v2i2.446

Tamim, S. R., & Grant, M. M. (2013). Definitions and uses: Case study of teachers implementing project-based learning. *Interdisciplinary Journal of Problem-Based Learning*, 7(2), 72-101. https://doi.org/10.7771/1541-5015.1323

Thomas, J. W. (2000). *A review of research on PBL*.

http://www.bobpearlman.org/BestPractices/PBL_Research.pdf

Trilling, B., & Fadel, C. (2009). *21st Century skills: Learning for life in our time*. Jossey-Bass.

Wink, J., & Putney, L.G. (2010). *A Vision of Vygotsky*. Pearson Education, inc.

http://www.joanwink.com/wp-content/uploads/2014/01/VoV-eBook.pdf

Appendices

Appendix A. Consent Letter

Dear Ms. Y,

Greetings!

With due respect, I am informing you that I am a student of Master of Education in Educational Leadership and school improvement in BRAC IED (institute of Educational Development). One of my courses requires that I conduct a research project; I am requesting you to participate in that project.

I am interested in learning about the Project-Based Learning practices at the Primary classes in your X school. My research title is- 'PROJECT-BASED LEARNING IN THE PRIMARY LEVEL OF ENGLISH MEDIUM SCHOOLS: PRACTICE AND PERCEPTION OF TEACHERS AND STUDENTS'. For the purpose of this study teachers' and student's perception and practices on Project-Based Learning will be learned by the researcher.

Your participation will entail 1 interview lasting about 45 minutes to 1 hour, followed by an observation of 10 minutes of the available artefacts of project work previously done and relevant classrooms during the PBL work. Lesson plan, notebook, feedback forms will be seen in this allocated time with your permission. Interviews will be tape-recorded; observations and document view will be photographed. For students participants we will conduct a very short informal discussion of about 10 to 12 minutes to know about their experiences.

I will protect the identities of the participants keeping it anonymous in this and any future publications or presentations. Participants should understand that they may be quoted directly but their names will not be used in any part of the report. All data will be stored in a secure location. Please understand that you may withdraw from the study at any time, without obligation.

I appreciate your willingness to give your time to this project to help me learn about PBL practices at the Primary classes. If you have any questions, please feel free to contact me or my supervisor:

Supervisor	Researcher
Name: Dr. Dilruba Sultana Phone No: Email: dilrubaied@bracu.ac.bd	Name: Farzana Ahmed Phone: 01711030481 Email: mumfarzana@gmail.com

Thank you

Farzana Ahmed

I have read the above and discussed it with the researcher. I understand the study and I agree to participate.

_____

Signature of the participant

Date:

Appendix B. Field Note

Field Note:

Time:

Length of Time:

Site:

Participant:

Description of the activity/place/ Object:

Special Remarks:

Appendix C. Interview guide

Time of interview:

Date:

Place: **Interviewee:** **Subject:**

Class: **Teaching Experience:**

(This Interview Guide has been developed to collect data on the teacher's perception and practices of Project-Based learning at the primary classes. Participant confidentiality will be kept. Participant's Interview will be transcribed verbatim.)

1. Do you practice Project-based learning (PBL) in your classroom?
2. Is Project-Based Learning Interesting?
3. Is it appropriate to practice PBL in the Primary classes?
4. How do the primary students feel about project work?
5. Do you prefer Project-Based Learning or traditional way of teaching?
6. Does PBL help students in developing skills?
7. What are the positive sides of practicing PBL with primary students?
8. How does Project-Based Learning help in teaching?
9. How do you Plan for PBL?
10. What are the ways you make your instruction of PBL clear and specific?
11. How do you ensure that primary level students can successfully work in group?
12. How do you let the students take leadership to choose their topic and make their work plan?
13. How was the previous learning outcomes?
14. What are the problems you face while practicing PBL?
15. Please share the strategy you use to fix the problems.

Appendix D. Informal Discussion Guide

Time of interview:

Date:

Place: **Student's Name:** **Class:**

(This Informal Discussion Guide has been developed to collect data on the student's perception and practices of Project-Based learning at the primary classes. Participant's confidentiality will be kept. Participant's Interview will be transcribed verbatim.)

1. Do you do Project work?
2. Do you think that learning with project work is interesting?
3. What are the things make project work interesting to you?
4. Do you do group work in project work?
5. How does group work help you? Please share your experience.
6. How do you do your project work? Please share from your recent work?
7. Do you take teachers help?
8. What kind of help you take from the teachers?
9. What is the best thing about project work that helps you?
10. What are the difficulties you face while doing Project work?

Appendix E. Observation Guide

(This observation guide will be used to collect visual and other data as relevant to the study from the site e.g., school, classroom, display, artifacts, projects)

Time:
Date:
Setting:
Observation No:
Time length:
Topic:
Description:

Classroom Observation:

1.Class size:
2. Method of Teaching:
3. Class environment:
4. Classroom facilities:
5. Time management:
6. Lesson:
7. Instructions:
8. Activity:
9. Students' response:
10. Teacher's feedback:
12. Previous Project work:

Remarks:

Appendix F. Document Analysis Guide

(This guide will be used to collect data from documents e.g., Lesson plan, teacher's note book, student's written work and other relevant documents useful for this study.

Document No:

Time:

Length of Time:

Site:

Document Type:

Participant:

Description of the document:

Special Remarks: