

Case Based Learning in Surgery

**(Real Clinical Case
Triggered
Problem Based
Learning)**

problem
based
learning

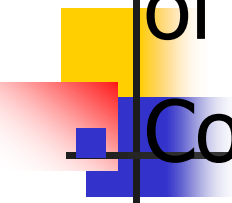


Prof. Dr. A. V. Jamkar

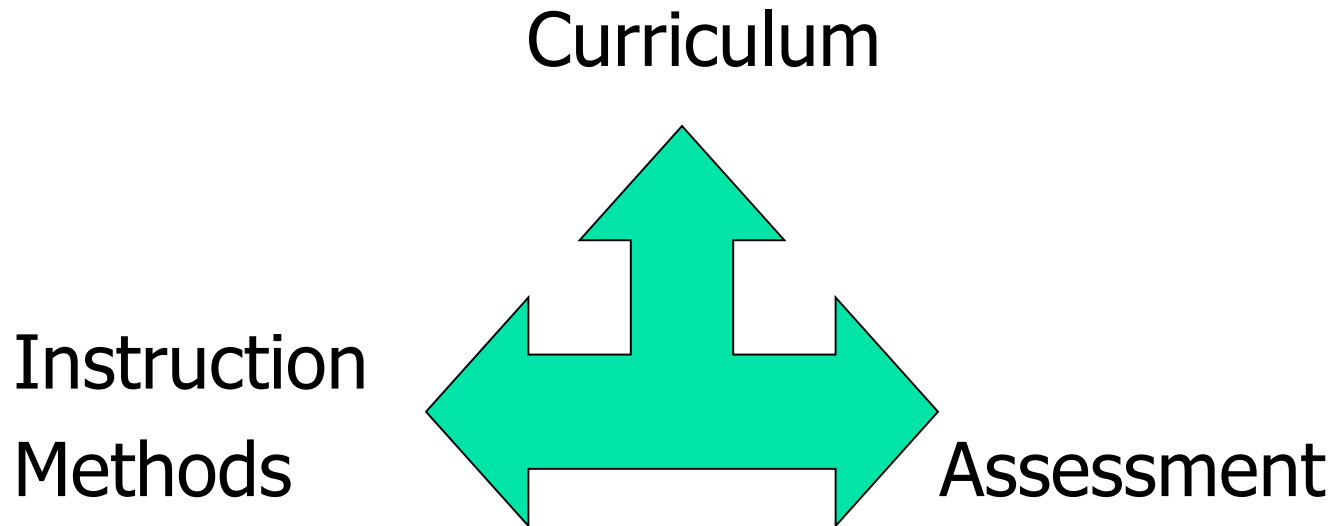
MS. PhD FICS FAIMER fellow

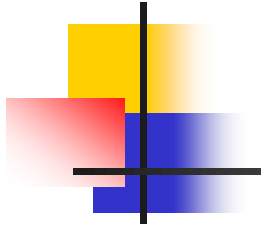
****Director,**

Post graduate programme, Research
and Development,
MIT Group of Medical colleges Pune

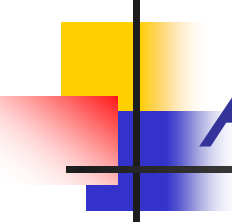
- 
- Ex Vice Chancellor, Maharashtra university of Health sciences, Nashik
 - Consultant , Persistent system pvt. ltd
 - Chair, National Bioethics Curriculum implementation UNESCO Chair in bioethics Haifa
 - Ex Dean, B J Medical College Pune and RCSM Govt. Medical College Kolhapur
 - Ex Professor of surgery
B J Medical College Pune

Major curricular component





- MEDICAL Education
is
Adult LEARNING

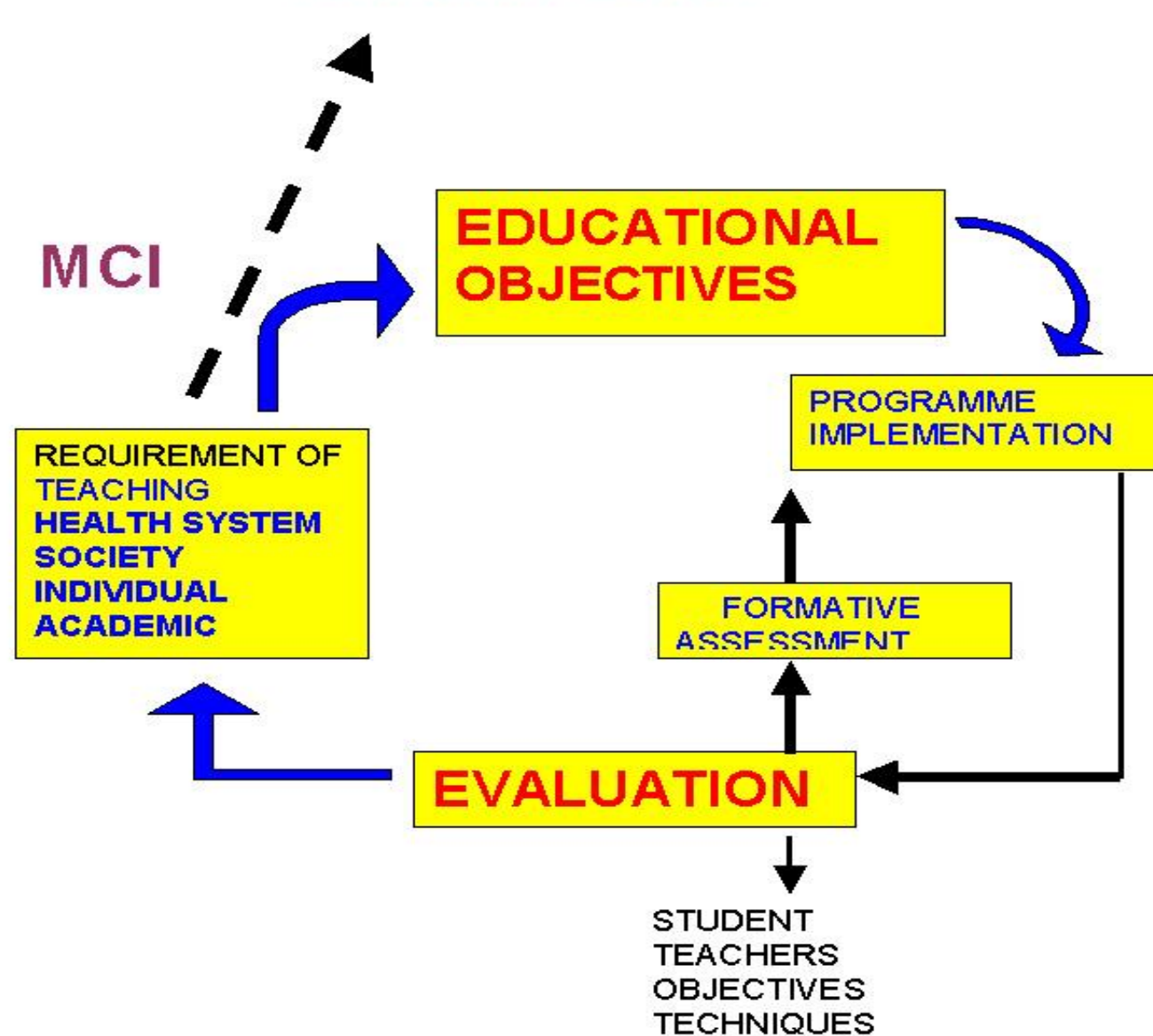


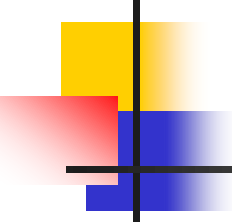
Adults want to ...

- learn it, then use it
- Learn only when it is relevant
- solve problems to learn concepts
- learn at their own pace
- set their own learning objectives
- preserve self-esteem
- Have different ideas about what is important to learn

Spiral Model of Curriculum Development

Set New Goals





Integration of Medical Education

- MCI Recommendation 1997
- Vertical and Horizontal
- Hardly any attempt by any University
- Problem based learning achieves maximum amount of Integration



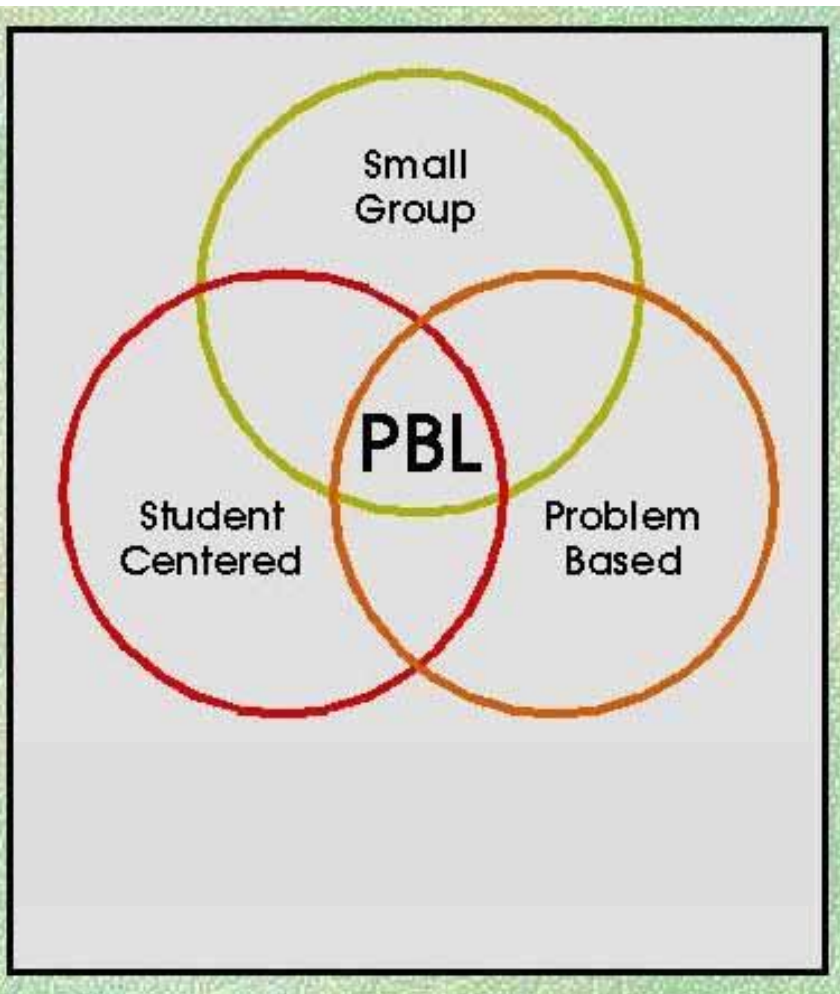
What is
problem based learning



A learning method based on
the principle
of using problems as
a starting point
for the acquisition and integration of
new knowledge."

H.S. Barrows 1982

Ausubel's *subsumption theory*



“...The most important single factor influencing learning is what the learner already knows. Ascertain this and teach him accordingly.”

Ausubel, 1968)

Problem Based Learning

Traditional Teaching vs PBL

Traditional Learning

- Focus is on teaching
- Encourages competition
- Fewer learning events
- Subject oriented
- Involves information mastery
- Faculty role is lecture based

Problem Based Learning

- Focus is on learning
- Encourages co-operation
- Wider range of learning events
- Situation oriented
- Involves information management
- Faculty plays several roles: tutor, advisor, resource person etc



Best Method
of interactive
learning

Students use
a **deep learning**
approach

Improvement of
general problem-
solving skills

Meaningful
Learning

lifelong
learning skills

**Claimed
Advantages Of
Problem Based
Learning**

Development
of **self-directed**
learning skills.

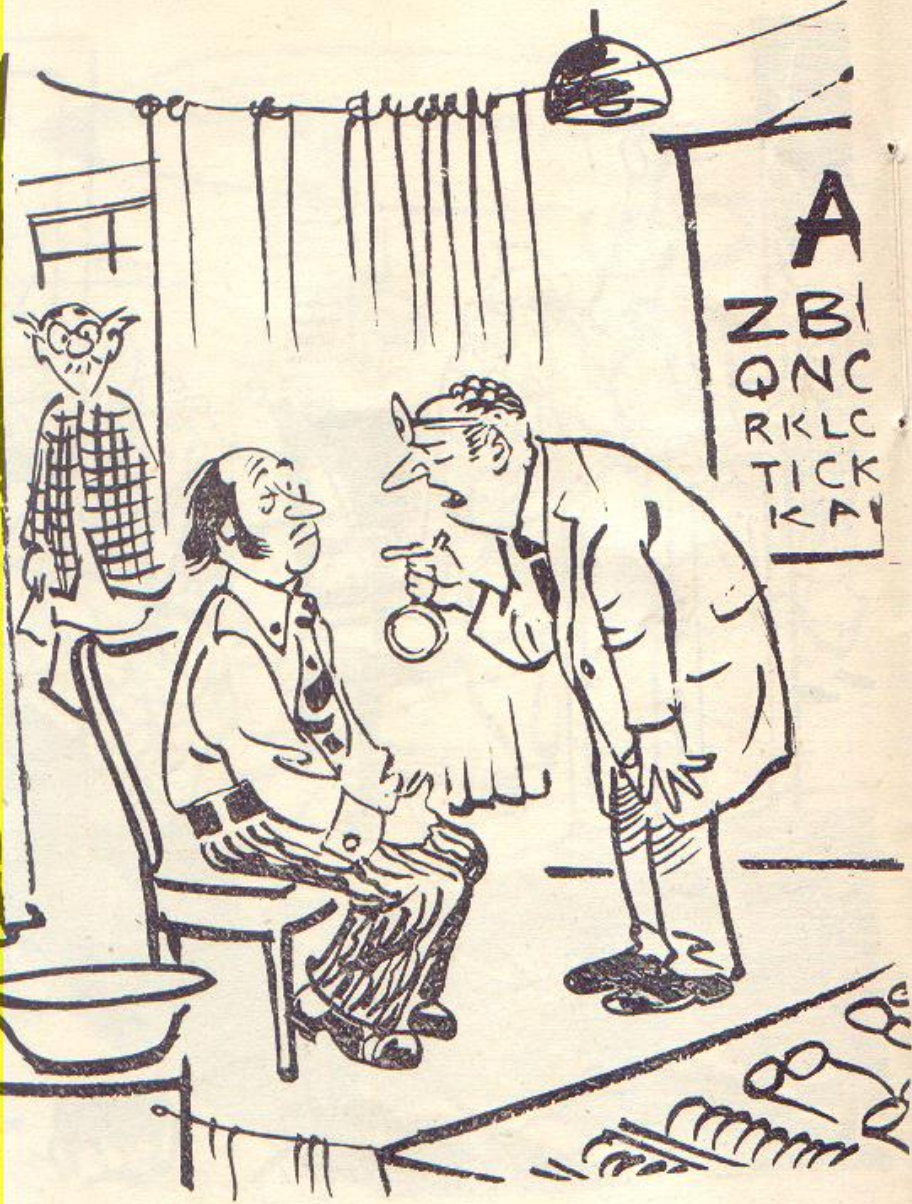
It is more fun

Increased
retention of
knowledge

**Better
Presentation
skills**

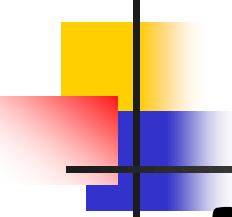
Resource
utilisation

**Maximum
Integration**



- We should not just follow Problem Based Learning because it is Western

There is some foreign matter in your eye.
Would you like to keep it since it's foreign?



Problem Based Learning (PBL) Brief History

- PBL was first developed at McMaster University in Canada in the 1960's.
- PBL methodology is currently used in more than 80% of medical schools across the United States and Canada.
- Used now in Singapore, Malaysia and some African countries

New curriculum - systems-based and “integrated” (1991, revised 1997)

Yr 1	Intro Basic Sci. Clin Skills MIS.	E V A L	Micro/Imm, Inf.Dse MSK, Derm, Hem/onc	E V A L
Yr 2	Neurosci, Psych, ENT, Ophth	E V A L	G-U, Resp, Cardiovasc	E V A L
Yr 3	Repro, Endocrine, GI/Metab. (A.M.) Clin Skills (P.M.)	E V A	- Clerkship -	
Yr 4	- Clerkship -			LMCC

McMaster University

<http://www.chemeng.mcmaster.ca/pbl/PBL.HTM>

Problem-based Learning, especially in the context of large classes

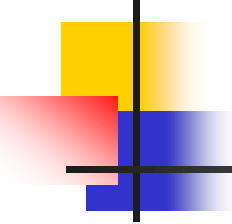


TOPICS

- [What is PBL?](#)
- [Our use of small group, self-directed PBL](#)
- [Books and resources to help you with PBL](#)

What is PBL?

Problem-based Learning: PBL is any learning environment in which the problem drives the learning. That is, before



University of Delaware

<http://www.udel.edu/pbl/>
[PBL Clearinghouse](#)



PROBLEM-BASED LEARNING

[UD PBL articles and books](#)

[UD PBL in the news](#)

[Sample PBL problems](#)

[UD PBL courses and syllabi](#)

[PBL Clearinghouse](#)

[PBL Conferences and
Other PBL sites](#)

[Institute for Transforming
Undergraduate Education](#)

"How can I get my students to think?" is a question asked by many faculty, regardless of their disciplines. Problem-based learning (PBL) is an instructional method that challenges students to "learn to learn," working cooperatively in groups to seek solutions to real world problems. These problems are used to engage students' curiosity and initiate learning the subject matter. PBL prepares students to think critically and analytically, and to find and use appropriate learning resources. -- *Barbara Duch*



[**PBL2002:
A Pathway to Better Learning**](#)

Samford University

<http://www.samford.edu/pbl/index.html>



Learning is student-centered. Learning occurs in...
SAMFORD PBL
Problem-Based Learning at Samford University
205-726-4174

PBL Background
PBL Process
PBL Evaluation
PBL Resources
Professional Growth
TransAtlantic Cooperation (TAC)
Course Portfolios
Contact Us
PBL Home
Samford University

Welcome to our Web site!

Intro to PBL for Students

The Problem-Based Learning (PBL) Web site was established in 1998 in conjunction with two grants from the Pew Charitable Trusts. Since that time, Samford took on the challenge to not only incorporate PBL into various undergraduate programs within the Schools of Arts and Sciences, Business, Education, Nursing and Pharmacy, but also to document best models of PBL practice in [course portfolios](#).

The Center's mission was to support the Samford community in enhancing student learning through the training, implementation and documentation of PBL and other methods of active, student-centered, collaborative, inquiry-based learning; and to share these practices with other educators. The site corresponds to Samford University's efforts to be a learner-centered community that nurtures the intellectual, emotional, physical, social and spiritual development of students and teachers.

The goal of the Web site is to provide administrators, faculty, students and parents with detailed information on the components, implementation, assessment and documentation of PBL. The site also contains a guide to relevant [workshops and conferences](#), links to many other [PBL related Web sites](#), and a listing of institutions that are using PBL in their undergraduate and/or graduate programs.

We hope you will find this Web site of assistance. If you have any suggestions or comments pertaining to this site, please contact us.

Thank you.

Illinois Mathematics and Science Academy

Center for Problem-Based Learning

<http://www2.imsa.edu/programs/pbl/cpbl.html>



Center for
Problem-Based Learning

What is
the Center
for PBL?

What is
Problem-Based
Learning?

Who is
working with
PBL?

What are we
learning about
PBL?

PBL
Professional
Development

Publications

IPBLN
Network

ASCD
PBLNet

Summer
Sleuths
for
Students

Sample
Problems

Center@IMSA
Programs



Welcome to IMSA's Center for Problem-Based Learning's Web Site. Click on one of the four pinned notes at the top of this screen to explore one of the main areas of our site. To help you navigate throughout this site, these notes appear on every page and allow you to travel to each section of the site, and the door will take you back to this page.

Please enjoy your journey into PBL, and we encourage you to **contact us!**

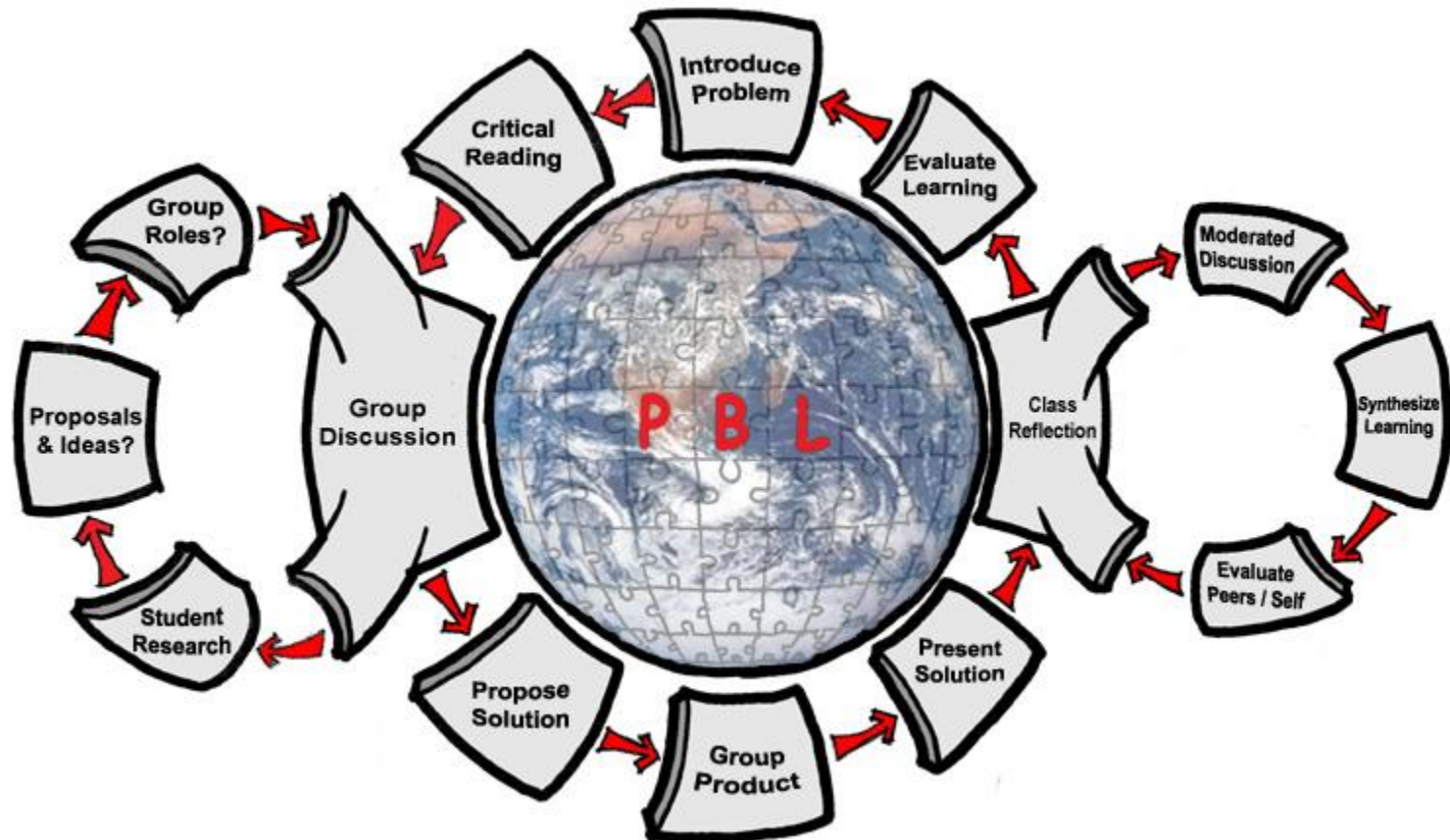
Feel free to take a look at our [site map](#).

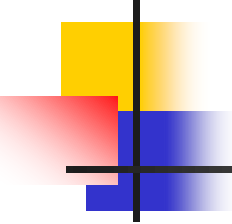


[Contact the Center for Problem-Based Learning](#)

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- Do you think Problem Based Learning is feasible in Traditional System?
- Can you adapt PBL in MCI determined Curriculum





Introduction Of Modified PBL in Traditional Curriculum

- Case Based Learning was triggered by actual clinical cases
- Clinical skills were taught during process
- Faculty from all the departments were used as Resources

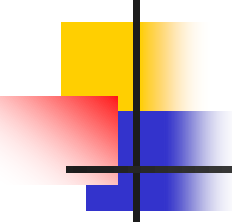
NOT ALLOWED 11:00
8 AM. TO 10 AM

WARD 51
←



- We should utilize the large no of patients for teaching

Whose pulse is this, please !



Components of CBL

- Clinical Scenarios developed from real cases in ward
- Student Tutorial Group
- Tutor Facilitators
- Institute

Case Based Learning

What is Case based learning?

Clinical Scenarios developed from real cases in ward

- **Tutors took actual clinical cases in the ward including** Acute cases admitted in emergency
- Charted down **learning objectives** and were modified to meet the demands of the existing syllabus of the University

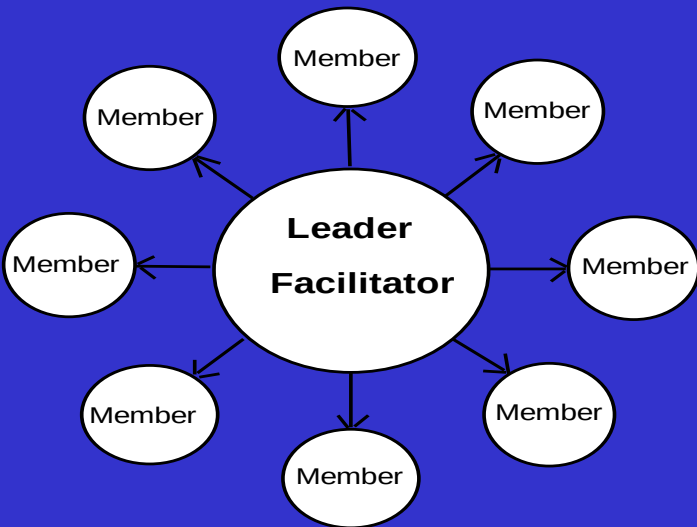
Case Based Learning

What is Case based learning?

- **CBL Tutorial Group**

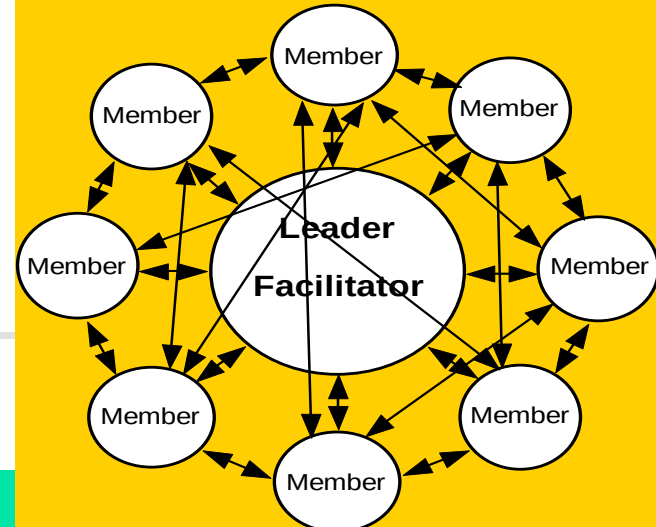
- Small group teaching (15-17) students)
- Rotary role playing by students
 - Chair
 - Scribe
 - Presenter
 - Time keeper
 - Group member

FORMING



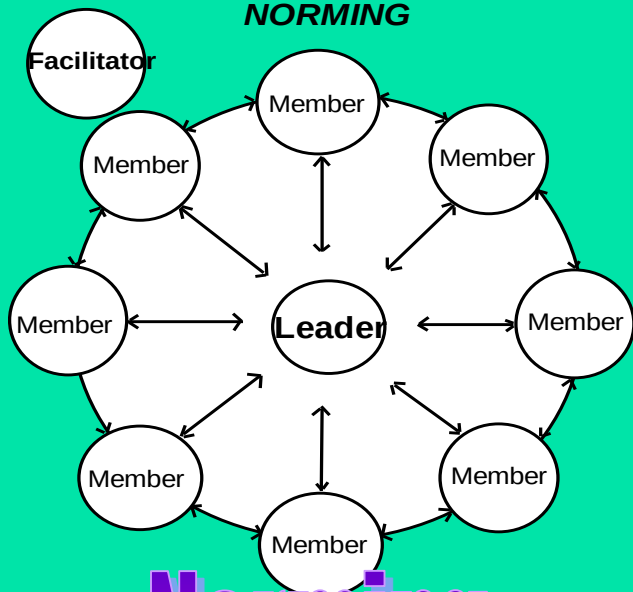
Forming

STORMING



Storming

NORMING



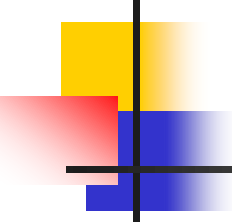
Norming

**Small
Group
Dynamics**

PERFORMING



Performing

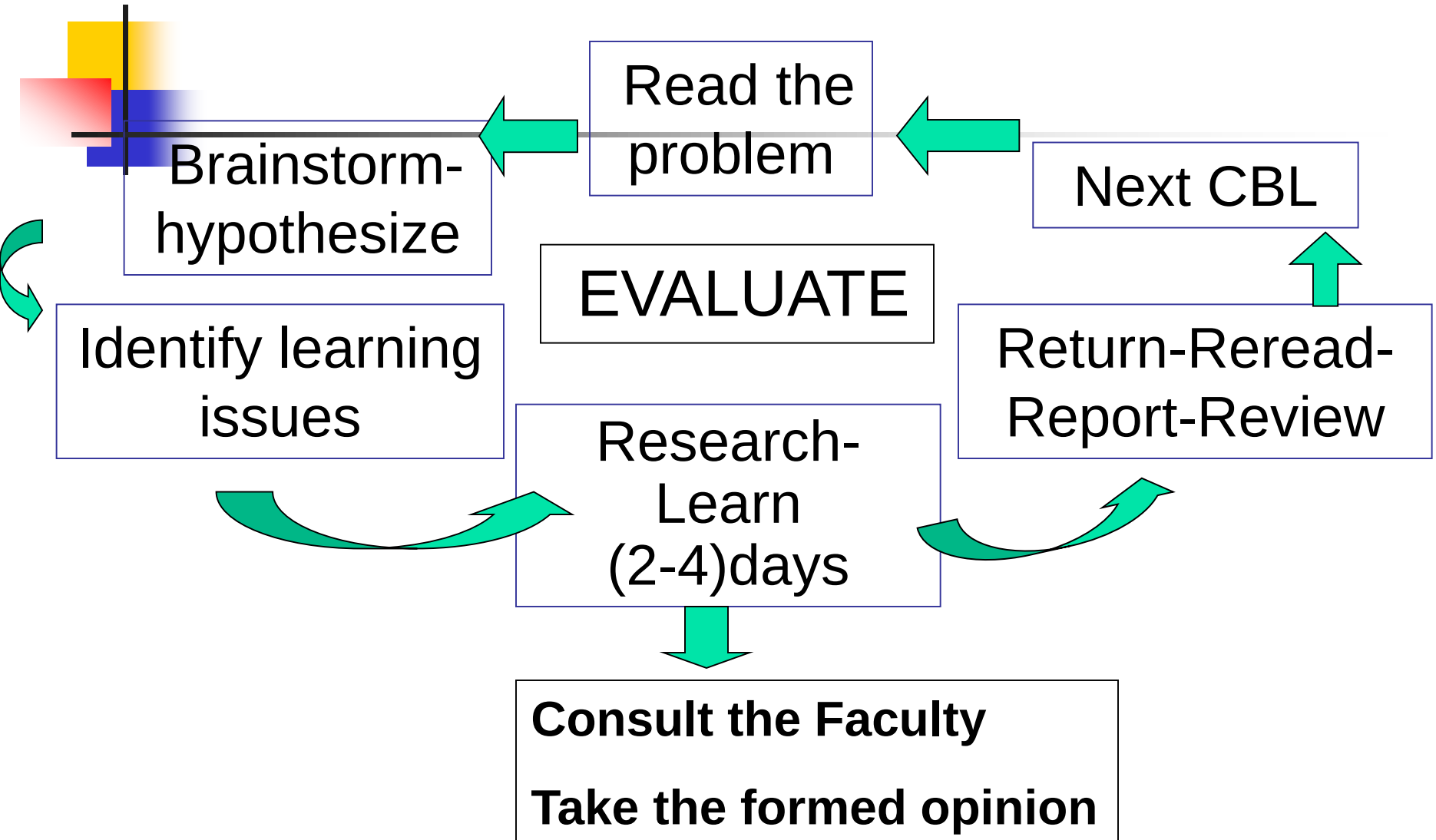


Case Based Learning

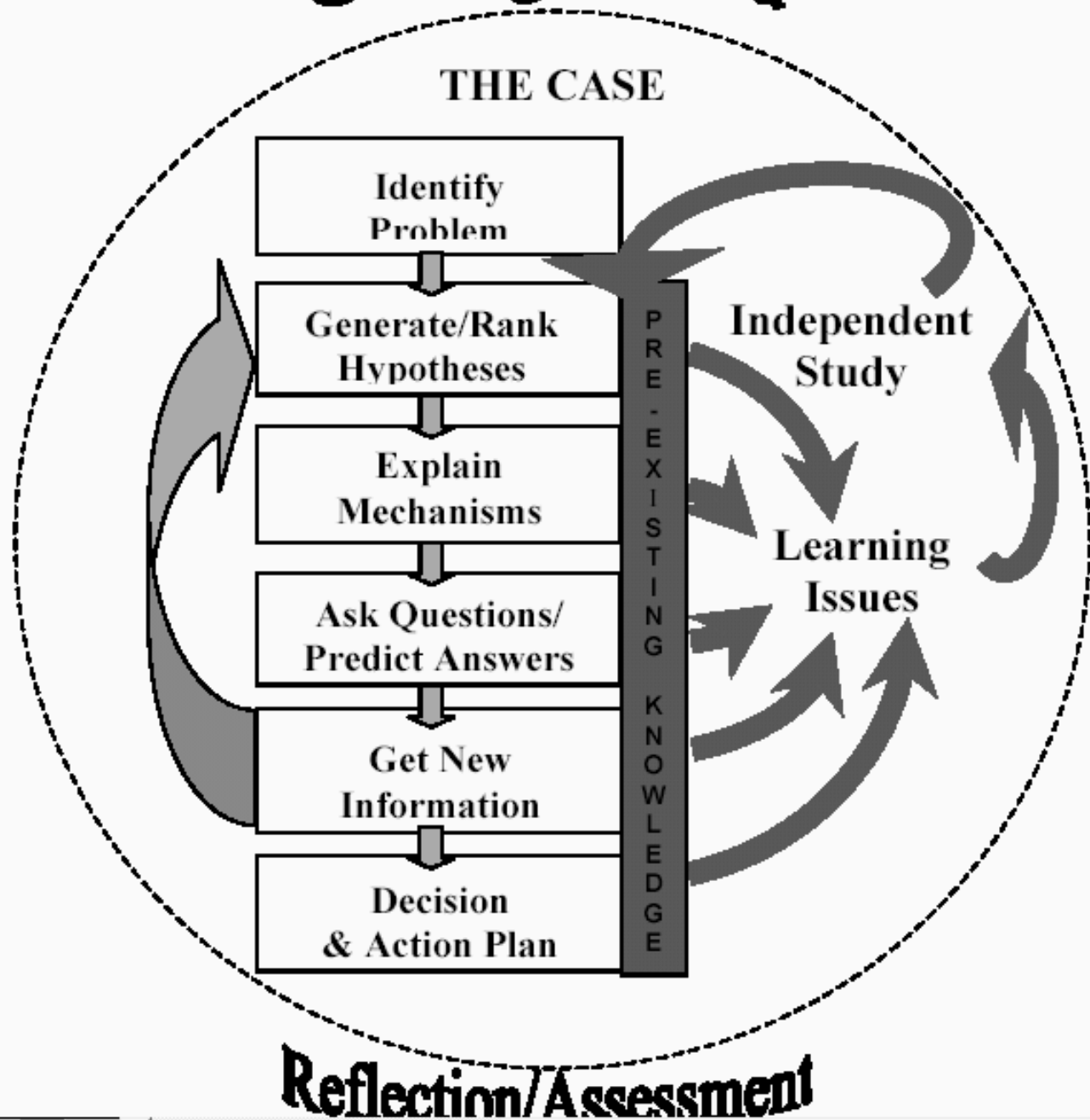
What is Case based learning?

- Facilitator (Tutor)
 - A knowledge of the process of CBL
 - Commitment to student-directed learning
 - Ability to generate a non-threatening environment while still acting to promote discussion and critical thinking
 - His role is to supervise that learning objectives are discussed
 - Chief Residents trained as Tutor

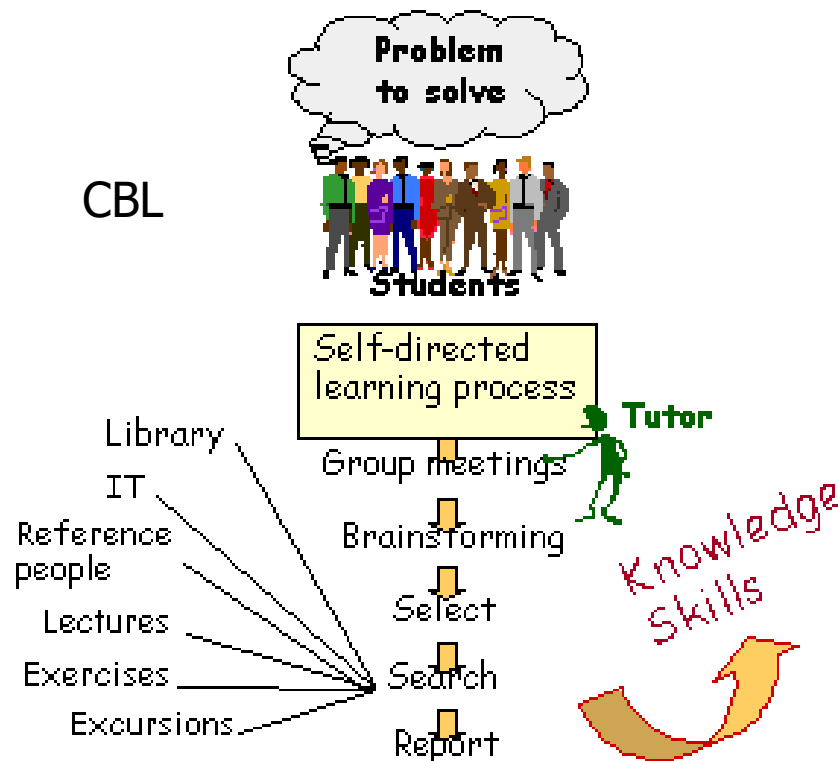
The Iterative Process of CBL



Getting Started



Conclusion

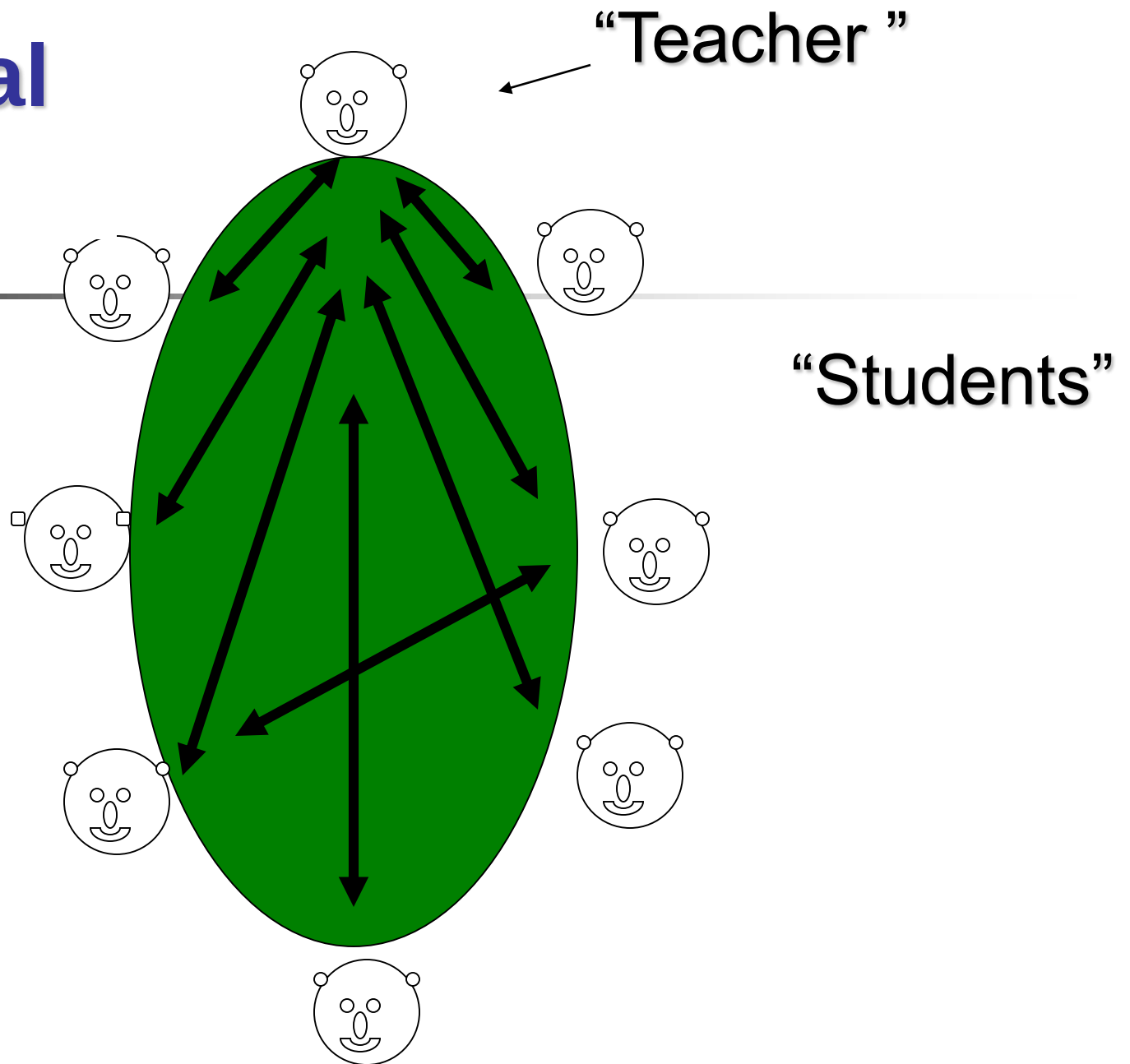


Students' determination of their own "level of ignorance" (Learning Issues), *by themselves*, is fundamental to CBL



An important part of PBL is the *learning* between sessions

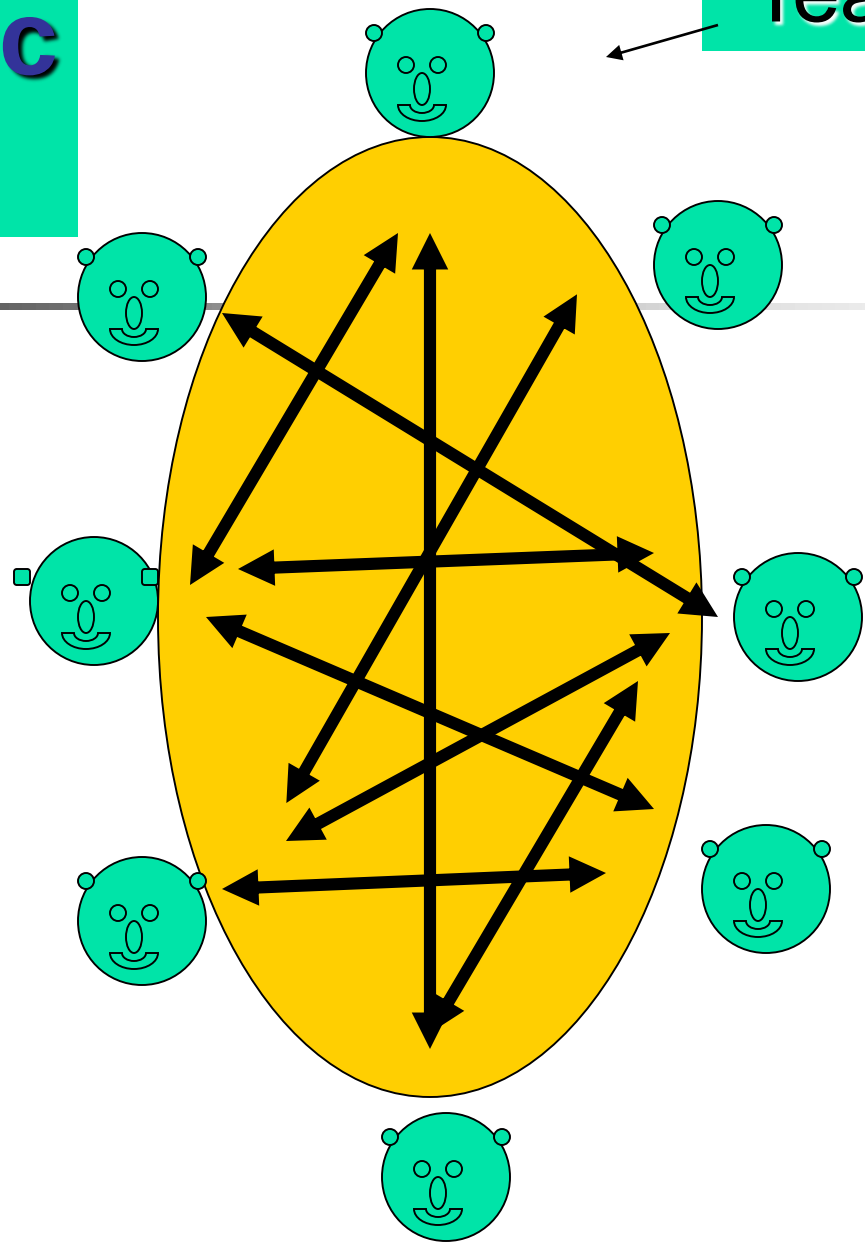
Traditional Clinic

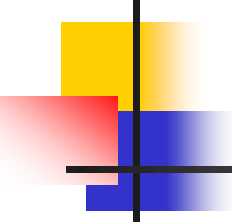


CBL Clinic

“Teacher”

“Students”





Program Evaluation

- Student Evaluation
 - Evaluation of CBL
 - Student formatively evaluated
 - Evaluation of Tutor
 - Evaluation of IPA (Individual process assessment)
 - Evaluation of Cognitive Domain
- Evaluation of Student Perception
- Faculty Perception about the program

Student presenting solved learning issue



Group patiently listening

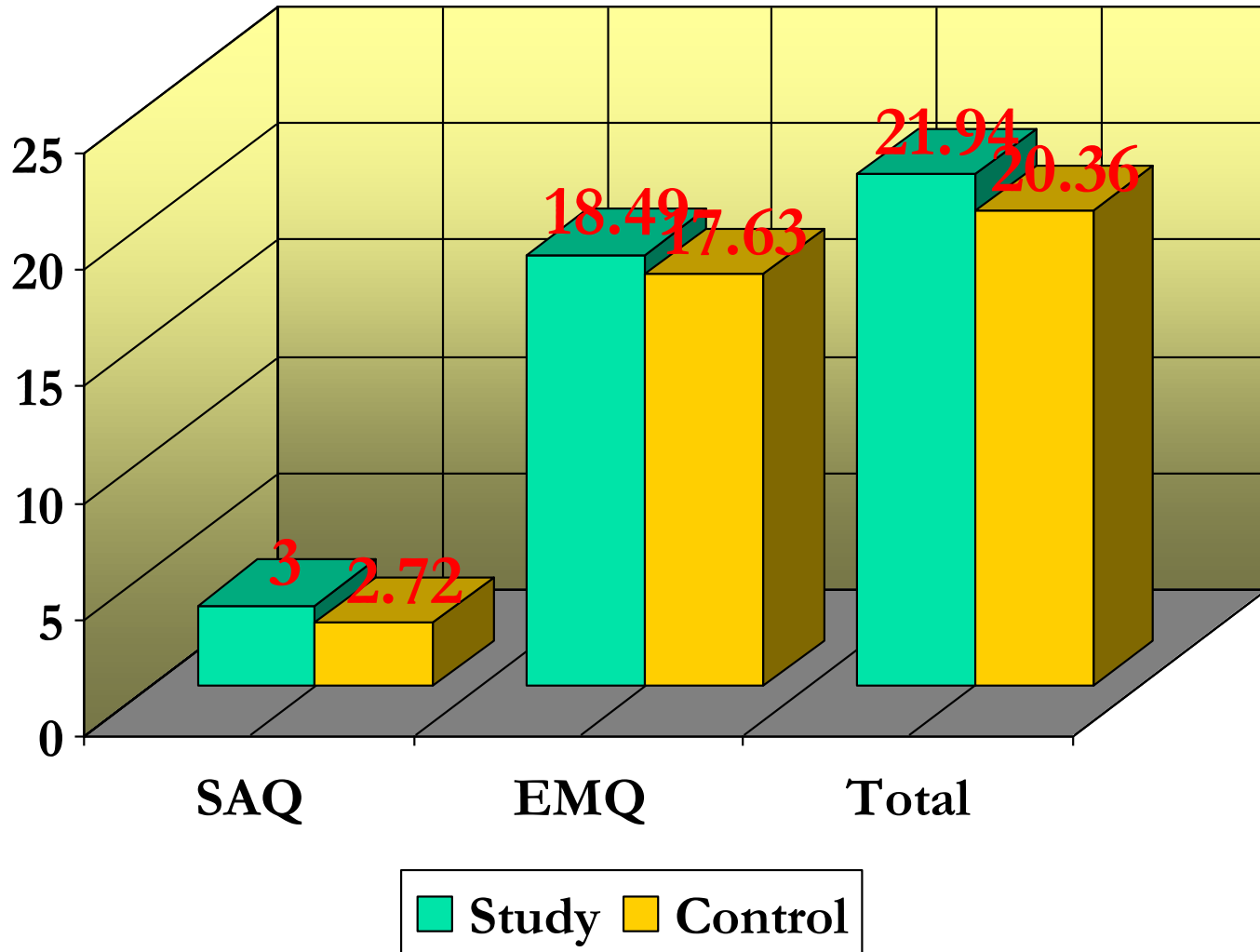


Evaluation of Cognitive Domain

Scores of SAQ and EMQ in Case Based learning

PARAMETER	STUDY GROUP			CONTROL GROUP			t value	P value & Statistical Significance	Mann-Whitney test statistic	P value & Statistical Significance
	n	Mean	SD	n	Mean	SD				
SAQ	57	3.4561	1.6698	55	2.7273	1.2088	2.6380	0.0095, Highly Significant	1967.5	0.0172, Significant
EMQ	57	18.4912	3.7087	55	17.636	3.6381	1.2310	0.2210, Not Significant	1802.0	0.1706, Not Significant
TOTAL	57	21.9474	3.8749	55	20.363	4.3392	2.0390	0.0438, Significant	1920.0	0.0396, Significant

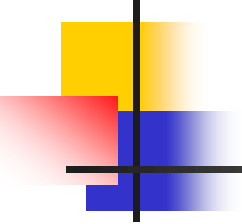
Marks obtained in SAQ and EMQ



Concept map analysis



Concept map Produced by
Batch 2



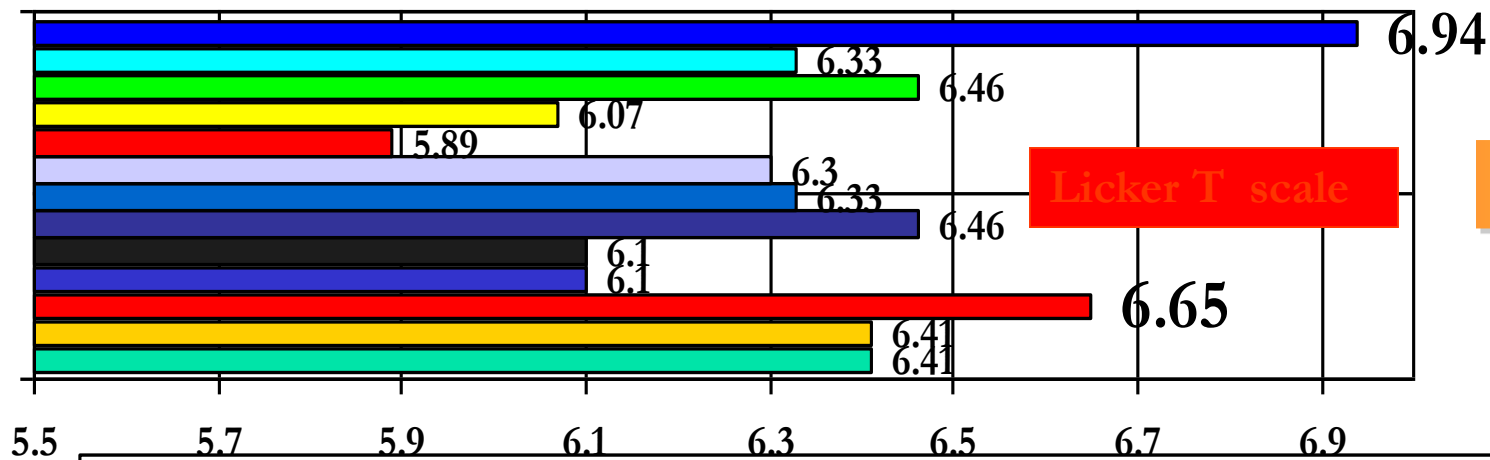
Evaluation of IPA (Individual process assessment)

Concept Map analysis Novaks Method

Particular	Study Group	Control Group
'n'	48	48
Geometric Mean (of marks based on structural method)	82.7370	73.9605
G.S.D.*	1.5635	1.5045
't' value, P value & Statistical Significance	1.2836, 0.2024, Not Significant	
Mann-Whitney test statistic, P value & Statistical Significance	921.5, 0.0906, Not Significant	

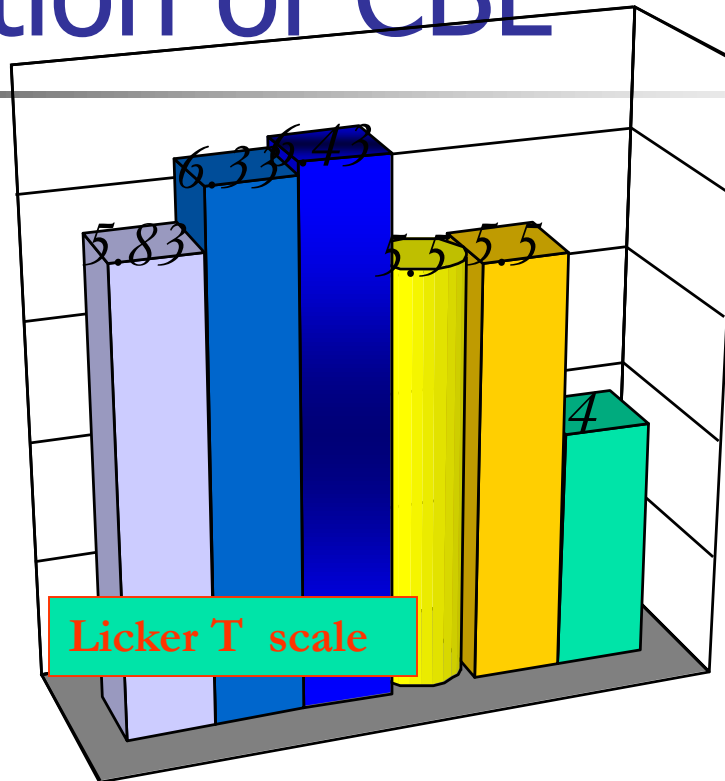
• G.S.D. = Antilog of S.D. of log transformed marks

Student Perception Feedback



- *Develop a good relationship with my teachers*
- *Ability to accept and work with students of different background.*
- *Better interpersonal skills*
- *Sharing knowledge with my colleagues*
- *I have better skills of gathering and organising information*
- *Valuable learning activity*
- *Discussing more with others than after a lecture*
- *Trained me in self learning skills*
- *Increased satisfaction with the course*
- *Developed positive attitudes towards medical education*
- *CBL method of education is interesting*
- *Improved my clinical competence*
- *Improved my clinical reasoning skills.*

Faculty Feedback On Perception of CBL



- Teaching is facilitated
- Awareness about the teaching in other and related subjects
- Endorses this new teaching program for other clinical branches
- this model adopted is worth trying in other clinical branches
- Student-teacher interaction has improved
- Endorse this method of teaching for MBBS Course



Thank you for patient listening!!