



Facilitating Problem Based Learning (PBL)

BACKGROUND

Problem-Based Learning (PBL) is a systematic, small group teaching approach employing patient cases and specific group member roles to:

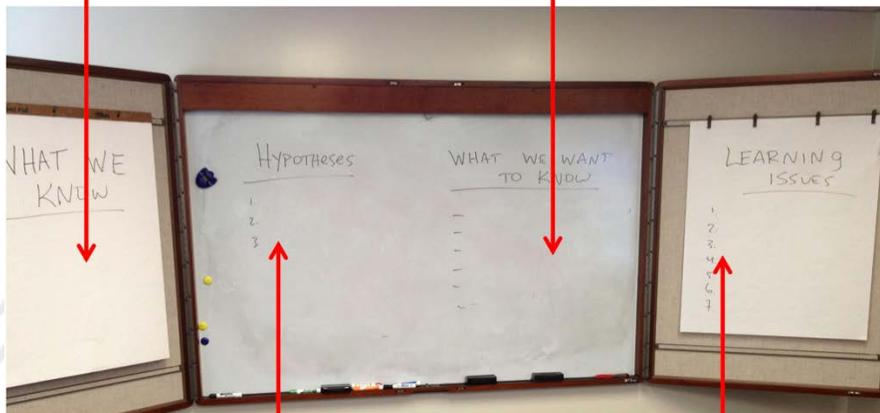
1. Develop and reinforce learners' skills in self-directed learning, problem solving, recognizing own clinical reasoning and heuristics, considering sources of information (validity, reliability);
2. Provide learners with opportunities to employ their existing knowledge and skills to solve a clinical problem and to identify knowledge and skills they need to develop to solve this and future problems
3. Promote skills for working as a team which includes sharing and soliciting information and negotiating plans

FORMAT

1. **Clinical case** – Detailed description of a clinical case that typically includes presenting problem, symptoms, assessment, findings, psycho-social issues
2. **Reader** – A learner is assigned to read one sentence of the case and pause to allow group members an opportunity to express their thoughts.
3. **Scribe** – A learner is assigned to write down details of the case and group's discussion. Scribe can manage the flow of discussion (with facilitator's help); this can be done with prompts for learners to elaborate on what they are thinking and why, asking members to take turns talking so scribe can get each member's summarized.
4. **Written record of group discussion** – Scribe records the items below as discussed by the group. Items are written on 4 sheets of paper hanging on wall left to right. Summary sheets are posted at the beginning of each session and saved at end of session to be posted again later.
 - a. What we know – facts from the case
 - i. *Pt is a 34 y.o. woman; presents to ER with numbness in left arm*
 - b. What we want to know – questions we want to ask patient; labs we want to order; examinations we want to perform
 - i. *Any pain in her chest? Any recent injuries?*
 - c. Why we want to know - reasons we want to know content in previous section (hypotheses)
 - i. *Heart attack; Rule out injury of a nerve affecting arm?*
 - d. Learning issues – any information that is presented in case or discussed by group that the members are not satisfied with their existing knowledge.
 - i. *What are common signs of a heart attack? Do women present with different heart attack symptoms than men?*

What we know
facts from the case

What we want to know
more history, labs, examinations



Hypotheses / Why we want to ask/order/perform something
reasons we want to know content in previous section

Learning issues
Knowledge gaps identified during session by learners

5. **Learning issues** – Knowledge or skills that the group does not have but is pertinent to case
 - a. During the group discussions, learners identify gaps in their knowledge or skills and list them on board.
 - b. At the end of each session, each learner volunteers to investigate a learning issue. At beginning of next session, each learner informs (i.e., teachers) the group members on that topic.
 - c. There may be learning issues that are not addressed, but having put them on the board reinforces students' willingness to acknowledge gaps and that learning is an ongoing process.
 - d. Learners are encouraged to provide concise reports, answer the learning issue, emphasize memorable key points, and note how new knowledge informs the case at hand.
 - e. Sources for answering learning issues - internet, quick reference tools, evidence based reviews, literature searches, content experts
 - i. Facilitators provide feedback on the learners' sources for answering a learning issue (efficiency, effectiveness, validity, trustworthiness).

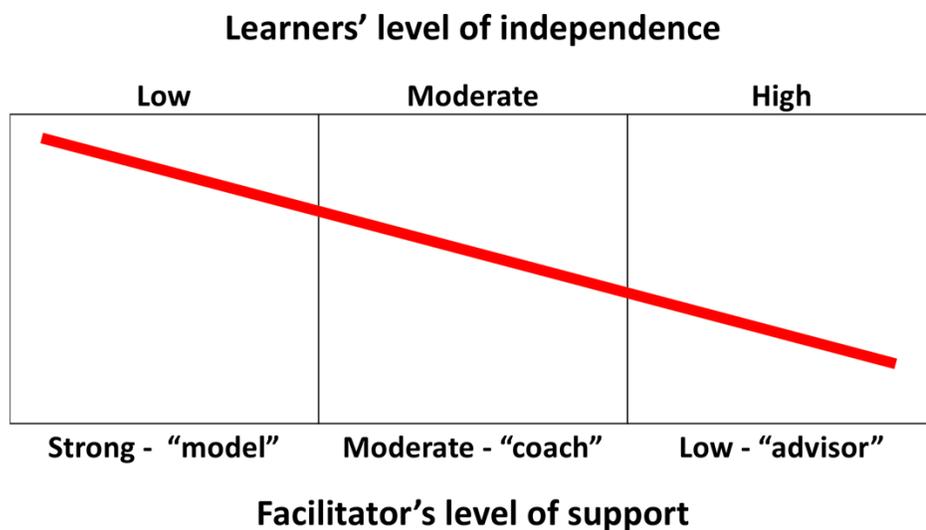
LEARNERS' ROLES

1. Assume increasing responsibility for their learning, giving them more motivation and more feelings of accomplishment, setting the pattern for them to become successful life-long learners
2. Rotate roles of scribe and reader at each session
3. Assume greater role from mobbing group forward thus decreasing input of facilitator

FACULTY ROLES

1. Facilitate progress through a case
2. Focus steps of the learning as opposed to end of a case
 - a. willingness for learners to pursue content that facilitator anticipate will not ultimately prove vital to the case

- i. E.g., learning issues on multiple sclerosis symptoms even though presentation is more consistent with stroke
 - ii. E.g., discussion of what CT scan may find when a quicker, less costly tool could be employed.
3. Emphasize the meta-cognition or thought processes of the learners. i.e., what they are thinking, why they are thinking that way, what influences their clinical reasoning.
 4. Assist learners in expressing their clinical reasoning in a concise and clear manner.
 5. Encourage and reinforce group efforts to function with less input from facilitator over time.



SUGGESTIONS

1. Keep the discussion focus on the group members.
 - a. Facilitators should judiciously share their own clinical knowledge and reasoning with learners. If warranted, keep it brief, do it infrequently.
2. Support (or at times tolerate) discussions of topics that seems unconnected to the case.
 - a. Learners investigating a "tangent" can use that learning later in a future problem.
 - b. Learners can begin to more effectively sort through presented information and their thought process. They will begin to note the cues that are obvious to you.
3. Provide specific feedback on learner's clinical reasoning and interpersonal behavior.
 - a. E.g., Note if a learner tends to latch onto a hypothesis and as a result limits his/her differential list and focuses primarily on information that fits his/her hypothesis
 - b. E.g., Note if a learner tends to chase zebras – reinforce the open-mindedness while helping him/her balance this tendency with being efficient (time, cost)
 - c. E.g., Note if a learner is good at synthesizing, mediating, leading, challenging, ... Learner can further develop these skills and be more successful in their clinical training years.
4. Seek a consensus from the group on issues.
 - a. E.g., *Does the group believe they understand how diuretics impact hypertension?*
 - b. E.g., *Is the group in agreement that ordering this procedure is indicated for this patient?*
 - c. E.g., *Is the group ready to proceed with reading of next sentence or are there more items to discuss?*