Teaching Trends in Parasitology

FROM FACULTY AND STUDENTS’ PERSPECTIVE
INRODUCTION

• The integration of educational technology in medical education is becoming increasingly popular

• Parasitology is a morphologic science that requires visual learning and diversity of teaching methods to create an interesting course to students
OBJECTIVES

Teaching methods

Students’ perception

Our focused study
TEACHING METHODS
TEACHING METHODS IN PARASITOLOGY

I: SMALL GROUP TEACHING

II: LARGE GROUP TEACHING
1) SMALL GROUP TEACHING/LEARNING
LEARNER -CENTERED EDUCATION

The role of the students here is positive and the faculty role is to guide the students rather than conveying information, which eliminates the passive role of students.
SMALL GROUP TEACHING

- Small Group discussion
- Case based learning
- Problem based learning
- Self directed learning
- Computer assisted self learning
A) SMALL GROUP DISCUSSION
SMALL GROUP DISCUSSION (SGD) (5%)

- The students are divided into groups (4-5 students /each)
- Prior to the session, the topic will be sent to all students through D2L (Anemia in parasitic infections)
- Students should prepare the topic using textbooks, lecture notes or online parasitology websites
- It can be covered in 1-2 sessions (according to the topic weight)
Open discussion will be done under supervision of the faculty to cover any difficult points and fill any gaps.

The topic should be presented by one student from each group in the next session.
B) CASE BASED LEARNING
CASE BASED LEARNING (CBL) (5%)

- The students are divided into groups (4-5 students/each)
- The case scenario, study material and the objectives are sent to students prior to the session through D2L
- It can be covered in 1-2 sessions (according to the weight of the topic)
CBL CONT.

- Open discussion will be done in the last 15 minutes of the session.
- Or online quizzes through D2L are given to students to ensure the fulfillment of all objectives.
Problem Based Learning
C) PROBLEM BASED LEARNING (PBL) (5%)

- Problem-based learning is an exciting alternative to traditional classroom learning.

- It is more interesting and ensure proper integration between all subjects.

- In PBL, the faculty acts as facilitator and mentor rather than a source of solutions.
The scenario of the PBL should not be given to students prior to the session.

The scenario is prepared by the module coordinator and tailored by all faculty to meet their subject objectives and requirements.
TIME LINE FOR PBL

Brain storming session

Break

Discussion session
Anatomy
Histology
Physiology
Microbiology
Parasitology
Pathology
Pharmacology
Community medicine

Myocarditis
(CVS module)
Students are divided into groups (8-10/each)

Teaching assistants act as facilitators

Each group should select a leader to ensure an organized discussion
In the second session, all students should highlight the objectives of each subject.

They should discuss the problem statement and list its significant parts.

They should develop, analyze and write out, the problem statement in their own words.
D) SELF DIRECTED LEARNING
SELF-DIRECTED LEARNING (SDL) (10%)

- The objectives of the topic should be sent to the students before the session (D2L).

- The students will be asked to read alone or in groups (4-5 students/each) in the library or in the classroom using study materials (lectures notes or recommended text books).

- Open Discussion will be held between students and faculty in the last 15 minutes of the class.
SDL CONT.

Or online quizzes will be solved by students at the end of the session to make sure of every student participation.
E) COMPUTER ASSISTED SELF LEARNING (CASL /CBSL)
COMPUTER ASSISTED SELF LEARNING (CASL) (5%)

- The lectures will be prepared using the software (Articulate story line)
- The lecture will be sent to students through D2L & they will be asked to use their laptops or iPads and read the lecture
- An online post-test will be done (D2L) at the end of the session to ensure the fulfillment of the objectives of the topic
2) LARGE GROUP TEACHING
TEACHER-CENTERED EDUCATION
Lectures

Practical sessions
Lectures

- Traditional lectures: (10%)
- Scenario based interactive lectures (SBIL): (30%)
A) TRADITIONAL LECTURES (10%)

- Traditional education practices tend to produce students who are often bored with their education.
- They are faced with a vast amount of information to memorize.
- Traditional classrooms also do not prepare students to work with others in collaborative team situations.
- And the final grade becomes the overriding concern rather than learning.
I study
I take the test
I pass it
I forget what I learnt
B) SCENARIO BASED INTERACTIVE LECTURES (SBIL) (30%)

- A case scenario consistent with topic is presented by the faculty at the beginning of the lecture.

- The case is analyzed in the classroom through the discussion, then the topic is delivered in a traditional way.

- At the end of the session, students will be asked to answer the questions given through response clickers.
PRACTICAL SESSIONS (30%)

Usually it is covered in one or two hours in separate groups

1. Pre-laboratory
2. Microscopic identification of different types of parasites
3. Macroscopic identification of different types of parasites
4. Case discussion
PRACTICAL SESSIONS

- Chalk and talk
- Computer based
STUDENTS' PERCEPTION TO ALL TEACHING METHODS
Students’ satisfaction was evaluated through computer software where they rated their satisfaction from different teaching methods on a 5 point scale with:

(1) as “Strongly unsatisfied”
(5) as “Strongly satisfied”
Theory
STUDENTS' SATISFACTION

EASY TO DO: 2.90
CONVENIENT: 2.80
UNDERSTANDABLE: 2.90
INTERESTING: 2.80
ATTRACTIVE: 2.70
STUDENTS' SATISFACTION
CBL

- Easy to Do: 3.57
- Convenient: 3.40
- Understandable: 3.45
- Interesting: 2.98
- Attractive: 2.74
### Students' Satisfaction

**PBL**

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STUDENTS' SATISFACTION
SDL

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STUDENTS' SATISFACTION
CASL/CBSL

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STUDENTS' SATISFACTION TRADITIONAL LECTURES

- Easy to Do: 3.49
- Convenient: 3.49
- Understandable: 3.56
- Interesting: 3.38
- Attractive: 3.39
STUDENTS' SATISFACTION
SBIL

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STUDENTS' SATISFACTION

TRPL

- Easy to Do: 4.8
- Convenient: 4
- Understandable: 4.8
- Interesting: 4
- Attractive: 4
STUDENTS' SATISFACTION
CBPL

- Easy to Do: 4.5
- Convenient: 4
- Understandable: 4.6
- Interesting: 4.5
- Attractive: 4.7
Maybe we need to try something new...
FOCUSED STUDY
ASSESSMENT OF COMPUTER BASED LEARNING IN TEACHING PARASITOLOGY
Aim of the study
AIM OF THE STUDY

To:

1. assess the impact of using a CASL in teaching on students’ performance

2. and to compare it to teaching the same topics through the SBIL
High Satisfaction rate

CASL

SBIL
AIM OF THE STUDY

To:

1. assess the impact of using a CBPL in teaching on students’ performance

1. and to compare it to teaching the same topics through the TRPL
Methods
METHODS

A single batch of Second Year Medical students in Dubai Medical College was randomly divided into two groups in both lectures and practical sessions.
METHODS CONT.
(LECTURES)

SBIL

CASL
COMPUTER ASSISTED SELF LEARNING (CBSL)
SCENARIO BASED INTERACTIVE LEARNING (SBIL)

E. histolytica Morphology

Trophozoite
- ingested RBC

Cyst
- chromatoidal body
- karyosome
- nucleus

10-40M
PRACTICAL SESSIONS

Computer
software
Pre-Lab.

Traditional
Pre-lab.
We used Anofel 4 computer based learning program
Prior to the start of each session, a pre-test of five multiple choice questions was given to both groups to assess the students’ baseline knowledge.
A post test was done after completion of each session.
Quiz

Question 2 (0.2 points)

Infectious stages may be transmitted from person to person in:

- Enterobius vermicularis.
- Fasciola hepatica.
- Ancylostoma duodenale.
Balantidium coli, all are true EXCEPT:

A. has pigs as reservoir hosts

B. can be transmitted from person to person

C. is the largest flagellate

D. cyst has a kidney shaped nucleus

Correct Answer: C
Pre-test 3 Balantidiasis

Assigned to: Para group Second Year Batch 27

High Scores

- Asha Mohammad: 5/5
- Zaynab Gerashi: 5/5
- moniza hasnat: 5/5
- marwa lutfi: 5/5
- Waed Al Sumairi: 4/5
- Sara AlMarzooqi: 4/5
THE PRACTICAL SESSIONS

Identification of the slides after the practical sessions was also done
Independent-sample t test was used to detect differences in the means between groups by using SPSS (17).
OVER ALL MEAN SCORES IN PRE-TEST AND POST-TEST

Pre-test: 11.8
Post-test: 16.4
MEAN SCORES IN PRE-TEST

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<th>SBIL</th>
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<td>11.9</td>
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MEAN SCORES IN POST-TEST

Scores

- CASL: 16.5
- SBIL: 16.3
STUDENTS' PERCEPTION
CASL VERSUS SBIL

- **SBIL**
  - Easy to do: 3.62
  - Convenient: 3.57
  - Understandable: 3.75
  - Interesting: 3.81
  - Attractive: 3.79

- **CASL**
  - Easy to do: 4.30
  - Convenient: 4.00
  - Understandable: 4.20
  - Interesting: 4.50
  - Attractive: 4.50
MEAN SCORES IN PRACTICAL SESSIONS

Scores

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Students' Perception
TRPL versus CBPL

<table>
<thead>
<tr>
<th></th>
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<tr>
<td>Easy to do</td>
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<td>Attractive</td>
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CONCLUSION

- In our study we found that the provision of support for students through CASL appears to be helping their learning and encouraged their interest in the topics taught.

- CASL is an effective and interesting method of learning parasitology.

- CBPL helps students to learn better in the practical sessions.
Since parasitology subject has complex life cycles with detailed picture and descriptions, I strongly support CASL & CBPL as powerful, interesting, attractive and valuable educational media in teaching parasitology.
RECOMMENDATION

FROM A TEACHER CENTERED CLASSROOM TO A STUDENT CENTERED CLASSROOM
RECOMMENDATION

In light of the fore mentioned results recommendation is to be done in order to tailor and update parasitology curriculum to increase the frequency of small group learning specially the computer based
Thank you...