Pharmacy and Pharmaceutical Sciences

Pharmacy Education Symposium

Active Learning Masterclass

8-10 July 2013 Prato, Italy
Active Learning means you do some thinking for yourselves. The order we are standing, your left to your right, is

A. Paul, Ian and Chari
B. Ian, Paul and Chari
C. Paul, Chari and Ian
D. Who, who and who?
Common theories of teaching

1. Learning is primarily a direct result of individual differences between students.

   It's up to the student to attend lectures; to listen carefully; to take notes; to read the recommended readings; and to make sure it's taken on board and unloaded on cue. The purpose of teaching is to transmit information, usually by lecturing.

1. Learning is primarily the result of appropriate teaching.

   Still a transmission process, but of concepts and understandings, not just of information. Getting complex understandings across requires much more than chalk-and-talk, so the responsibility now rests to a significant extent on what the teacher does.

2. Learning is the result of students' learning-focused activities which are engaged by students as a result both of their own perceptions and inputs and of the total teaching context.

Two-pronged Approach

**Education Metrics**
- Robust data from students & expert assessors
- Quality Policy and Procedure

**Active Learning Approach**
- Identify strategies to more effectively engage students in their own learning
- Cutting edge, efficient, evidence-based

**Units**
- Individual academic staff

**Active Lectures**
- Offline re-usable content

Explicitly recognise high quality teaching in academic promotion

Sustained Excellence in Teaching and Learning
Not only thinking *in* class

- Pre-class
- In class
- Post-class
Faculty Step Change 2 timeline

2012

- Commit to active learning approach, run and evaluate pilot
- Establish unit/course/subject quality assurance process, run pilot

2013

- Establish individual staff QA process (to fit with new University process)
- Unit QA operational
- Active Learning transition period (first year, both courses)
I believe that the use of active learning in the lectures for this topic improved my understanding of this topic

Active learning is better than typical lectures for clarifying misconceptions

- Disagree or Strongly Disagree: 22 ± 6%
- Agree or Strongly Agree: 68 ± 7%*
Pre-class – attempting mcqs
To encourage student learning, marks for clicker questions should be used:

1. Only for correct answers
2. For participation only
3. Only as a bonus
4. Never, it only encourages cheating
To encourage student learning, marks for clicker questions should be used:

1. Only for correct answers
2. For participation only
3. Retrospectively when questions are answered well by the class
4. Never, it only encourages cheating

[Bar chart showing percentages: 46% for Only for correct answers, 30% for For participation only, 6% for Retrospectively when questions are answered well by the class, 18% for Never, it only encourages cheating]
Marks as motivation – what about *in* class?

To encourage student learning, marks for clicker questions should be used:

1. Only for correct answers
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Concept mapping with peer refinement to explain drug action
Aims of using concept mapping in large class (200)

Pre class – gather information, create concept map

During class

– Articulation of causal relationships

– Integration of discrete ideas/processes

– Identification and clarification of misconceptions – compare, refine maps via peer discussion and discussion with me

– Use concept map to explain / interpret drug action
Concept map on concept mapping

Novak JD, Canas AJ. The Theory Underlying Concept Maps and How to Construct and Use Them.
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Skin pathophysiology
Pharmacology of dermatology drugs

Dr Paul White

(11β)-11,17,21-Trihydroxy pregn-4-ene-3,20-dione
Learning Outcomes

At the end of this series of lectures, you should be able to;

LO1. Describe, compare and contrast the pathophysiology underlying:

- Autoimmune-based skin inflammation (e.g. psoriasis)
- Allergic skin inflammation (e.g. atopic dermatitis)
- Pathogen-based skin inflammation (e.g. acne)

LO2. Explain the mechanism of action of the following classes / drugs used to treat skin conditions:

- Glucocorticosteroids (psoriasis, eczema), retinoids (psoriasis, acne), vitamin D analogues (psoriasis), methotrexate (psoriasis), antihistamines (eczema), etanercept, adalimumab (psoriasis), antibiotics (acne), cyproterone and oestradiol (acne)

Refs: Goodman and Gilman – Pharmacological Basis of Therapeutics Chapter 65
Herfindal – Textbook of Therapeutics Section 11
Confidence in using content, clarification of ideas

Confidence in using content to problem solve

![Graph showing confidence in using content to problem solve.](image)

- **Mean difference = 1.25 ± 0.22, P < 0.01**

Clarification of ideas and misconceptions

![Graph showing clarification of ideas and misconceptions.](image)

- **Mean difference = 1.6 ± 0.2, P < 0.01**

Observation: class 1
- 3 false ideas corrected by myself
- 6 peer corrections heard
Aim of next 10 minutes

- NOT to create a great concept map on the relationship between teaching styles and learning outcomes

- Is to
  - Articulate some causal relationships
  - Peer evaluate other groups’ work
  - Think about outcomes from variety of student and teacher approaches to learning
A task for your row

- As a group, come up with two distinct teaching styles
  - think of two individuals

- For each person,
  - Write down one typical approach they use to help students learn
  - Now write down the types of things students can do after being taught by this person (that they couldn’t do before)

- Bill’s approach:
  - Didactic, engaging teaching with repetition
    - Bill is careful to explain concepts multiple times using engaging, funny examples
  - Students can recall lots of information
    - repetition and engagement helps students remember and understand – they do well in exams by recalling Bill’s
A task for your group – student learning styles

- As a group, come up with three distinct learning styles (think of three individual students that you know)

- For each person,
  - Write down one typical approach they use to learn
  - Now write down the types of things students can do well using this style

May learns what she wants to learn
Focuses on what takes her interest, often comparing many sources in great detail. Often ignores stated learning outcomes

May develops deep understanding of some topics,
• can use that understanding to analyse
• Misses other concepts completely
For more information on concept mapping...

Workload for students

**Workload prior to class**

Mean difference = 4.8 ± 0.2, P<0.01

**Anticipated workload after class**

Mean difference = -1.96 ± 0.2, P<0.01

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Active Learning Masterclass
Confidence in using content, clarification of ideas

Confidence in using content to problem solve

Clarity of ideas and misconceptions

Observation: class 1
3 false ideas corrected by myself
6 peer corrections heard
Rough Hypothesis

- Effective discussion involving (almost) ALL students ✓
  - Hard to know for sure what proportion of students were on task but clear change in behaviour when students had had enough

  - Effective discussions between students and myself ✓

  - Identification and clarification of misconceptions ✓

  (content specific)

- Integration of drug action within the pathophysiology big picture ✓
  - not quite enough drug action detail within the diagrams

FUTURE: TIME on TASK needs to be adjusted
You have been recently hired to teach a course in the history of Italian art. There are 100 students in the class. You have introduced a variety of active learning strategies. Your challenge is to come up with an appropriate summative exercise for the class.

Work in groups of 3 to 4
Remember to join SABER

Saber.monash.edu/register

Chocolates for mcq questions at reception tomorrow morning!!!!