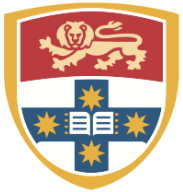
Monash Pharmacy Education Symposium
2013

The "way" and "why" of teaching

Andrew McLachlan



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This presentation

- curriculum design based on graduate outcomes
- curriculum creep
- professional and generic graduate attributes
- student experience and feedback
- embrace new learning platforms to effectively engage learners

Hypothesis

Why we teach what we teach

- What we were taught
- What we research

The way we teach what we teach

- Economic feasibility and convenience
- It's what we have always done (academic inertia)

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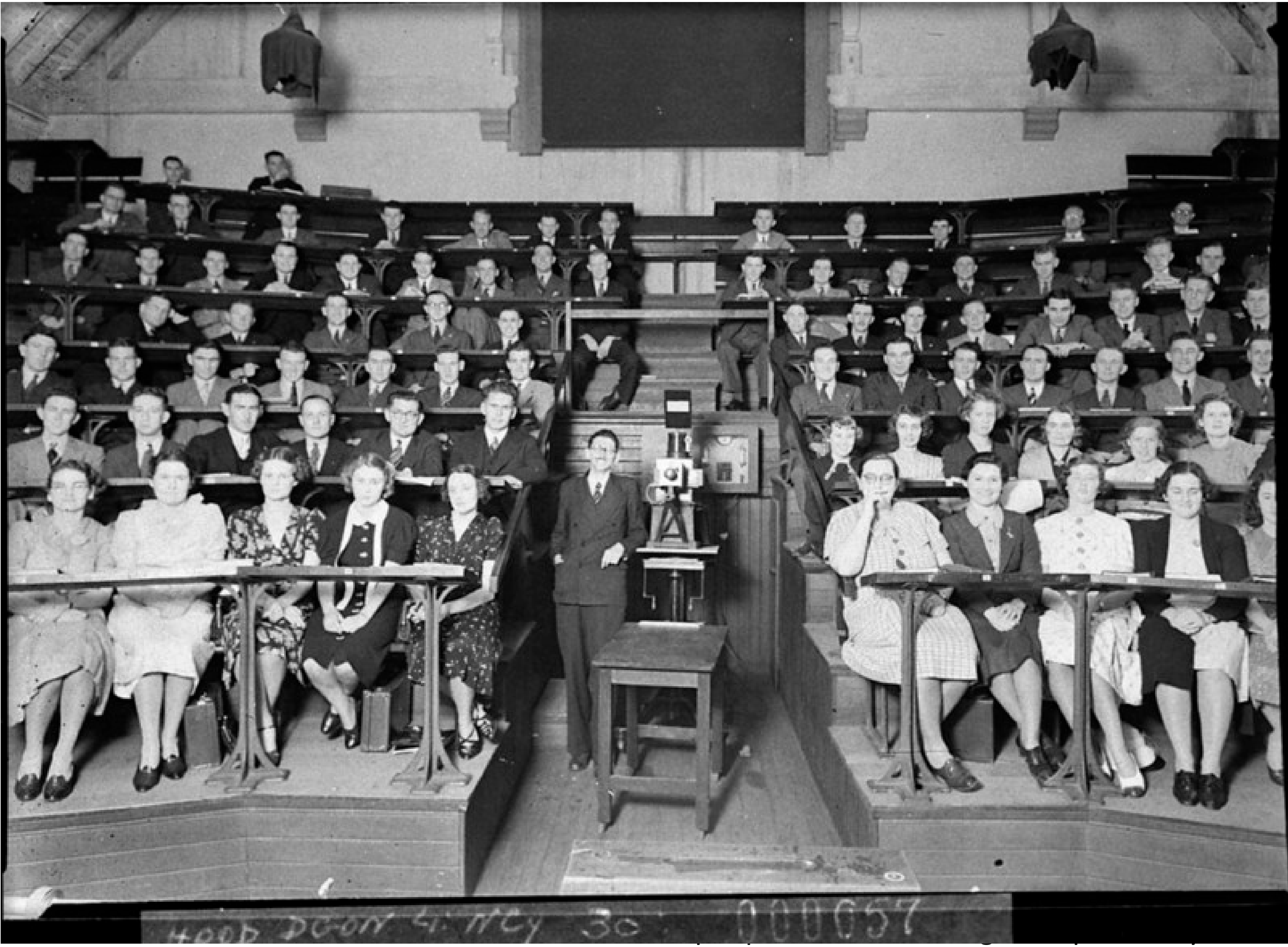
"Lecturing is that mysterious process by means of which the contents of the note-book of the professor are transferred through the instrument of the fountain pen to the note-book of the student without passing through the mind of either."

Edwin Emery Slosson, 1910

http://quoteinvestigator.com/2012/08/17/lecture-minds/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STRIKE


STRIKE

Hypothesis

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2010

National Competency Standards Framework for Pharmacists in Australia

An Advanced Pharmacy Practice Framework for Australia

October 2012

Developed through the Advanced Pharmacy Practice Framework Steering Committee on behalf of the pharmacy profession in Australia

Integrated Units of Study in Third Year

1: Cardiovascular

2: Respiratory

3: Endocrinology

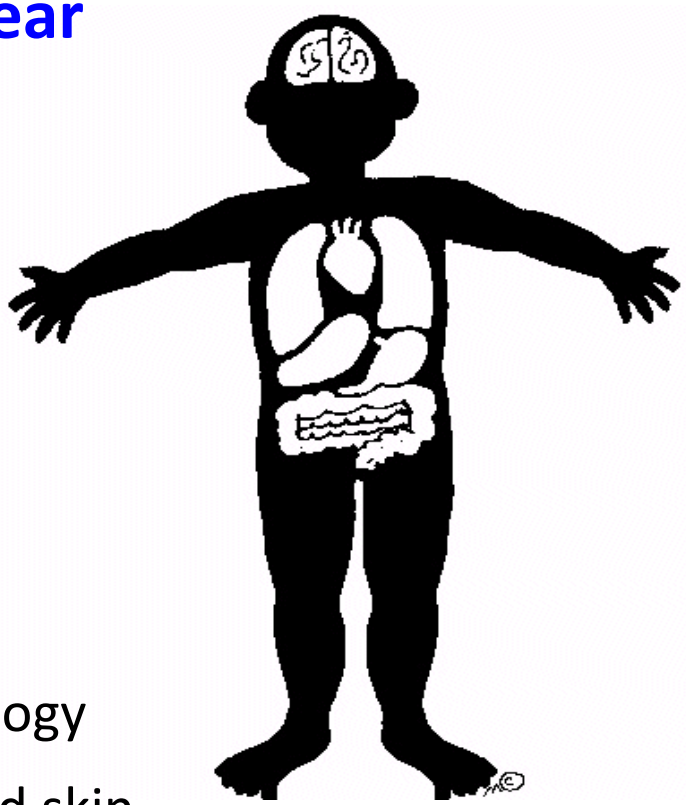
4: Gastrointestinal

5: Mental Health

6: Neurology

7: Oncology/Immunology

8: Musculoskeletal and skin



National Health Priorities

1. Cardiovascular health
2. Asthma
3. Diabetes Mellitus
4. Obesity
5. Mental Health
6. Cancer Control
7. Arthritis and Musculoskeletal conditions
8. Injury prevention and control

Image from : http://www.fortschools.org/rockwell/IMC/humanbody.gif

“Curriculum creep"

- Courses have clear objectives
- Linked to learning outcomes and competencies

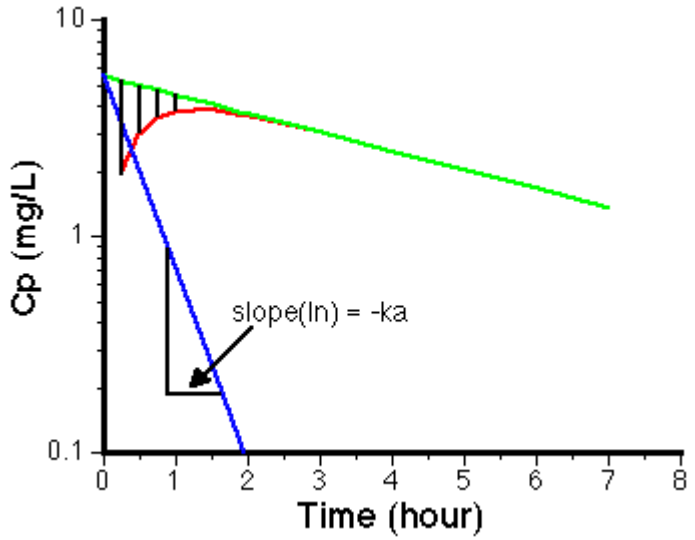
  …..but course content changes

- Incremental changes (tinkering) in content over time
  - Year to year
  - Lecturer to lecturer
  - Assessment to assessment

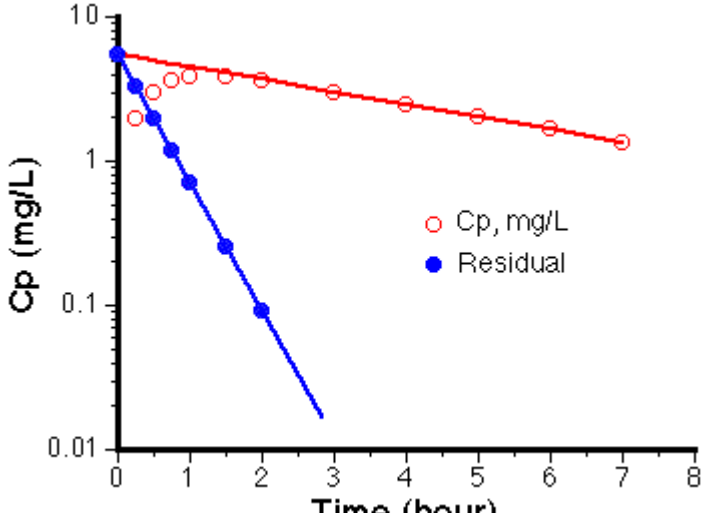
- Shifts the focus for students

$f(t)$	$F(s) = \int_0^\infty f(t)e^{-st}\,dt$
$f+g$	$F+G$
$\alpha f \ (\alpha \in \mathbf{R})$	αF
$\frac{df}{dt}$	$sF(s) - f(0)$
$\frac{d^k f}{dt^k}$	$s^k F(s) - s^{k-1} f(0) - s^{k-2}\frac{df}{dt}(0) - \cdots - \frac{d^{k-1} f}{dt^{k-1}}(0)$
$g(t) =$	
$f(\alpha t),$	
$e^{at} f(t)$	
$tf(t)$	$-\frac{dF}{ds}$
$t^k f(t)$	$(-1)^k \frac{d^k F(s)}{ds^k}$
$\frac{f(t)}{t}$	$\int_s^\infty F(s)\,ds$

Did I need to be tortured by *Laplace Transforms*.....?



Do we still need to teach our students the Method of Residuals?



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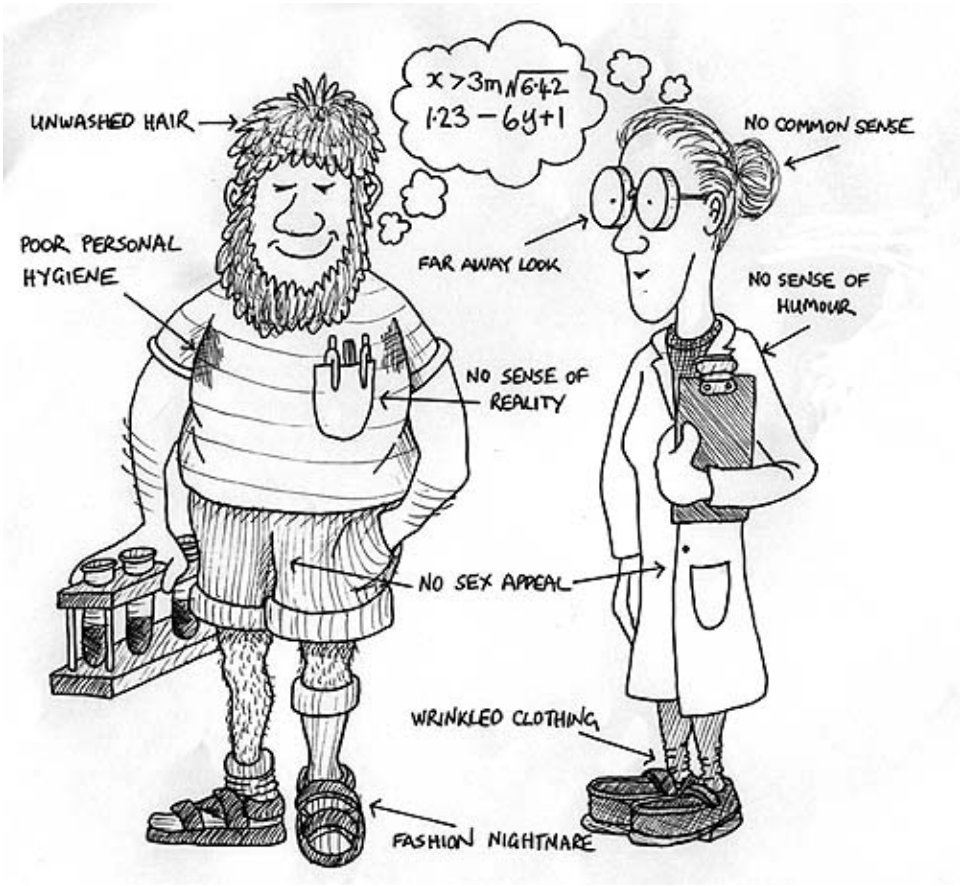
The Problem



Academics define themselves by <u>what they do</u>

……..not by <u>who they are</u>

cgr.otago.ac.nz/activities/act-199706.html

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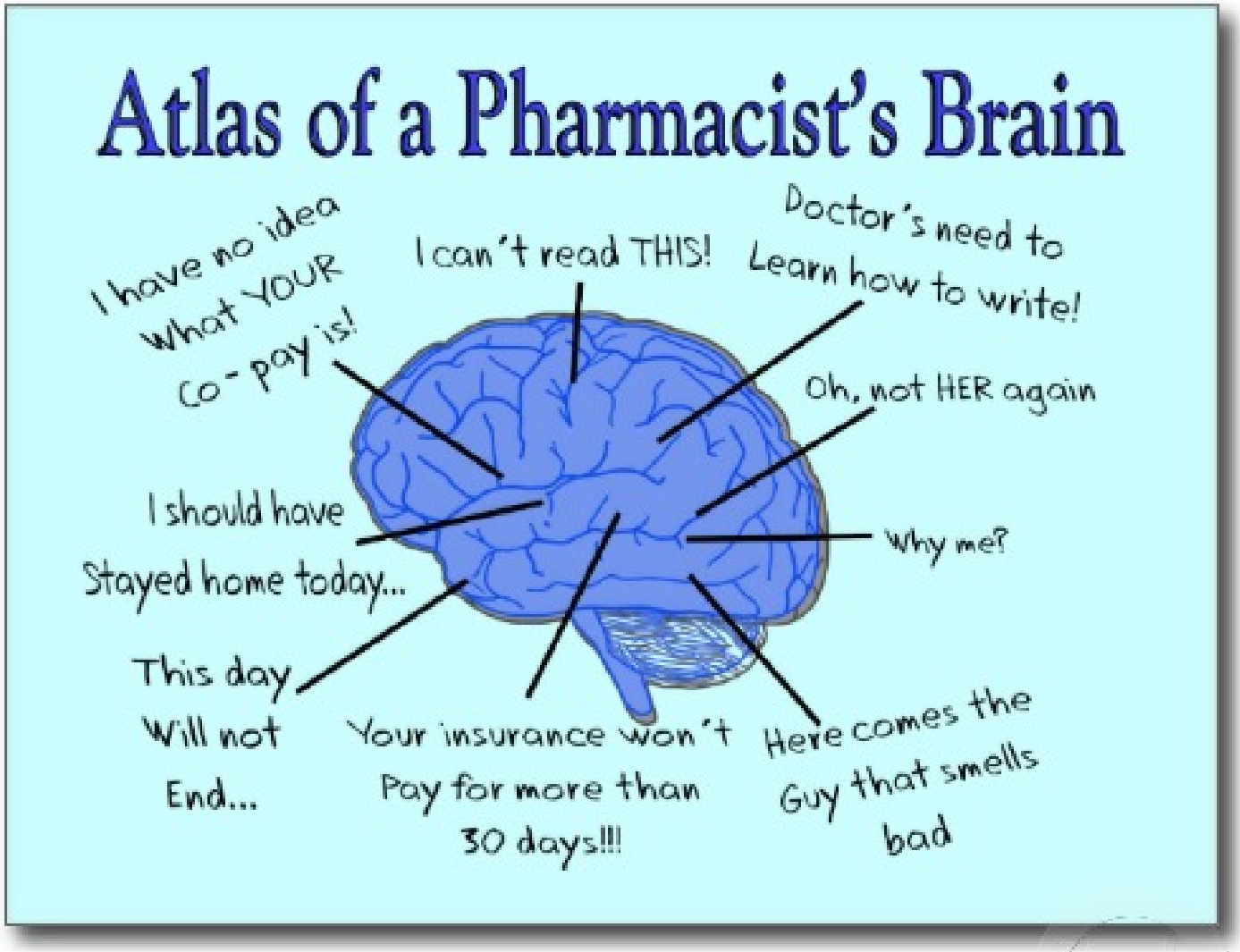
Researchers who teach

Why we teach what we teach?

- Significantly influenced by the research experience and interests of academic staff

Research-focussed academic appointments

- Do people bring the same rigour and accountability to their teaching as they do their research ?



http://pinterest.com/kmg5682/pharmacy-life/

Learning styles

Meaning directed

Reproduction directed

Undirected

Application directed

Vermunt JD. The regulation of constructive learning processes. Br J Educ Psychol. 1998

Generic attributes

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http://www.itl.usyd.edu.au/graduateattributes/

Professional and Generic attributes

Domain 1
Professional and Ethical practice

Domain 2
Communication, collaboration and self-management

Domain 3
Leadership and Management

Domain 4
Review and supply Prescribed medicines

Domain 8
Critical analysis, research and education

Domain 7
Promote optimal use of medicines

Domain 6
Deliver primary and preventative care

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Prepare pharmaceutical products

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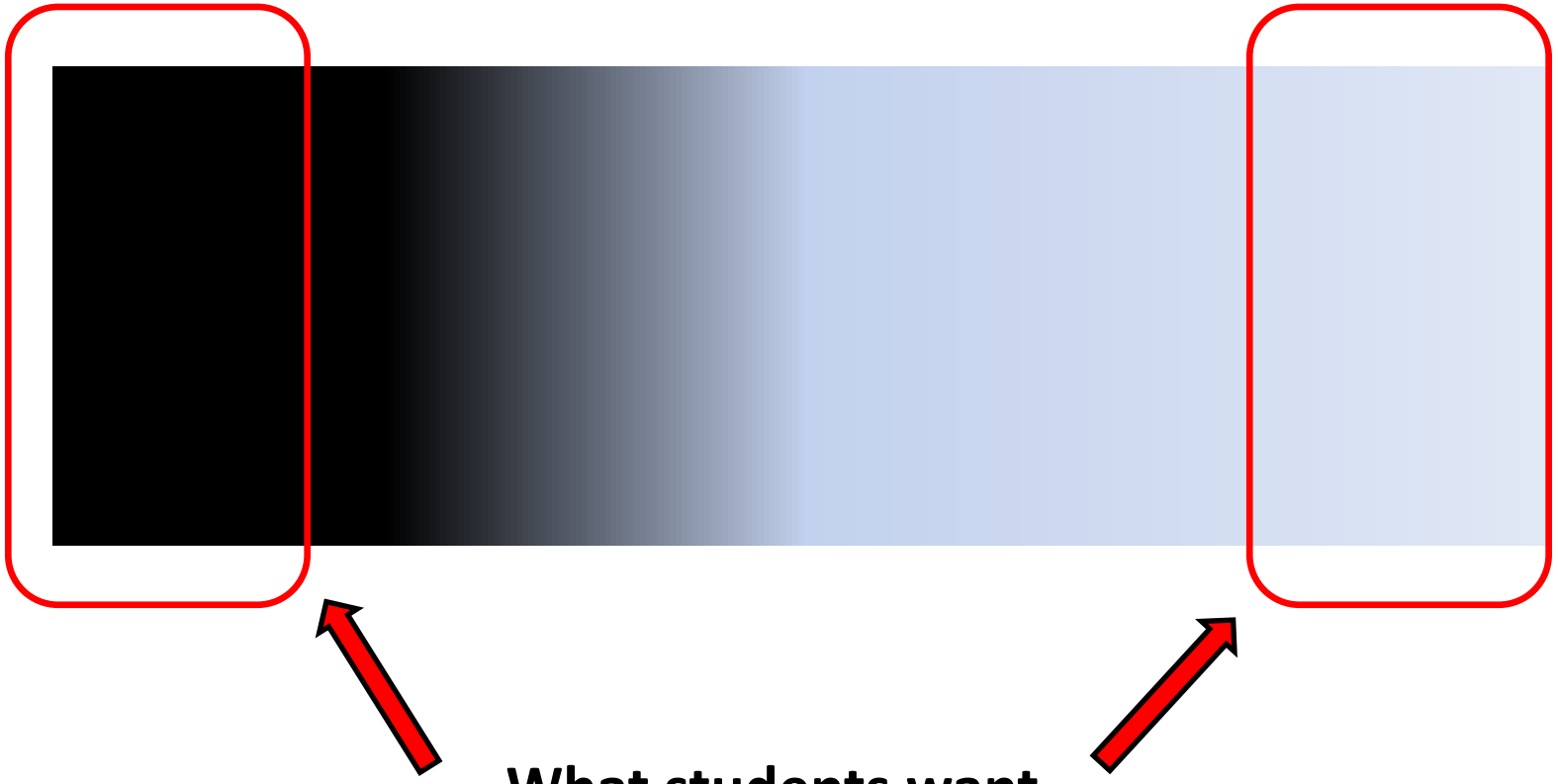
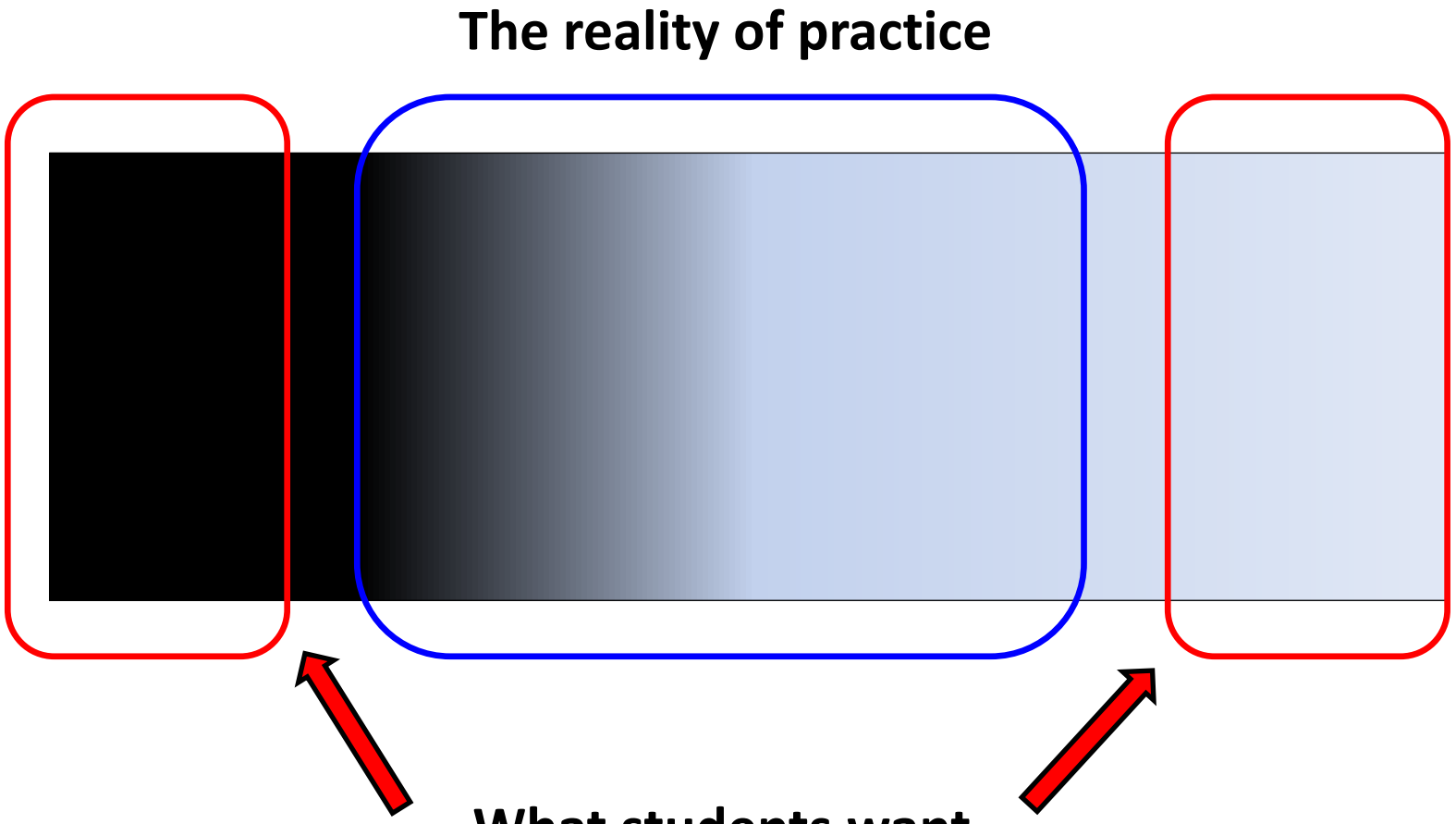
Managing uncertainty

Managing uncertainty



What students want

Managing uncertainty



Professional reality

"The devotion of the pharmacist was quite inspirational, it was evident that budget restraints forced both the pharmacists and doctors hands at times however this did not really concern them, patients and their medications took priority"

4th Year Pharmacy Student

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The way I teach…….

- Lectures (n > 200 and n < 10)
- Tutorials ("classic", PBLs and workshops)
- Clinical placement (bedside, practice setting, simulated)
- Laboratory class (demonstration, small group)
- Online (discussion boards, "live" online forum)
- Telephone tutorials (local and "international")
- Distance learning (hard copy, tape recorded interviews)

- Pharmacists, doctors, nurses, physios (and twin boys)

The way we teach

- Problem-based learning vs didactic lectures
  - Students prefer balanced teaching approach

Pearson SA, Rolfe I, Ringland C, Kay-Lambkin F (2002). A comparison of practice outcomes of graduates from traditional and non-traditional medical schools in Australia. Medical Education, 36, 985-991.

The way we teach

- Problem-based learning vs didactic lectures
  - Students prefer balanced teaching approach

"There were no differences in outcomes between non-traditional (problem-based programmes) and traditional graduates who were admitted to medical school under similar entry criteria (traditional academic entry)"

Pearson SA, Rolfe I, Ringland C, Kay-Lambkin F (2002). A comparison of practice outcomes of graduates from traditional and non-traditional medical schools in Australia. Medical Education, 36, 985-991.

The way we teach

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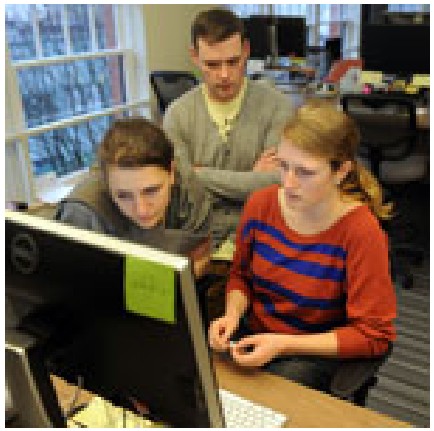


- Students now “attend” their lectures virtually

- Opportunity for University-led but practice-based learning

Pearson SA, Rolfe I, Ringland C, Kay-Lambkin F (2002). A comparison of practice outcomes of graduates from traditional and non-traditional medical schools in Australia. Medical Education, 36, 985-991.

Defining moments in my journey as a reflective teacher

- “I don't attend lectures....”

“Podcasts and wikis turn cafes into lecture halls”

On campus

- 4 days a week in 2009
- 4.4 days a week in 1994

Online study

- 6.5 hours a week (2010)
- 4.2 hours in 2004

2422 first-year students
Centre for the Study of Higher Education, UMelb

Read more: http://www.smh.com.au/technology/technology-news/podcasts-and-wikis-turn-cafes-into-lecture-halls-20100410-rzye.html#ixzz2VylbxPUI

“Chipmunking”

The act of watching numerous recorded university lectures at 2 x speed in a futile attempt to cover an entire semesters material the day before the final exam.

"Have you studied for tomorrow’s exam?"
"Nah, I'm chipmunking all the lectures tonight."

Defining moments in my journey as a reflective teacher

- Postgraduate student: “is this in the exam?”

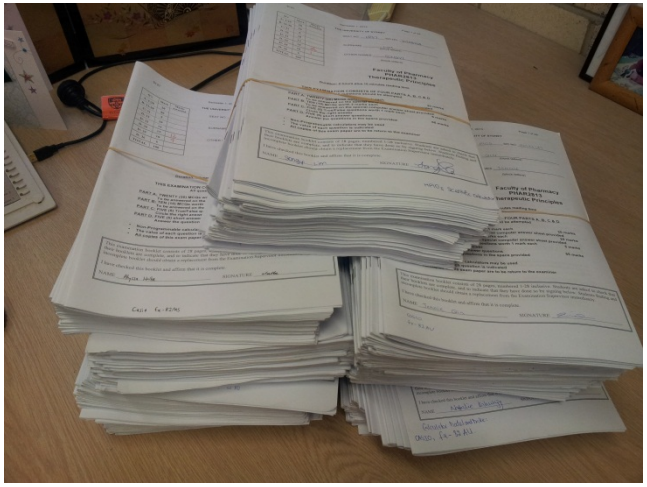
Assessments…

- MCQ
- True/False questions
- Short answer questions
- OSCE
- Laboratory practice exams
- Long and short assignments
- “Moderated” online discussions

“Believe me, this will hurt me more than it will hurt you….”

Challenges

- Large student cohorts
- Authentic measures?
- “Confidential” papers
- “difficulty creep” in questions

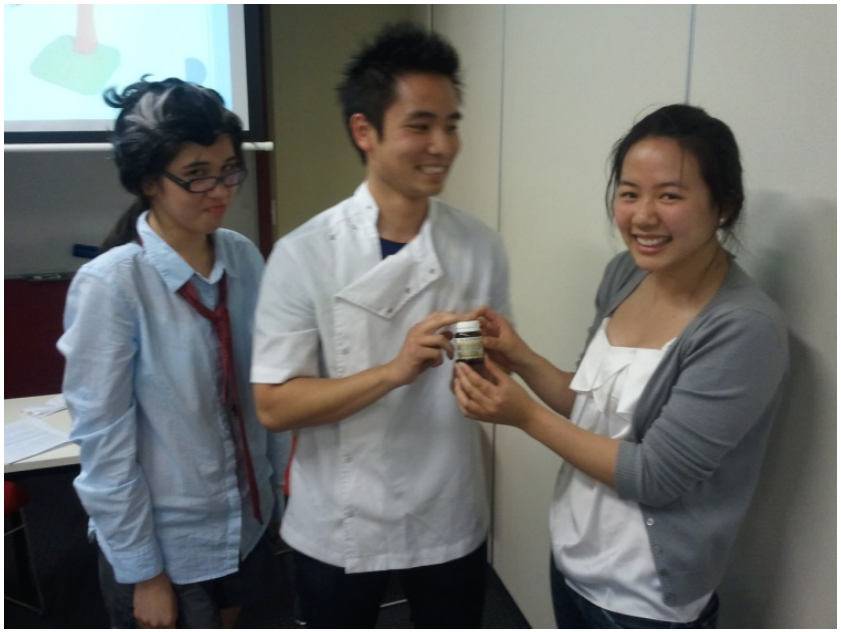


Opportunities

- Focus student learning
- Knowledge and skills

Defining moments in my journey as a reflective teacher

- Seminar “Getting students to TALK in lectures”



"Getting students to talk in lectures"

" based on the sociocultural concept that learning is a fundamentally social process, and on the notion of dynamic assessment"

"…….Vygotskian notions of collaboration, intersubjectivity and zones of proximal development"

Erica J. Sainsbury & Richard A. Walker (2008): Assessment as a vehicle for learning: extending collaboration into testing, *Assessment & Evaluation in Higher Education*, 33:2, 103-117

Collaborative Quiz

- True/False questions
- Students complete the questions and rate their confidence
- Discuss questions with peers and can change their answer and level of confidence
- The final score is multiplied by the level of confidence (using half negative marks)

Erica J. Sainsbury & Richard A. Walker (2008): Assessment as a vehicle for learning: extending collaboration into testing, *Assessment & Evaluation in Higher Education*, 33:2, 103-117

Collaborative Quiz

- **Question:** ***It is not possible for a solution to be both dilute and saturated at the same time*** *(Answer: False)*

Answer before discussion	False	True	True
Level of confidence (out of 5)	2	3	5
Answer after peer discussion	False	False	True
Level of confidence (out of 5)	5	4	2
Mark	5	4	-1

1 = not confident, 5 = very confident

Erica J. Sainsbury & Richard A. Walker (2008): Assessment as a vehicle for learning: extending collaboration into testing, *Assessment & Evaluation in Higher Education*, 33:2, 103-117

Collaborative Quiz

- Facilitates discussion
- Reflective learning
- Articulate their understanding
- Defend their position
- Negotiating knowledge

Erica J. Sainsbury & Richard A. Walker (2008): Assessment as a vehicle for learning: extending collaboration into testing, *Assessment & Evaluation in Higher Education*, 33:2, 103-117

Defining moments in my journey as a reflective teacher

The “bus” trip

- HPLC vs antibiotics
  - relevance to practice

When the penny drops……..

"Reminiscing back to first semester, sitting in class wondering when I am ever going to need to put pharmacokinetics into practice, it was not until undertaking Clinical Residency 2 *that I realised how important and relevant pharmacokinetics was"*.

Pharmacy Student

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Experiential Learning

http://upload.wikimedia.org/wikipedia/commons/5/53/Rembrandt_Harmensz._van_Rijn_007.jpg

What I have learned from patients

- Clozapine makes you salivate
- Xanopsia is an adverse effect of digoxin
- Painkillers work like “antibiotics”

Practice vs Theory

"Clinical placement has provided me with real world experience that differentiated the often theoretical world of university to the practical application of knowledge in the professional setting".

Pharmacy Student

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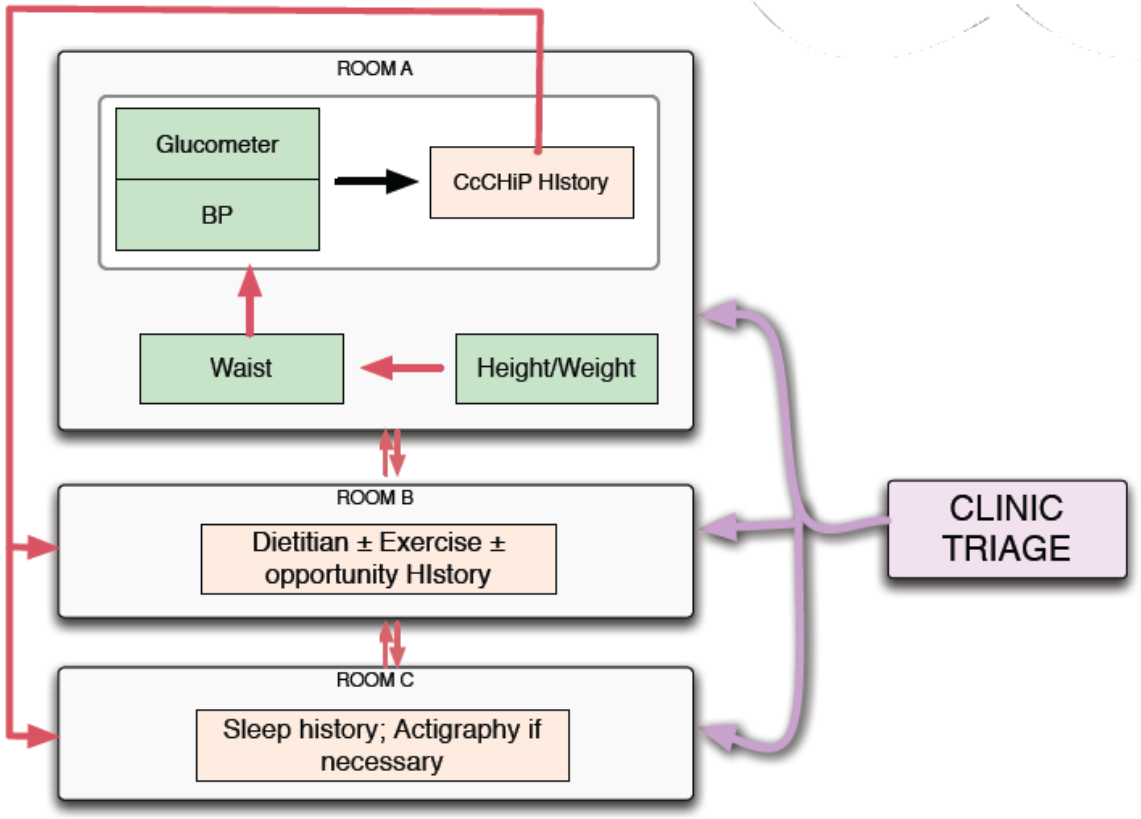
Interdisciplinary simulated cardiometabolic clinic



This project was possible due to funding made available by Health Workforce Australia

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HealthWorkforce AUSTRALIA

An Australian Government Initiative

Concord Centre for Cardiometabolic Health in Psychosis

Whose job is it anyway?

In addition to the patient & family...

Profession	Potential Activity
Dieticians	A critical role in educating staff, and carers, as well as patients on healthy living
Exercise Physiologist	To support and provide advice on exercise prescription and all exercise related issues. Can assist in development and facilitation of lifestyle change programs.
GP	Work in close liaison with public sector
Medical specialists	Consult on relevant difficult cases
Nurse	Organise ± perform blood taking; history of CMRs; ?Coordinate whole shooting match
OT	Working on activities that focus on self management of CMRs; exercise; diet
Pharmacists	Advising team members of key hi-risk (orexigenic) medications, drug interactions, PBAC community prescribing rules
Psychiatrist	Take the global responsibility to ensure the patient's health needs are met
Psychologist	Groups; motivational interviewing regarding smoking, alcohol, food binging
Registrar	Practical role in assessing risks; help educate other staff, patients, and fx; goferism
Social Workers	Work with families and patients regarding optimising healthy lifestyle both in and out of hospital

Concord Centre for Cardiometabolic Health in Psychosis

Personal development

"The realisation of my strengths and weaknesses on placement was the greatest information obtained, with communication being relatively easy however my drug knowledge still has quite a way to go. Clinical placement showed me the real value of patient interaction and building a rapport with your patients".

Pharmacy Student

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Defining moments in my journey as a reflective teacher

- Staff (us)-student (them) disconnect

Pharmacy academics

Teacher	Identify learning needs Make teaching relevant Give effective feedback Involve all learners
Role model	Knowledgeable Skilled Caring Professional
Supervisor	Guide skill development Select experiences
Supporter	Accessible Interested Prepared to advise

Adapted from **Five Steps to Effective Teaching at the Bedside, University of Calgary**

In summary

- Generic skills are important in training pharmacists for the future
- Content may be driven by the (research) interests of teachers
- Help students navigate uncertainty
- Relevance is relevant

Thanks to……

- My teachers and mentors
- Students
- Pharmacy colleagues

- Erica Sainsbury
- Sallie Pearson
- Paul Groundwater
- Romano Fois
- Neil Cottrell
- Ken Brown
- (Late) Don Evans


Reebok
Reebok