

## How to Create and Moderate a Great Problem Based Learning Discussion (PBLD)

IAPA 2012

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### Model Discussion

#### 1. What is a PBLD or case-based learning?

Problem-based learning (PBL) differs from traditional learning in that the primary focus is to challenge students by giving them a real world problem to solve, thereby introducing concepts as the solution is teased out of the fabric of the initial problem. PBL uses a problem to motivate, focus, and initiate student learning. It was pioneered over 30 years ago by McMaster University Medical School in Hamilton, Ontario, and has been successfully implemented in the curricula of schools and universities around the world in a variety of disciplines.

#### 2. What are the advantages of PBL over traditional educational methods?

PBL is more likely to be successful at making students acquire and retain information and apply the information in real-world problems. It is more likely to stimulate critical thinking, and it challenges students to work cooperatively as well as independently, and it encourages reflective thinking on their own and fellow students' learning styles.

#### 3. What are the basic components of the PBL method?

The basic components are a problem statement, 3-5 learning objectives, key questions, a model discussion, and references. These will be covered in more detail in the relevant sections.

#### 4. What source material can be used for PBL?

Source material for a PBLD is often an interesting case, though not simply a rare syndrome and/or unexpected complication that was managed with a good outcome and no avenues for discussion or controversy. Source material may also be drawn from professional, legal, or ethical issues; these types of PBLD submissions are often in short supply and therefore may have a greater chance of being accepted, as are educational presentations. Controversial issues from review articles or guidelines can also provide suitable PBL material if developed suitably.

#### 5. What are the characteristics of good learning objectives?

A learning objective is a statement that describes the knowledge, skills, and/or attitudes that participants will gain from the activity. For each learning objective, teachers must ask 3 questions about the participants:

- What should the result of this activity be for them?
- What should they be able to do?
- What should they know?

In addition, a list of suitable and unsuitable verbs used to formulate learning objectives will be discussed at the session.

#### 6. What are the characteristics of a good problem for case-based learning?

For PBL to be successful, the problem must be effective and interesting. It should engage the students' interest and motivate them to probe deeper to understand concepts being discussed. It should relate to the field of interest so the students have a personal stake in being able to solve the problem. Good problems also require students to make decisions or judgments based on facts and reasoning, and compel them to justify their decisions based on prior knowledge or logical assumptions. Typically, questions in the problem should be open-ended, connected to previous knowledge, and be able to elicit diverse opinions. In addition, good problems should stimulate higher-level critical thinking such as analysis, synthesis, and evaluation of concepts.

Developing a PBL case from an interesting problem requires thought and organization. The case should roughly follow an outline based on the educational objectives; it is, therefore, important to address objectives at an appropriate point in the discussion. Each paragraph should have a limited number of pieces of information (2-3) and should be brief (3-4 sentences). Cases should include demographic and real-world detail to be realistic. Effective cases often have clues or specific pieces of information that raise questions or hypotheses. In addition, issues that have multiple potential solutions present the best opportunities for evaluation of alternative approaches to the problem and application of existing knowledge in choosing the optimal course of action. Prioritization of issues presented in the case may be obvious, or can be left to the students as an additional method of approaching the issues posed by the case.

#### 7. What are some common problems with case material for PBLDs?

- **'Zebras'** - once in a lifetime case
- "Look how well we managed this rare event "
- Poorly written objectives
- No avenues for productive discussion
- No controversy
- No decision-making required
- No twists and turns
- No gradual revelation of case details
- Uninteresting; lack of engagement / relevance
- Case does not follow objectives
- Too many problems or objectives
- Poorly written: typos, bad grammar, unqualified abbreviations, factually incorrect, inflammatory
- Poor selection of references

#### 8. How do you differentiate between material suitable for a Medically Challenging Case (MCC) versus a PBLD?

Material suitable for a MCC typically entails successful management of a difficult case or rare syndrome, with little in the way of controversy or decision points during the management. Often there is little or no discussion of broader topics pertaining to the case, and no opportunity for learners to engage in higher-level assimilation, analysis, and application of learned material. PBL material engages, tells a story of interest, and may be awash with controversy; learners are confronted with multiple crossroads or twists and turns in the evolution of the case, which force learners to draw on knowledge and experience to solve the issues presented, thus engaging in higher-level thinking.

#### 9. What are the hallmarks of an effective PBL discussion?

The hallmarks of an effective PBL discussion are participant-led learning in a collegial, non-confrontational environment guided by the moderator. The discussion is enhanced by adequate review and preparation of the material in advance by participants, and by analytical, probing, or reflective questions by the moderator. The discussion must include all participants, and should not be dominated by one or a few dominant individuals.

#### 10. What are the essential skills for successful moderation of a PBL discussion?

A successful PBL moderator facilitates learning by possessing relevant knowledge that includes the philosophy and benefits of case-based learning, the structure of PBL, the process of critical thinking, and the objectives of the discussion. In addition, the moderator must exhibit skills to guide the students while emphasizing student-centered discussion; motivate all students to participate; question and probe to establish appropriate depth of knowledge; have knowledge of the subject matter and contribute through appropriate, timely input; keep participants on track by distinguishing the main learning objectives of the discussion; demonstrate enthusiasm, and provide a pleasant, productive and collaborative learning environment with good group dynamics.

- Prepares and reviews the material in advance

- Introduces self and participants to each other
- Opens discussion with a non-threatening question that should be familiar to everyone
- Avoids being a content expert
- Does not **lecture** or give a **'talk'**
- Involves all participants
- Incorporates different practice settings
- Encourages higher-level learning with analytical, probing, or reflective questions
- Allows time for reflection and thinking after a question
- Keeps the group focused
- Guides the discussion through the objectives
- Controls the dominant participant
- Engages the quiet participant
- Has some interesting historical or cultural tidbits to engage interest
- Has some general queries for the group to vote on
- Maintains a pleasant, collaborative learning dynamic
- Keeps track of time
- Summarizes the key points of the discussion at the end

11. What are some of the pitfalls awaiting the uninformed PBLD moderator?

- Don't fail to prepare
- Don't forget introductions and ice-breakers
- Don't forget to use a seating chart and names
- Don't start with a closed-end question
- Don't discuss emotional material until the end
- Don't forget to use the flip chart effectively
- Don't forget to call on the quiet people
- Don't allow domination by 1-2 individuals
- Don't forget to listen and respond to students
- Don't forget to correct factual errors

12. Why should you try to present a PBLD at the ASA or your specialty society annual meeting?

Presentation of a PBLD at the ASA meeting or your society meeting is a significant achievement. The acceptance rate at the ASA and the Society for Pediatric Anesthesia (SPA) Scientific Meeting is roughly 30%. Acceptance usually ensures time to attend the meeting, and PBLDs can be presented at the ASA meeting up to three times. Presentation at an international meeting like the ASA or SPA counts towards academic promotion, especially for faculty in an educational track. Successful PBLDs can be presented during a visit to other departments, or to your own department trainees. In addition, opportunities to gain additional educational kudos may be realized if the PBLD is accepted as a peer-reviewed MedEdPortal publication ([www.aamc.org/mededportal](http://www.aamc.org/mededportal)). Finally, the opportunity to attend a large international meeting like the ASA Annual Scientific Meeting presents networking and educational opportunities in every subspecialty track.