

DIFFERENT TYPES OF TEACHING METHODOLOGIES – PART II

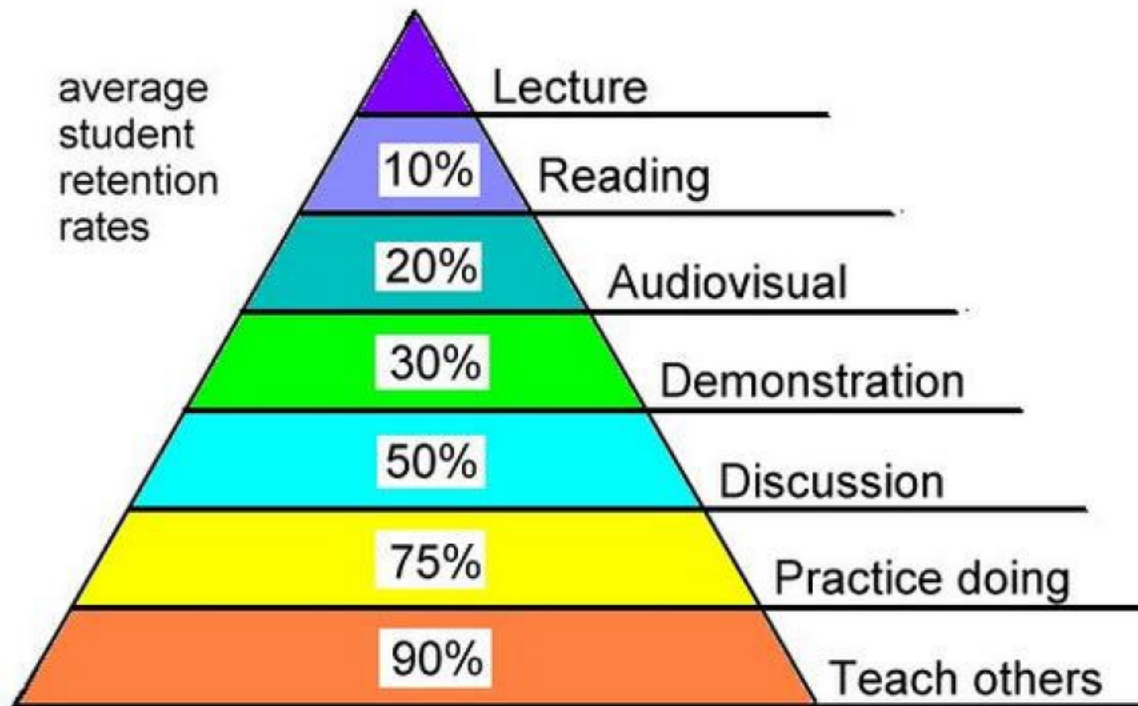
CLINICAL / PRECLINICAL TEACHING



SHORT SESSIONS BY DENTAL EDUCATION UNIT (DEU) , GNIDSR

EXPERIENTIAL LEARNING WORKS ON BLOOMS TAXANOMY

Learning Pyramid



Source: National Training Laboratories, Bethel, Maine

“ LEARNING BY DOING” IS THE
BEST STRATEGY FOR IMPARTING
CLINICAL SKILL IN A STUDENT.

OBSERVE – ASSIST – PERFORM

**PEAK RETENTION RATE AFTER 24
HOURS IS 75 % OF KNOWLEDGE
IMPARTED**

KOLBS CYCLE OF EXPERIENTIAL LEARNING

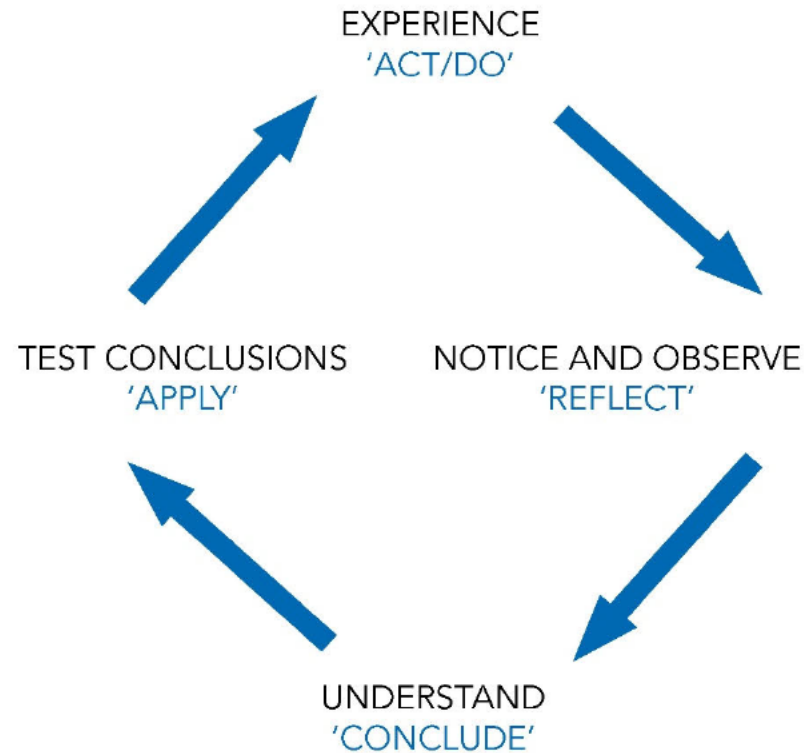
How does it work?

Learning happens, both formally and informally when:

1. We experience something: we act deliberately or something unplanned happens to us
2. We take time to explore our reactions and responses to something that we experience
3. We understand what happened and draw conclusions from this
4. We adapt or modify future decisions and behaviours as a result of the learning process.

If we fail to complete any of these stages, the likelihood is that any perceived learning is incomplete. We may have 'jumped to conclusions' or we may understand but fail to apply the learning in the future.

What is The KOLB CYCLE?



**HENCE IT IS CLEAR , THAT JUST
“ BY DOING ” THE STUDENT
DOES NOT LEARN**

**LEARNING HAPPENS WHEN THE
OTHER **THREE STEPS** ARE ALSO
UNDERTAKEN BY THE TEACHER –**

**REFLECT , CONCLUDE AND
APPLY !!**

**FOR EXPERIENTIAL LEARNING TO SUCCEED – TEACHER SHOULD BE FACILITATOR , COMPASSIONATE & PATIENT
STUDENT SHOULD BE SELF MOTIVATED AND INVOLVED IN DECISION MAKING PROCESS**

EXPERIENTIAL LEARNING OR LEARNING BY DOING IS NOT LIMITED TO CLINICS / LABS

5 % RETENTION RATE

TRADITIONAL
LEARNING BY
WATCHING

75 % RETENTION RATE

EXPERIENTIAL
LEARNING

- FIELD TRIPS
- INTERACTIVE SIMULATIONS
- DEBATES ON EXPERIENCES
- SHORT PROJECTS
- MODEL MAKING
- ROLE PLAY BY STUDENTS

ANALYTICAL REASONING – CASE BASED LEARNING CROSSOVER LEARNING

CONVENTIONAL SYSTEM
OF MEDICAL / DENTAL
EDUCATION IN INDIA



PRECLINICAL PHASE
(FIRST 2 YEARS)

CLINICAL PHASE
(NEXT 3 YEARS)

CRITICIZED FOR CREATING AN **ARTIFICIAL DIVIDE** BETWEEN
BASIC SCIENCES & CLINICAL SCIENCES

STUDENTS FIND RETENTION OF KNOWLEDGE WITH NO APPARENT RELEVANCE
DIFFICULT AND BORING IN PRECLINICAL YEARS



ANALYTICAL REASONING – CASE BASED LEARNING CROSSOVER LEARNING FOR TEACHING CLINICAL DIAGNOSIS

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S

BEFORE CLINICS / CLASS / LAB :

TEACHER DECIDES THE LEARNING OBJECTIVES

TEACHER GIVES OPEN ENDED CASE VIA ONLINE LMS

ALSO GIVES KEY INFORMATIONS & PHOTOGRAPHS

STUDENT READS & RESEARCHES MATERIAL PROVIDED

STUDENT GENERATES HYPOTHESIS OR DAIGNOSIS

STUDENT LEARNS TO ASK QUESTIONS TO SELF

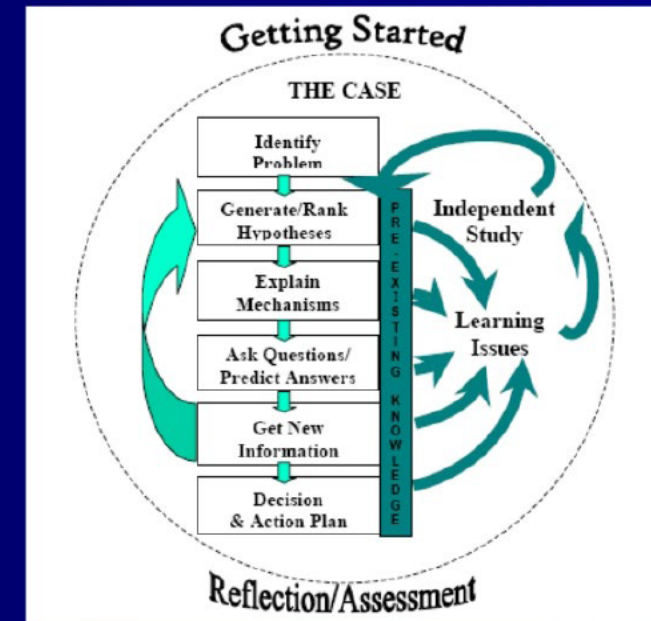
STUDENT NOW SEEKS ADDITIONAL INFORMATION

DURING CLINICS / CLASS / LAB –

TEACHER GIVES THE ADDITIONAL INFORMATION

TEACHER GUIDES STUDENTS TOWARDS TOPIC / LO

The case serves as a stimulus
for learning



ANALYTICAL REASONING – CASE BASED LEARNING CROSSOVER LEARNING

EFFECTIVENESS AND STUDENT PERCEPTION OF SIMULATED CASE BASED LEARNING IN PRE-CLINICAL MEDICAL EDUCATION
Michael Weed BS, Christine Savi PhD – University of Arizona College of Medicine - Phoenix

Abstract

- Over the past decade patient simulation has become an important teaching tool in medical education. Because simulated teaching experiences are a relatively new practice in pre-clinical medical education (MS1 & MS2), little is known about their value in this setting.
- Our study aims:
 - Test for an effect of teaching method on test score performance by comparing the results of test items given to two student groups: a simulation group and a non-simulation group.
 - Determine student perception of simulation as a learning method for basic medical sciences by utilizing pre-experience and post-experience surveys.
- When analyzing test score performance, there was no significant difference between the simulation and non-simulation groups.
- Survey results showed that students enjoy learning in the simulated environment and find it to be intellectually stimulating. However, students did not believe simulation was as effective when compared to lecture hall setting.
- Our study showed that while simulation can be an effective teaching tool in pre-clinical medical education, it is not perceived to be a superior teaching modality by medical students when compared to lecture hall and non-simulated small group learning settings.

Introduction

- Simulation has been used in medical education for many years, typically later in training (MS3, MS4, residency). More recently, many medical schools have begun utilizing patient simulation to teach students important clinical concepts in the pre-clinical years (MS1, MS2).
- Little is known about the effectiveness of simulation as a way to teach basic medical sciences in the pre-clinical setting.
- We hope to provide insight into the effectiveness and student perception of these relatively new implementations of simulation-based training.

Methods

- Test item scores relating to an anaphylactic shock patient case were obtained from the classes of 2015 and 2016 at the University of Arizona College of Medicine - Phoenix. The class of 2015 learned the relevant material in a small group non-simulated setting. The class of 2016 utilized simulated patient mannequins in the school's simulation center.
- Pre and post-simulation surveys were administered to simulation participants and agreement to several statements were rated on a Likert scale. Respondents were asked to respond for Lecture Hall, Small Group Simulation and Small Group Non-Simulation learning environments.
- Calculated means were derived by assigning each of the Likert agreement scale responses with a numerical score from 1 to 5 (1=strongly disagree...5=strongly agree) resulting in an average agreement scale response for each survey item within each learning environment for both the pre-simulation and post-simulation surveys.

Results: Test Items

Results of the Fisher's exact test (Table 1) demonstrate that there was no significant difference between performance of the simulation and non-simulation groups for questions A, B and C.

Question	Simulation (n=10)	Non-Simulation (n=10)	p-value
A	100%	100%	0.999
B	100%	100%	0.999
C	100%	100%	0.999

Results: Surveys

Pre-Simulation Survey

Post-Simulation Survey

Figure 1: Comparison of test item performance between simulation learners and non-simulation learners. Performance on the three test items was not significantly different between simulation and non-simulation groups.

Figure 2 & 3: Means of agreement scale scores for each survey item in the pre-simulation and post-simulation survey phases. Greater numbers correspond to increasing agreement on the Likert scale. Letters for each bar indicate significance groupings derived from statistical analysis.

Figure 4: Student preference of learning method. Simulation learning was the least preferred method, while small group non-simulated learning was the most preferred method of learning.

Figure 5: Student perception of the importance of simulation in future medical training. The vast majority of students agreed or strongly agreed that simulation would play an important role in their future medical education.

Figure 6: Student preference for more simulated learning sessions. Most students agreed or strongly agreed that they would like to have more learning sessions in the simulation center.

Discussion and Conclusions

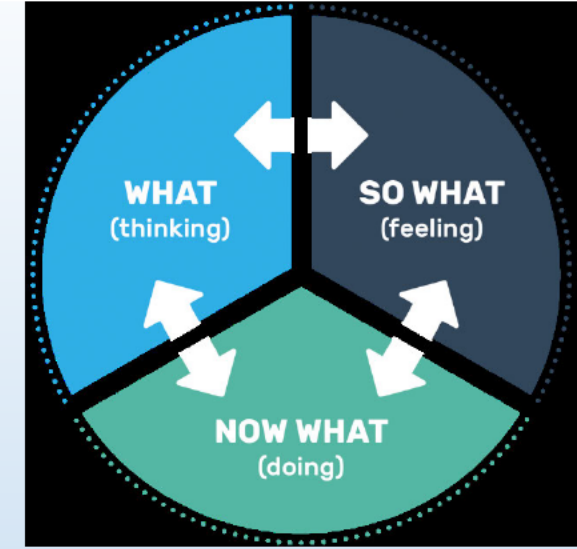
- Our findings suggest that simulation learning can be as effective as small group case based instruction in the setting of pre-clinical medical education.
- Our survey data showed that students do enjoy learning in the simulated case-based environment and that they find it to be intellectually stimulating. They also believe simulation will be useful in their careers. They do not, however, believe that it is as effective at teaching basic medical sciences when compared to the traditional lecture hall setting. Students also find simulation learning to be more successful than small group learning.
- Since the use of simulation in pre-clinical medical education is becoming more common, there is an increased need for research to direct implementation. To our knowledge, our study is one of the first to investigate some of the fundamental questions regarding simulation in this setting and we believe additional studies are warranted to further explore these questions.

I wish to thank my mentor Dr. Christine Savi for her patience and thoughtful guidance and Dr. Elmore Niggeman for coordinating and administering the test items in the study.

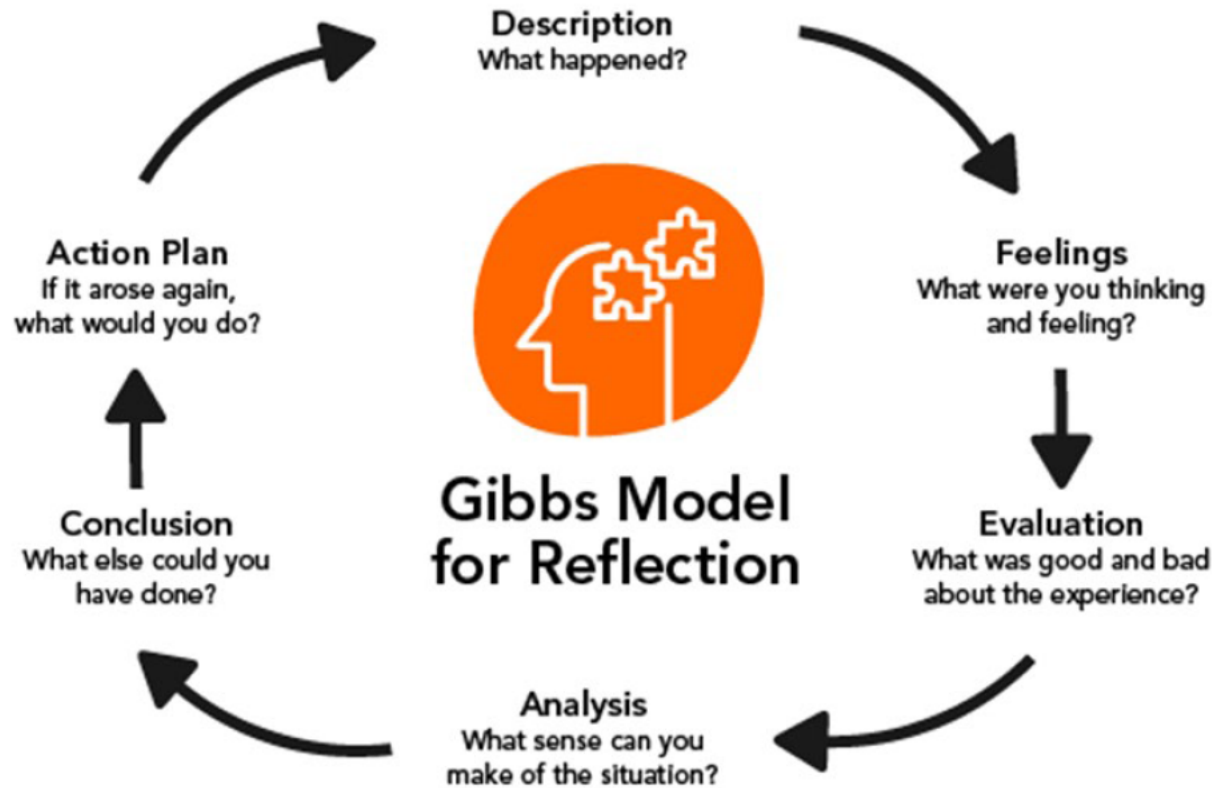
- ❖ **STUDENTS ENJOY CASE BASED LEARNINGS**
- ❖ **IT INCREASES SELF DIRECTED LEARNING**
- ❖ **IT ENCOURAGES BRAINSTORMING SKILLS**
- ❖ **IT SIMULATES DEEPER LEARNING**
- ❖ **IT PROMOTES RESEARCH HABITS**
- ❖ **STUDENTS FEELS IT WILL ENHANCE THEIR CAREERS**

REFLEXION BY GROUP DISCUSSIONS

LEARNING BY ARGUMENTS



AFTER CLINICAL SESSIONS
BRINGS OUT THE MISTAKES DONE
USE ENCOURAGING TONE
ENCOURAGE THE NON SPEAKERS
CONTROL BIAS – STAY NEUTRAL
GIVE POSITIVE FEEDBACK
ALWAYS SUMMARIZE



MICROTEACHING – METHOD USED BY SENIOR TEACHERS TO TEACH PGS & JUNIOR FACULTY “**THE ART OF TEACHING**”

- ❖ Teacher asked to prepare a short lesson (usually 20 minutes) for a small group of learners.
- ❖ Teacher recorded it on video.
- ❖ Then, the teacher, teaching colleagues, a master teacher and the students together viewed the videotape
- ❖ Then, they commented on what they saw happening, referencing the teacher's teaching objectives.
- ❖ Watching the video and getting comments from colleagues and students provide teachers with an often intense "under the microscope" view of their teaching.

STEPS OF MICROTEACHING

1. *Skill of introducing a lesson.*
2. *Skill of blackboard writing.*
3. *Skill of promoting pupil's participation.*
4. *Skill of reinforcement.*
5. *Skill of illustrating with examples.*
6. *Skill of probing questions.*
7. *Skill of demonstration.*
8. *Skill of explaining.*
9. *Skill of stimulus variation.*
10. *Skill of questioning [fluency].*

10 SKILLS TO BE TAUGHT TO JUNIOR FACULTIES / PGS IN MICROTEACHING

**COMMANDING
TYPE OF TEACHING**

TEACHER CENTRIC

**TEACHER IS MEDIATOR
OR FACILITATOR ONLY**

STUDENT CENTRIC

1990

2020

TIMES

CHANGING

TEXT BOOK CENTRIC

DIDACTIC METHOD

EXAM DRIVEN

CONCEPT CENTRIC

TWO WAY INTERACTIVE METHOD

SKILL / CAREER DRIVEN

THANK YOU



INTERNAL QUALITY ASSURANCE CELL
GURU NANAK INSTITUTE OF DENTAL SCIENCES & RESEARCH

A DEU & IQAC INITIATIVE