The "way" and "why" of teaching

Andrew McLachlan
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)
Hypothesis

Why we teach what we teach

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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
Hypothesis

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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
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 what they do

.......not by who they are
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?
Atlas of a Pharmacist’s Brain

I have no idea what YOUR co-pay is!

I can’t read THIS!

Doctor’s need to learn how to write!

Oh, not HER again

Why me?

I should have stayed home today...

This day will not end...

Your insurance won’t pay for more than 30 days!!!

Here comes the guy that smells bad.
Learning styles

- Meaning directed
- Reproduction directed
- Undirected
- Application directed

Generic attributes
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 5
Prepare pharmaceutical products

Domain 6
Deliver primary and preventative care

Domain 7
Promote optimal use of medicines

Domain 8
Critical analysis, research and education

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

What students want
Managing uncertainty

The reality of practice

What students want
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
Hypothesis

Why we teach what we teach

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The way we teach what we teach

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The way I teach....... 

- Lectures \((n > 200 \text{ and } n < 10)\)
- 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

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)”

The way we teach

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

• Students now “attend” their lectures virtually

• Opportunity for University-led but practice-based learning

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

“Chipmunking”

The act of watching numerous recorded university lectures at 2 x speed in a futile attempt to cover an entire semester’s 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”

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)

Collaborative Quiz

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

<table>
<thead>
<tr>
<th>Answer before discussion</th>
<th>False</th>
<th>True</th>
<th>True</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level of confidence (out of 5)</strong></td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Answer after peer discussion</td>
<td>False</td>
<td>False</td>
<td>True</td>
</tr>
<tr>
<td><strong>Level of confidence (out of 5)</strong></td>
<td>5</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Mark</td>
<td>5</td>
<td>4</td>
<td>-1</td>
</tr>
</tbody>
</table>

1 = not confident, 5 = very confident

Collaborative Quiz

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

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
Experiential Learning
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
Interdisciplinary simulated cardiometabolic clinic

MANAGEMENT OF CARDIOMETABOLIC RISK FACTORS IN MENTAL ILLNESS

ROOM A
- Glucometer
- BP
- CoCHIP History
- Waist
- Height/Weight

ROOM B
- Dietitian ± Exercise ± opportunity History

ROOM C
- Sleep history; Actigraphy if necessary

This project was possible due to funding made available by Health Workforce Australia.
### Whose job is it anyway?

#### In addition to the patient & family...

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

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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