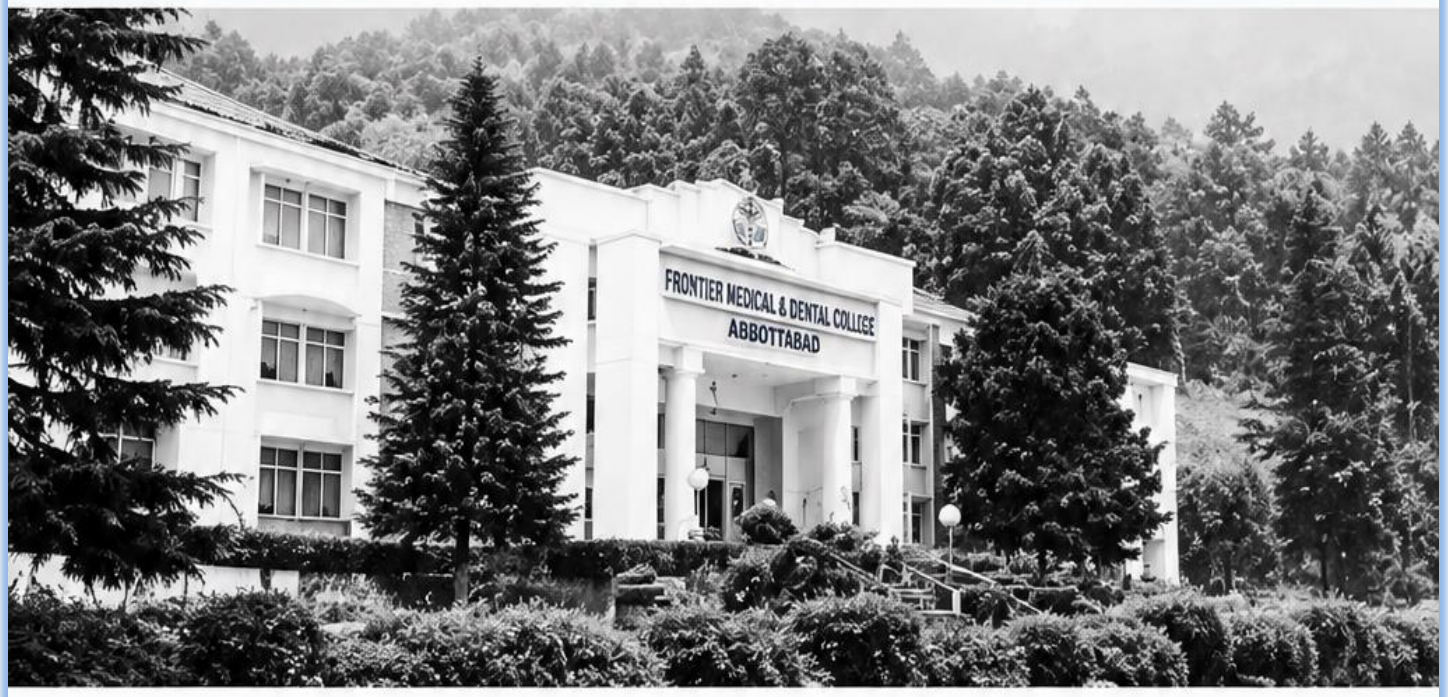
FRONTIER MEDICAL & DENTAL COLLEGE

ABBOTTABAD

STANDARD OPERATING PROCEDURES (SOPs)

PROBLEM-BASED LEARNING (PBL)



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Document Title: Standard Operating Procedures for Problem-Based Learning (PBL)

Institution: Frontier Medical & Dental College, Abbottabad (Dental Section)

Applicable To: Undergraduate Dental Students, PBL Facilitators, Module/Block Coordinators and PBL Committee

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1. PURPOSE

The purpose of this Standard Operating Procedure is to establish a systematic, structured and uniform approach to conducting Problem-Based Learning (PBL) sessions at Frontier Dental College.

PBL is a student-centered educational strategy in which students work collaboratively in small groups to analyze a clinical or biomedical problem, identify learning needs, undertake self-directed learning, and subsequently apply their newly acquired knowledge to the problem.

The SOP aims to:

1. Promote student-centered learning.
2. Develop clinical reasoning and problem-solving skills.
3. Integrate basic medical sciences with dental and clinical sciences.
4. Develop self-directed and lifelong learning skills.
5. Improve communication and teamwork.
6. Encourage critical thinking and evidence-based decision-making.
7. Develop professional attitudes and leadership skills.
8. Standardize the role of PBL facilitators and students.
9. Ensure effective assessment and documentation of PBL activities.
10. Maintain quality and consistency of PBL implementation across academic modules.

2. SCOPE

This SOP applies to all PBL activities conducted at Frontier Dental College as part of the undergraduate dental curriculum.

It covers:

1. PBL case development and approval.
2. Formation of PBL groups.
3. Roles and responsibilities of facilitators.
4. Roles and responsibilities of students.
5. Conduct of PBL sessions.
6. Self-directed learning.
7. Group reporting and discussion.
8. Assessment of students.
9. Attendance and documentation.
10. Feedback and quality assurance.
11. Professional conduct during PBL sessions.

3. DEFINITION OF PROBLEM-BASED LEARNING

Problem-Based Learning is an educational approach in which a carefully designed problem or clinical scenario is used as the starting point for learning.

Students work in small groups to:

Identify the problem → Analyze the information → Generate hypotheses → Identify learning objectives → Conduct self-directed learning → Share and discuss knowledge → Apply knowledge to the case → Reflect and evaluate learning.

The facilitator guides the learning process but does not function primarily as a lecturer or provider of direct answers.

4. OBJECTIVES OF PBL AT FRONTIER DENTAL COLLEGE

At the completion of PBL activities, students should be able to:

4.1 Knowledge

a. Explain relevant biomedical, dental and clinical concepts.
b. Integrate knowledge from anatomy, physiology, biochemistry, pathology, pharmacology, microbiology and dental subjects.
c. Relate basic science concepts to clinical dentistry.
d. Identify appropriate diagnostic and management principles.

4.2 Clinical Reasoning

Students should be able to:

a. Interpret clinical information.
b. Identify relevant and irrelevant information.
c. Generate differential diagnoses where appropriate.
d. Form logical hypotheses.
e. Justify diagnostic and management decisions.
f. Recognize gaps in their knowledge.

4.3 Communication

Students should demonstrate:

a. Active listening.
b. Clear verbal communication.
c. Respectful discussion.
d. Appropriate questioning.
e. Ability to explain scientific concepts to peers.
f. Professional communication with colleagues.

4.4 Teamwork

Students should:

a. Participate effectively in groups.
b. Respect different opinions.
c. Share responsibilities.
d. Encourage quieter members to participate.
e. Manage disagreements professionally.
f. Contribute toward achievement of common learning objectives.

4.5 Self-Directed Learning

Students should be able to:

a. Identify their own learning needs.
b. Search appropriate academic resources.
c. Critically evaluate information.
d. Use textbooks, journals, guidelines and reliable online resources.
e. Present evidence to the group.
f. Apply newly acquired information to the PBL case.

5. PBL ORGANIZATIONAL STRUCTURE

The following academic structure should be maintained:

5.1 PBL Committee

The PBL Committee is responsible for overall planning, implementation and quality assurance.

Responsibilities include:

- Developing institutional PBL policies.
- Approving PBL cases.
- Monitoring implementation.
- Reviewing facilitator performance.
- Reviewing student feedback.
- Ensuring appropriate assessment.
- Identifying problems in PBL implementation.
- Conducting periodic review of the PBL process.

5.2 Module/Block Coordinator

The Module/Block Coordinator should:

a. Coordinate PBL cases with module objectives.

b. Ensure appropriate sequencing of cases.
c. Coordinate with subject specialists.
d. Ensure learning objectives are aligned with curriculum outcomes.
e. Arrange facilitators and student groups.
f. Monitor completion of PBL activities.

5.3 PBL Facilitator

The facilitator guides the group through the PBL process and ensures that the educational objectives are achieved without unnecessarily dominating the discussion.

5.4 Students

Students are responsible for active participation, self-directed learning, teamwork and achievement of the identified learning objectives.

6. PBL GROUP COMPOSITION

1. Each PBL group should preferably consist of **8–12 students**, depending on institutional resources and class size.
2. Each group should have one designated facilitator.
3. Group membership should remain reasonably stable during a module to promote teamwork.
4. Group composition should be managed fairly.
5. A student should not be permitted to consistently dominate group discussions.
6. The facilitator should ensure participation of all group members.
7. Group leaders, scribes and other roles should rotate among students.

7. PBL SESSION STRUCTURE

A PBL case may be conducted over two or more sessions, depending upon the complexity of the case.

A recommended structure is:

Session 1

1. Introduction and orientation.
2. Presentation of the first part of the case.
3. Identification of unfamiliar terms.
4. Identification of key facts.
5. Problem definition.
6. Brainstorming.
7. Generation of hypotheses.
8. Identification of knowledge gaps.
9. Formulation of learning objectives.

10. Allocation of self-directed learning tasks.

Self-Directed Learning Period

Students independently study the agreed learning objectives using appropriate resources.

Session 2

1. Review of learning objectives.
2. Student presentations/discussion.
3. Sharing of evidence.
4. Application of newly acquired knowledge.
5. Reassessment of hypotheses.
6. Further analysis of the case.
7. Clinical reasoning and decision-making.
8. Summary of key learning points.
9. Reflection.
10. Feedback and assessment.

8. STANDARD PBL PROCESS

The following procedure should be followed during every PBL case.

Step 1: Presentation of the Case

The facilitator provides the approved case scenario to students.

The case should preferably be presented progressively rather than revealing all information at once.

Examples of dental PBL cases may include:

1. Dental caries.
2. Periodontal disease.
3. Orofacial infection.
4. Dental trauma.
5. Oral ulceration.
6. Temporomandibular disorders.
7. Impacted teeth.
8. Oral potentially malignant disorders.
9. Systemic disease with oral manifestations.
10. Medical emergencies in dental practice.
11. Drug-related oral conditions.

The case should be appropriate to the students' academic level.

9. ROLE OF THE STUDENT

9.1 General Responsibilities

Every student is expected to:

1. Attend PBL sessions regularly and punctually.
2. Come prepared for the session.
3. Read and understand the assigned case.
4. Participate actively in group discussion.
5. Listen respectfully to colleagues.
6. Ask relevant questions.
7. Express opinions with appropriate reasoning.
8. Identify personal learning gaps.
9. Complete assigned self-directed learning.
10. Share findings with the group.
11. Use reliable academic resources.
12. Avoid plagiarism.
13. Demonstrate professional behavior.
14. Contribute to the group's learning objectives.
15. Reflect on personal learning after each PBL case.

10. STUDENT ROLES WITHIN THE PBL GROUP

Student roles should preferably rotate so that every student develops multiple skills.

10.1 Chairperson/Group Leader

The chairperson should:

1. Start the discussion.
2. Introduce the case.
3. Maintain the sequence of discussion.
4. Encourage participation.
5. Prevent domination by individual members.
6. Keep the group focused.
7. Facilitate consensus.
8. Ensure that learning objectives are finalized.
9. Coordinate the second session.

The chairperson should not act as the teacher.

10.2 Scribe/Recorder

The scribe should:

1. Record important facts.
2. Record unfamiliar terms.
3. Document hypotheses.
4. Record the group's discussion points.
5. Record learning gaps.
6. Write agreed learning objectives.
7. Maintain an accurate record of the session.
8. Record task allocation where applicable.

The scribe should not attempt to record every spoken word.

10.3 Group Members

Each student should:

1. Analyze the case independently.
2. Contribute ideas.
3. Provide explanations based on prior knowledge.
4. Identify uncertainties.
5. Ask questions.
6. Challenge assumptions respectfully.
7. Participate in self-directed learning.
8. Present relevant findings.
9. Help the group reach evidence-based conclusions.

11. STUDENT PROCEDURE DURING THE FIRST PBL SESSION

11.1 Read the Case Carefully

Students should read the information provided by the facilitator.

They should identify:

1. Patient demographics.
2. Chief complaint.
3. History.
4. Clinical findings.
5. Relevant medical history.
6. Dental history.
7. Investigations.
8. Medications.
9. Risk factors.

10. Social or behavioral factors.

11.2 Clarify Terminology

Students should identify unfamiliar:

1. Medical terms.
2. Dental terms.
3. Anatomical terms.
4. Pathological terminology.
5. Drugs.
6. Investigations.
7. Procedures.

Students should first attempt to clarify terminology among themselves before requesting direct explanation from the facilitator.

11.3 Identify Key Problems

Students should distinguish important clinical problems from background information.

11.4 Brainstorm

Students should use existing knowledge to propose possible explanations.

At this stage:

a. All reasonable ideas should be considered.
b. Students should avoid premature rejection of ideas.
c. Students should explain the reasoning behind their suggestions.
d. The facilitator should encourage discussion without providing the answer.

11.5 Develop Hypotheses

Students should formulate possible explanations for the patient's condition.

Where appropriate, they should consider:

a. Differential diagnoses.
b. Etiological factors.
c. Pathophysiology.
d. Risk factors.
e. Clinical manifestations.
f. Investigations.
g. Treatment principles.

11.6 Identify Knowledge Gaps

Students should ask:

"What do we need to learn in order to understand and solve this problem?"

11.7 Formulate Learning Objectives

Learning objectives should be:

1. Relevant to the case.
2. Specific.
3. Achievable.
4. Measurable where possible.
5. Related to curriculum outcomes.

12. SELF-DIRECTED LEARNING (SDL)

Self-directed learning is a fundamental component of PBL.

Each student should independently investigate assigned learning objectives.

12.1 Recommended Resources

Students should use reliable sources, including:

1. Standard textbooks.
2. Peer-reviewed scientific journals.
3. Evidence-based clinical guidelines.
4. University resources.
5. Recognized professional organizations.
6. Systematic reviews.
7. Appropriate online academic databases.

12.2 Student Responsibilities During SDL

Students should:

1. Search for relevant information.
2. Compare information from appropriate sources.
3. Identify high-quality evidence.
4. Avoid relying exclusively on general internet searches.
5. Record important references.
6. Prepare concise notes.
7. Relate information to the PBL case.
8. Be prepared to explain their findings to peers.

13. SECOND PBL SESSION

During the second session, students should:

1. Review the previously identified learning objectives.
2. Present their findings.
3. Explain the evidence supporting their conclusions.
4. Discuss differences between sources.
5. Apply knowledge to the patient scenario.
6. Reconsider the original hypotheses.
7. Identify the most likely explanation/diagnosis where appropriate.
8. Discuss relevant investigations.
9. Discuss principles of prevention and management where appropriate.
10. Identify additional learning needs.
11. Summarize the key learning points.

The purpose of the second session is not simply to deliver individual presentations. The main objective is collaborative integration and application of knowledge.

14. STUDENT PROFESSIONAL CONDUCT

Students must:

1. Arrive on time.
2. Maintain respectful behavior.
3. Avoid side conversations.
4. Keep mobile phones on silent and use them only for legitimate educational purposes.
5. Avoid interrupting other students.
6. Avoid ridicule or personal criticism.
7. Respect cultural and professional differences.
8. Maintain confidentiality of any patient information used in cases.
9. Avoid plagiarism.
10. Give appropriate credit to sources.
11. Accept constructive criticism.
12. Participate honestly in peer and self-assessment.

15. ROLE OF THE PBL FACILITATOR

The facilitator is a **guide, mentor and process manager**, rather than a conventional lecturer.

The facilitator should promote independent learning while ensuring that the group remains focused on the intended educational outcomes.

16. FACILITATOR RESPONSIBILITIES BEFORE THE SESSION

Before the PBL session, the facilitator should:

1. Read the complete PBL case.
2. Review the intended learning outcomes.
3. Understand the expected learning objectives.
4. Review relevant scientific and clinical information.
5. Identify potentially difficult concepts.
6. Review the facilitator guide, if provided.
7. Understand the expected progression of the case.
8. Ensure the learning objectives are appropriate for the student level.
9. Familiarize themselves with assessment criteria.
10. Prepare appropriate guiding questions.
11. Avoid preparing a conventional lecture as a substitute for PBL.
12. Identify possible misconceptions students may develop.

17. FACILITATOR RESPONSIBILITIES DURING THE FIRST SESSION

17.1 Establish a Positive Learning Environment

The facilitator should:

1. Welcome students.
2. Establish ground rules.
3. Encourage respectful communication.
4. Create an environment where students feel comfortable expressing uncertainty.
5. Ensure that all students have an opportunity to participate.

17.2 Introduce the Case

The facilitator should provide the appropriate portion of the case without unnecessarily revealing the diagnosis or solution.

17.3 Facilitate Discussion

The facilitator should use open-ended questions such as:

1. "What do you think is happening?"
2. "What evidence supports that idea?"
3. "What other possibilities should we consider?"
4. "What information is missing?"
5. "What would you need to know to answer this?"
6. "How does this finding relate to the underlying pathology?"
7. "What is the rationale for your proposed investigation?"
8. "What would change your differential diagnosis?"

18. FACILITATOR SHOULD NOT DOMINATE THE SESSION

The facilitator should avoid:

1. Giving long lectures.
2. Providing answers immediately.
3. Correcting every minor mistake.
4. Talking for most of the session.
5. Directing students toward a predetermined answer too early.
6. Allowing one student to dominate.
7. Solving the case on behalf of the group.

The facilitator should intervene when:

1. Discussion becomes irrelevant.
2. Major misconceptions threaten learning.
3. Students are unable to progress.
4. Important learning objectives are being overlooked.
5. Group dynamics become dysfunctional.
6. Students require clarification to proceed.

19. FACILITATOR ROLE IN BRAINSTORMING

During brainstorming, the facilitator should:

1. Encourage multiple hypotheses.
2. Ask students to explain their reasoning.
3. Avoid immediate judgment of ideas.
4. Encourage students to build upon one another's ideas.
5. Identify unsupported assumptions.
6. Encourage use of prior knowledge.
7. Ensure discussion remains related to the case.

20. FACILITATOR ROLE IN LEARNING OBJECTIVES

The facilitator should ensure that learning objectives:

1. Are relevant to the case.
2. Cover the intended curriculum content.
3. Are neither excessively broad nor unnecessarily narrow.
4. Are achievable within the available SDL period.
5. Include appropriate integration of basic and clinical sciences.

The facilitator may modify or add objectives only when necessary to ensure that essential curriculum outcomes are addressed, while maintaining the student-centered nature of the process.

21. FACILITATOR ROLE DURING SELF-DIRECTED LEARNING

The facilitator should:

1. Clarify the expected scope of learning.
2. Encourage students to use appropriate resources.
3. Promote evidence-based learning.
4. Avoid giving complete answers.
5. Remain available for clarification when necessary.
6. Identify students who may require additional academic support.

22. FACILITATOR RESPONSIBILITIES DURING THE SECOND SESSION

The facilitator should:

1. Review the learning objectives.
2. Encourage students to share their findings.
3. Ask students to justify their conclusions.
4. Compare different explanations.
5. Correct significant misconceptions.
6. Promote integration of knowledge.
7. Encourage clinical application.
8. Ask students to revisit the original hypotheses.
9. Ensure all major learning objectives have been addressed.
10. Summarize the major concepts only when necessary.
11. Provide constructive feedback.
12. Complete the required student assessment.

23. QUESTIONING TECHNIQUE FOR FACILITATORS

Facilitators should preferably use a hierarchy of questions.

Level 1 – Clarification

a. "What do you mean by that?"
b. "Can you explain this term?"

Level 2 – Reasoning

a. "Why do you think this is the case?"
b. "What evidence supports your explanation?"

Level 3 – Integration

a. "How does this relate to the patient's clinical presentation?"

Level 4 – Application

a. "How would this knowledge influence your diagnostic approach?"

Level 5 – Critical Thinking

a. "What evidence would make you change your conclusion?"
b. "Are there alternative explanations?"

This approach encourages students to develop reasoning rather than memorize answers.

24. MANAGEMENT OF DIFFICULT GROUP DYNAMICS

24.1 Dominant Student

The facilitator should politely redirect discussion:

"Thank you. Let's hear from someone who has not yet had an opportunity to contribute."

24.2 Silent/Inactive Student

The facilitator should encourage participation without embarrassing the student:

"What is your interpretation of this finding?"

24.3 Student Giving Incorrect Information

The facilitator should avoid immediate humiliation.

Appropriate approach:

a. Ask for the evidence.
b. Invite other students to comment.
c. Encourage comparison of sources.
d. Correct the misconception if it is educationally significant.

24.4 Off-Topic Discussion

The facilitator should bring the group back to the learning objectives.

24.5 Conflict Between Students

The facilitator should:

a. Remain neutral.
b. Allow each student to explain their position.

c. Focus discussion on evidence.
d. Reinforce respectful communication.
e. Prevent personal criticism.

25. CASE DEVELOPMENT GUIDELINES

PBL cases should be:

1. Relevant to the curriculum.
2. Appropriate for the students' level.
3. Clinically authentic.
4. Sufficiently challenging.
5. Capable of generating multiple learning issues.
6. Designed to encourage integration of disciplines.
7. Based on scientifically accurate information.
8. Free from unnecessary ambiguity.
9. Structured to encourage clinical reasoning.
10. Linked to defined learning outcomes.

Cases should preferably include progressive disclosure of information.

26. PBL CASE APPROVAL PROCESS



The case should be reviewed for:

- Scientific accuracy.
- Clinical relevance.
- Curriculum alignment.
- Appropriate difficulty.
- Learning objectives.

- Potential misconceptions.
- Assessment alignment.

27. ATTENDANCE

1. Attendance at PBL sessions should be recorded.
2. Students should arrive before the scheduled start time.
3. Late arrival should be documented according to institutional attendance policy.
4. Students who miss a session should follow the approved procedure for absence.
5. Repeated absence should be reported to the appropriate academic authority.
6. Attendance should be considered separately from academic performance unless institutional policy specifies otherwise.

28. ASSESSMENT OF STUDENTS

PBL assessment should evaluate both knowledge/application and professional learning behaviors.

Suggested domains include:

Domain	Suggested Indicators
Preparation	Prepared for case and discussion
Participation	Active and meaningful contribution
Communication	Clear and respectful communication
Teamwork	Supports and respects group members
Critical Thinking	Provides logical reasoning
Self-Directed Learning	Identifies and addresses learning gaps
Evidence Use	Uses appropriate academic sources
Clinical Application	Applies knowledge to the case
Professionalism	Punctuality, respect and responsibility
Reflection	Identifies strengths and areas for improvement

A rating scale such as **1–5** may be used:

1 = Unsatisfactory
2 = Needs Improvement
3 = Satisfactory
4 = Good
5 = Excellent

29. FACILITATOR ASSESSMENT OF STUDENTS

The facilitator should assess students using standardized criteria.

Assessment should be:

1. Fair.
2. Transparent.
3. Evidence-based.
4. Consistent.
5. Based on observed behavior.
6. Supported by constructive feedback.

Students should not be assessed solely on how much they speak.

Quality of participation is more important than quantity of speech.

30. PEER ASSESSMENT

Where applicable, students may confidentially assess peers on:

a. Participation.
b. Teamwork.
c. Preparation.
d. Communication.
e. Respect.
f. Contribution to learning.
g. Reliability.

Peer assessment should be used primarily for formative feedback unless formally approved as part of summative assessment.

31. SELF-ASSESSMENT AND REFLECTION

At the end of the PBL case, students should reflect on:

1. What did I already know?
2. What did I learn?
3. What was difficult for me?
4. How did I contribute to the group?
5. What could I have done better?
6. What further learning do I need?
7. How will this knowledge influence my future clinical practice?

32. FEEDBACK

32.1 Facilitator Feedback to Students

Feedback should be:

a. Specific.
b. Constructive.
c. Timely.
d. Behavior-focused.
e. Balanced.
f. Actionable.

A useful structure is:

Strength → Area for Improvement → Suggested Action

Example:

"You provided good evidence during the discussion. However, your reasoning could be more clearly linked to the patient's clinical findings. In the next session, try to explain how each piece of evidence supports your conclusion."

33. STUDENT FEEDBACK ON PBL

Students should periodically provide feedback regarding:

a. Relevance of cases.
b. Difficulty level.
c. Facilitator effectiveness.
d. Group dynamics.
e. Learning resources.
f. Time allocation.
g. Assessment process.
h. Achievement of learning objectives.

Feedback should be reviewed by the Module Coordinator/PBL Committee and used for quality improvement.

34. DOCUMENTATION

The following records should be maintained:

1. PBL case.
2. Facilitator guide.
3. Learning objectives.
4. Group attendance.
5. Student assessment forms.
6. Peer/self-assessment forms where applicable.
7. Facilitator feedback.

8. Student feedback.
9. PBL session reports.
10. Action plans for identified problems.

Records should be maintained according to the institution's academic record-management policy.

35. STANDARD PBL SESSION CHECKLIST – FACILITATOR

Before the session:

☐ Case reviewed
☐ Learning outcomes reviewed
☐ Facilitator guide reviewed
☐ Appropriate resources identified
☐ Group list confirmed
☐ Assessment criteria available

During Session 1:

☐ Ground rules established
☐ Case presented appropriately
☐ Terminology clarified
☐ Problems identified
☐ Brainstorming completed
☐ Hypotheses generated
☐ Knowledge gaps identified
☐ Learning objectives finalized
☐ SDL responsibilities allocated

During Session 2:

☐ Learning objectives reviewed
☐ Student findings discussed
☐ Evidence evaluated
☐ Hypotheses reconsidered
☐ Knowledge integrated
☐ Clinical application discussed
☐ Misconceptions addressed
☐ Learning objectives completed
☐ Student feedback provided
☐ Assessment completed

36. STANDARD PBL CHECKLIST – STUDENT

Before PBL

☐ Attend on time
☐ Bring required materials
☐ Review previous learning
☐ Read assigned case information

During Session 1

☐ Participate actively
☐ Identify unfamiliar terminology
☐ Identify key problems
☐ Share prior knowledge
☐ Generate hypotheses
☐ Identify learning gaps
☐ Agree on learning objectives

During SDL

☐ Search reliable resources
☐ Study assigned objectives
☐ Critically evaluate information
☐ Record references
☐ Prepare for group discussion

During Session 2

☐ Share findings
☐ Explain evidence
☐ Participate in discussion
☐ Apply knowledge to case
☐ Reconsider hypotheses
☐ Identify key learning points
☐ Participate in reflection

37. TIME MANAGEMENT

A suggested allocation for a 90–120 minute PBL session is:

Activity	Approximate Time
Introduction/ground rules	5 minutes
Case presentation	10 minutes
Identification of problems	10–15 minutes
Brainstorming	20–25 minutes
Hypothesis generation	10–15 minutes
Learning gaps/objectives	15–20 minutes
Summary/task allocation	5–10 minutes

The exact duration may be modified according to the complexity of the case.

38. ROLE OF TECHNOLOGY

Technology may be used to enhance PBL provided it supports, rather than replaces, student reasoning.

Students may use:

a. Digital textbooks.
b. Academic databases.
c. Online journals.
d. Institutional learning-management systems.
e. Clinical guidelines.
f. Digital presentation tools.

Students must verify information obtained through online sources and should not treat automatically generated content as authoritative without appropriate verification.

39. ACADEMIC INTEGRITY

Students must maintain academic integrity throughout PBL activities.

They must:

a. Avoid plagiarism.
b. Properly acknowledge sources.
c. Avoid fabrication of evidence.
d. Avoid falsification of information.
e. Present accurate scientific information.
f. Distinguish personal opinion from evidence.
g. Follow institutional policies regarding use of artificial intelligence and other educational technologies.

40. CONFIDENTIALITY

When PBL cases are based on real patients:

1. Patient identity must remain confidential.
2. Names, addresses, contact details and other identifying information must not be disclosed.
3. Clinical information should be appropriately anonymized.
4. Students must not photograph or share confidential patient information without authorization.
5. Case materials must be used solely for legitimate educational purposes.

41. QUALITY ASSURANCE

The PBL program should be reviewed periodically by the relevant academic authority.

Quality indicators may include:

a. Student attendance.
b. Student satisfaction.
c. Achievement of learning objectives.
d. Facilitator feedback.
e. Student performance.
f. Peer/self-assessment results.
g. Case quality.
h. Facilitator performance.
i. Curriculum alignment.

Identified deficiencies should result in a documented improvement plan.

42. FACILITATOR DEVELOPMENT

All PBL facilitators should receive appropriate orientation/training.

Training should include:

1. Principles of PBL.
2. Facilitation skills.
3. Effective questioning.
4. Group dynamics.
5. Managing difficult students/groups.
6. Assessment and feedback.
7. Case interpretation.
8. Student-centered learning.
9. Self-directed learning.
10. Quality assurance.

Periodic faculty-development sessions should be arranged to maintain consistency among facilitators.

43. ESCALATION OF ACADEMIC OR PROFESSIONAL ISSUES

The facilitator should initially attempt to resolve routine academic or group issues.

Issues should be referred to the Module/Block Coordinator when:

a. A student repeatedly fails to participate.
b. Group dynamics significantly interfere with learning.
c. A student demonstrates repeated unprofessional behavior.
d. There is persistent academic difficulty.
e. A serious disagreement cannot be resolved.
f. There are concerns regarding academic integrity.

Serious or repeated issues may be referred according to the College's established academic/disciplinary procedures.

44. KEY PRINCIPLES OF PBL AT FRONTIER DENTAL COLLEGE

The following principles should guide all PBL sessions:

1. Student-Centered Learning

Students are responsible for their own learning.

2. Facilitator-Guided Learning

The facilitator guides rather than lectures.

3. Problem-First Approach

The clinical/problem scenario serves as the stimulus for learning.

4. Self-Directed Learning

Students identify and address their own learning needs.

5. Collaborative Learning

Knowledge is developed through group interaction.

6. Integration

Basic sciences should be connected with dental and clinical sciences.

7. Clinical Relevance

Learning should have meaningful application to dental practice.

8. Evidence-Based Learning

Students should support important conclusions with reliable evidence.

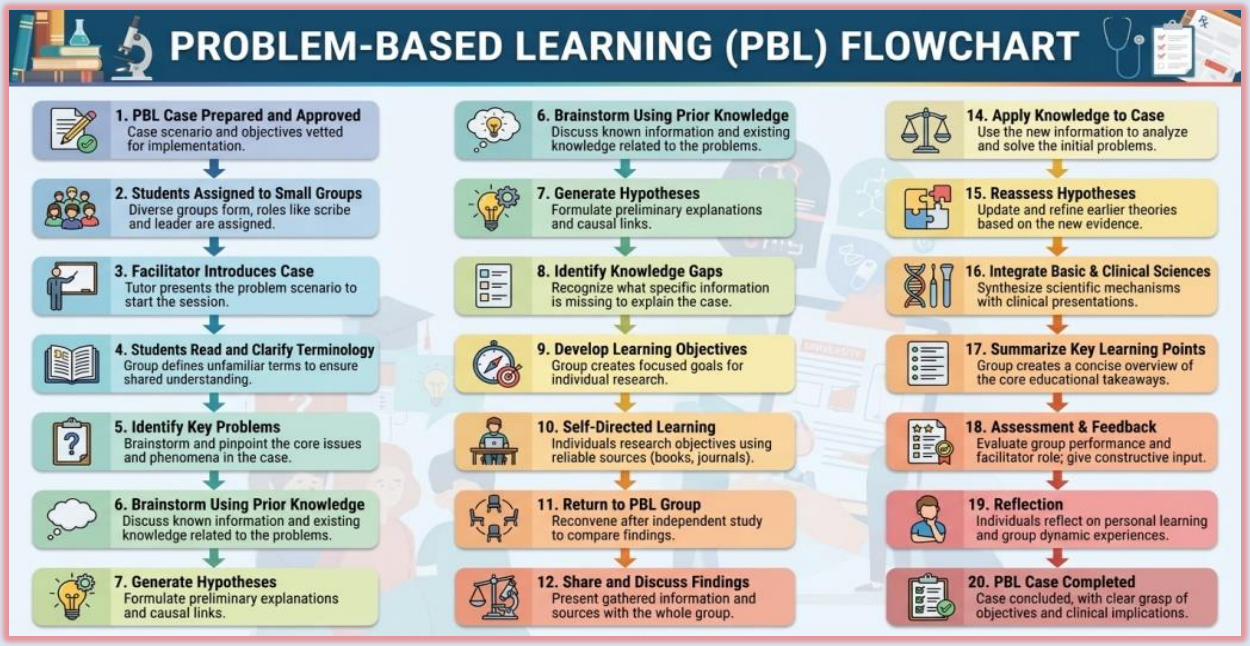
9. Reflection

Students should evaluate their own learning and performance.

10. Professionalism

Respect, responsibility, communication and teamwork are integral components of PBL.

45. PBL FLOWCHART



46. MINIMUM EXPECTATIONS

Every PBL student is expected to:

a. Attend.
b. Prepare.
c. Participate.
d. Listen.
e. Reason.

f. Research.
g. Share.
h. Collaborate.
i. Reflect.
j. Demonstrate professionalism.

Every PBL facilitator is expected to:

a. Prepare.
b. Facilitate.
c. Question.
d. Encourage.
e. Monitor.
f. Guide.
g. Assess.
h. Provide feedback.
i. Maintain group dynamics.
j. Ensure achievement of learning outcomes.

47. CONCLUSION

Problem-Based Learning at Frontier Medical & Dental College, Abbottabad should provide students with an organized environment in which they learn how to think, rather than simply what to remember.

Successful PBL depends on a partnership between active students and appropriately trained facilitators. Students should take primary responsibility for identifying and addressing their learning needs, while facilitators should guide the process, promote critical thinking, maintain effective group dynamics and ensure that essential curriculum outcomes are achieved.

The implementation of these SOPs will promote consistency, accountability, professionalism and quality in PBL activities and will support the development of competent, reflective and lifelong-learning dental professionals.

APPROVAL

Prepared By:	**Reviewed By:**
Name/Designation: PBL Committee	Name/Designation: Director,DME
Date: 13/02/2026	Date: 18/02/2026

Approved By:

Principal /Academic Council