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Curriculum reform supporting health professional students to learn for their future practice: what do our first-year students think?

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Theme: Curriculum transformation in practice

Drivers for revision (2006+).... Why?

-  + decreased staff numbers
+ varied skills & understandings of PBL
- 15 y since 'new curriculum' (1993-1997)
 - limited changes achieved, especially in later years
 - integration needed improvement (horizontal, vertical, assessment)
 - over-assessment 'of' learning, especially in later years
 - changing professional expectations: patient-centred care/communications skills, EBD, culturally safe practice

Facilitators... How?

- Proposal by ADL&T - late 2006
- External consultant – 2007-2009
- School agreed on vision statements
- Curriculum conferences to review & communicate plans/processes
- Professional staff team (2010-2016)

Curriculum Vision statements

- a high degree of integration
- scientific components will underpin and integrate with the clinical components
- integrated learning activities complemented by a range of other learning and teaching activities
- learn in varied clinical settings

(Harden et al., 1984; Harden, 2000; Newble et al 2005; Manogue & Brown, 2007)

How? Planned curriculum components

- Curriculum structure and plan
- Program outcomes
- ILA process and format
- Assessment strategy
- Core concepts to integrate topics

How? Curriculum structure & plan

One stream → Dental Science and Practice 1 to 5

- Integrated – content; learning/assessment; application
- Organised around integrated learning activities (ILA) ie 2-4 wks

- 1 health, maintenance of health, PCC I, normal structure & function I
- 2 normal structure & function II, PCC II & MID
- 3 dental & human disorders I, simple courses of patient care
- 4 dental & human disorders II, patient care involving dental specialities
- 5 comprehensive patient care, hospital/community settings

How? Program outcomes

- **Professional Behaviours (12 outcomes)**
 - Adopts a questioning and evidence- based approach to own work and that of others (PB1)
- **Interpersonal Skills (5 outcomes)**
 - Communicates effectively with patients, their family/friends/ carers, irrespective of their age, gender, background or culture (IS1)
- **Clinical Exam, Diagnostic and Management Skills (9 outcomes)**
 - Makes an accurate assessment of patient's problems & formulates a differential diagnosis (CS5)
- **Practical/Technical Skills (12 outcomes)**
 - Produces and maintains an accurate, complete and confidential record of patient's care (PS5)

How? ILA (case) process & format

- analysis of relevant situations (learning focus: 3-4 wk)
 - patient presents for check-up
 - sharps injury during an appointment
 - patient asks re why do I need to floss if my gums are healthy?
- students learn to think and act as practitioners, eg,
 - systematic/scientific approach to analysis,
 - integrate and apply knowledge & skills in clinically relevant context
- staff facilitate/guide processes (small/large gps)

How? Assessment strategy

- alignment
- regular formative & self-assessment throughout
- summative assessments integrated
- progressive summative assessments (previous y content included in later y)
- methods standardised (written- SBA, EMQ, Key feature, presentations; OSCE, structured reports, oral presentations, structured oral examination)

How? Formative assessment:

→ clarify expectations & feedback

- Student/staff questions, pre- & in-class quizzes, preparation activities discussed/reviewed in all ILAs and other classes
- Discussion with peers: in and out of class
- Peer review workshops: ILA steps, maps, clinic performance
- Formative quizzes:
 - Online quizzes → SBA, EMQ
 - Practice examination (1st y: wk 10) → SBA, EMQ, Short Answer, Key Feature questions
- Self + tutor monitoring/feedback in clinic
 - *examples of what students are expected/should be able to do*
 - *models of exam content/format and responses*
 - *regular feedback on student learning*

How? Summative assessment

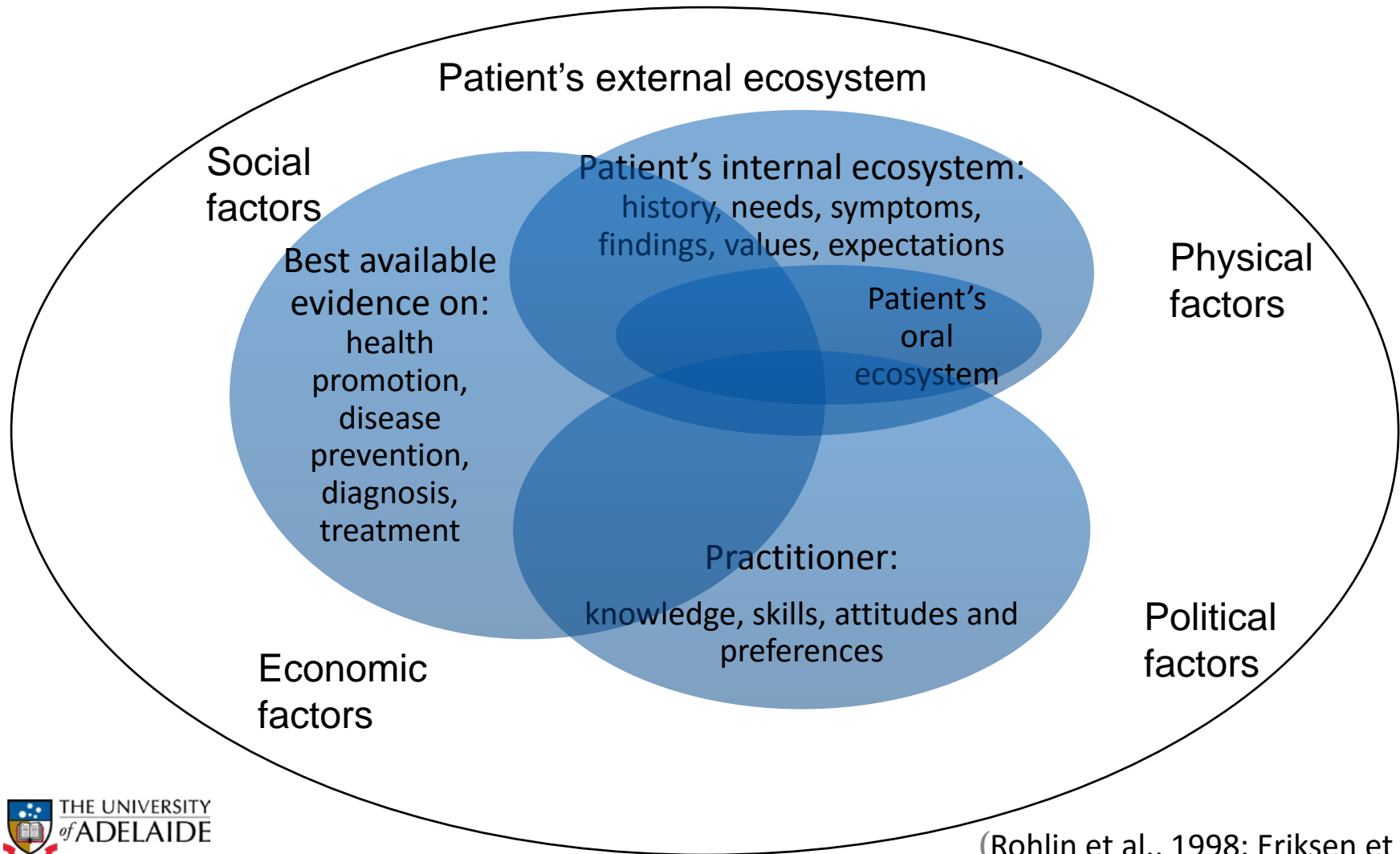
- Grades:

Semester 1	Semester 2
<ul style="list-style-type: none"> • Participation, e.g., ILAs, Tutorials • Assignment (EBD) <p>→ NGP</p>	<ul style="list-style-type: none"> • Participation, e.g., ILAs, Tutorials • Test of understanding (radiography) <p>→ NGP</p>
<p>2 x 2h Written examinations → SBA, EMQ, Short answer, Key Feature + Longitudinal Clinic Assessment → Grade</p>	<p>2 x 2h Written examinations (S1 & S2) + Longitudinal Clinic Assessment → Grade</p> <p>Progressive Integrated Assessment (PIA) (assesses S1 and S2) → NGP</p>

How? Core concepts for integration

DSP 1: Focus on health of whole person:

- Maintenance of health, patient-centred care, ecosystems, & EBD



How? Outcomes

- **By the end of the first year:**
 - Explain how a healthy patient, including their oral cavity, functions and the various factors that contribute to maintenance of health (IS 1, 3)
 - Safely complete histories, examinations and preventive plans and create accurate records for patients with healthy oral cavities (CS 1-5, 8, PS5)
 - Communicate effectively and ethically with patients in the above activities (IS 1, PB5)

How? DSP I Evaluation plan

Evaluation plan: outcomes → reaction/perceptions

- **Integrated learning and relevance:**
 - coherence of curriculum, professionally relevant, use knowledge across areas in clinic
- **Generic capabilities developed:**
 - problem solving, critical thinking, monitoring learning, effective team member
- **Learning & assessment approaches support learning:**
 - motivating, active participation, focussed on understanding, adequate feedback, reasonable workload

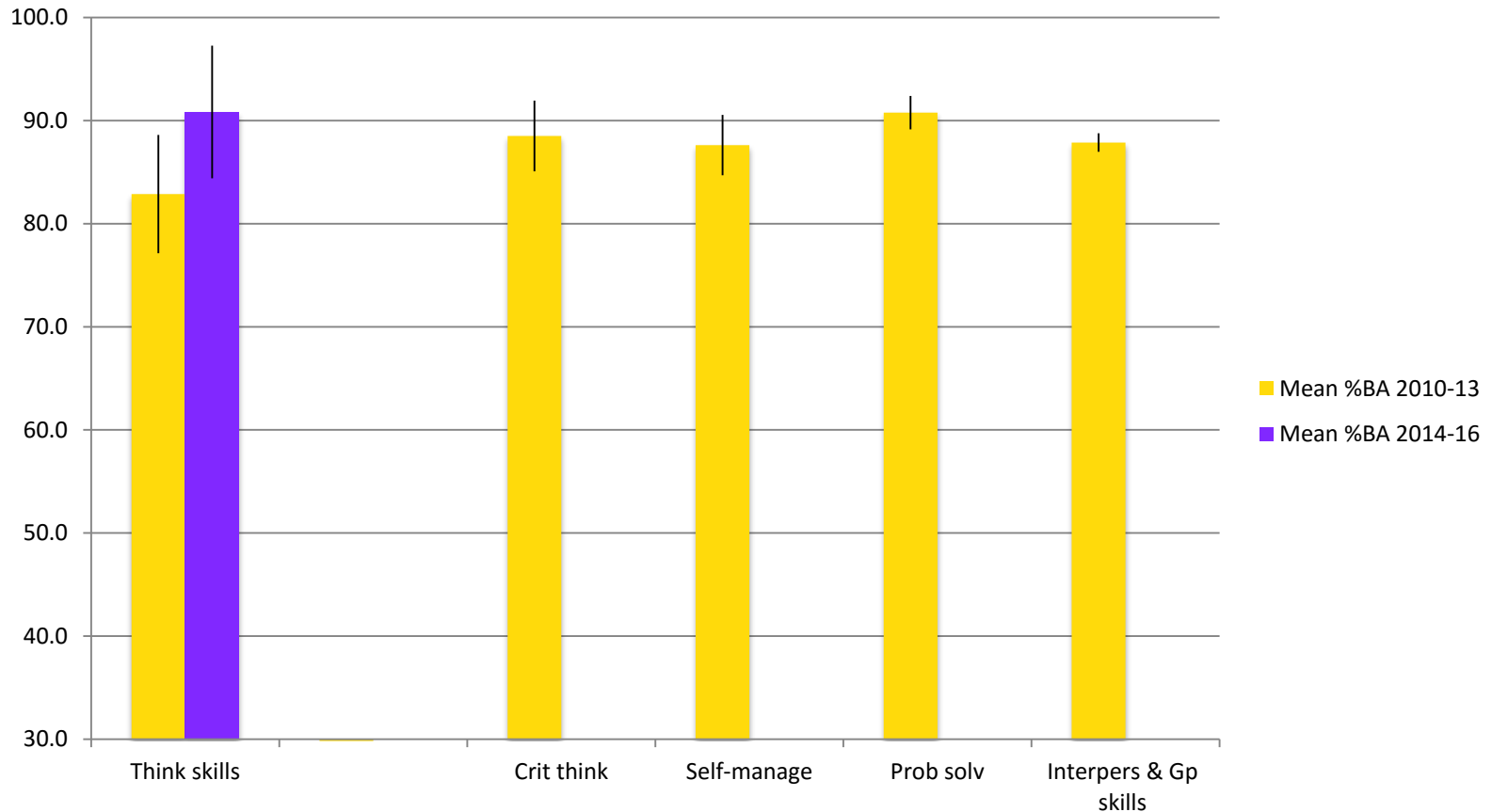
(Cook, 2010)

How? DSP I Evaluation plan

- **Students' Experience of L&T (SELTs)**
 - wk 12, sem 1 & 2 (2010-2013; 2014-2016)
 - Likert scale 1 (SD) – 7 (SA) → % Broad Agreement
 - response rates 51-99%
- **Student Engagement Questionnaire (SEQ)**
 - wk 12 sem 2 (2010-2013)
 - Generic skills (8 scales); L&T environment (9 scales)
 - Likert scale 1 (SD) – 5 (SA) → % Broad Agreement
 - response rates 70-99%
- **Clinic tutor focus group (2010)**
 - experience with previous & revised curriculum
 - two weeks after last class, sem 2

What students rated?

- Generic capabilities development (SELT & SEQ)



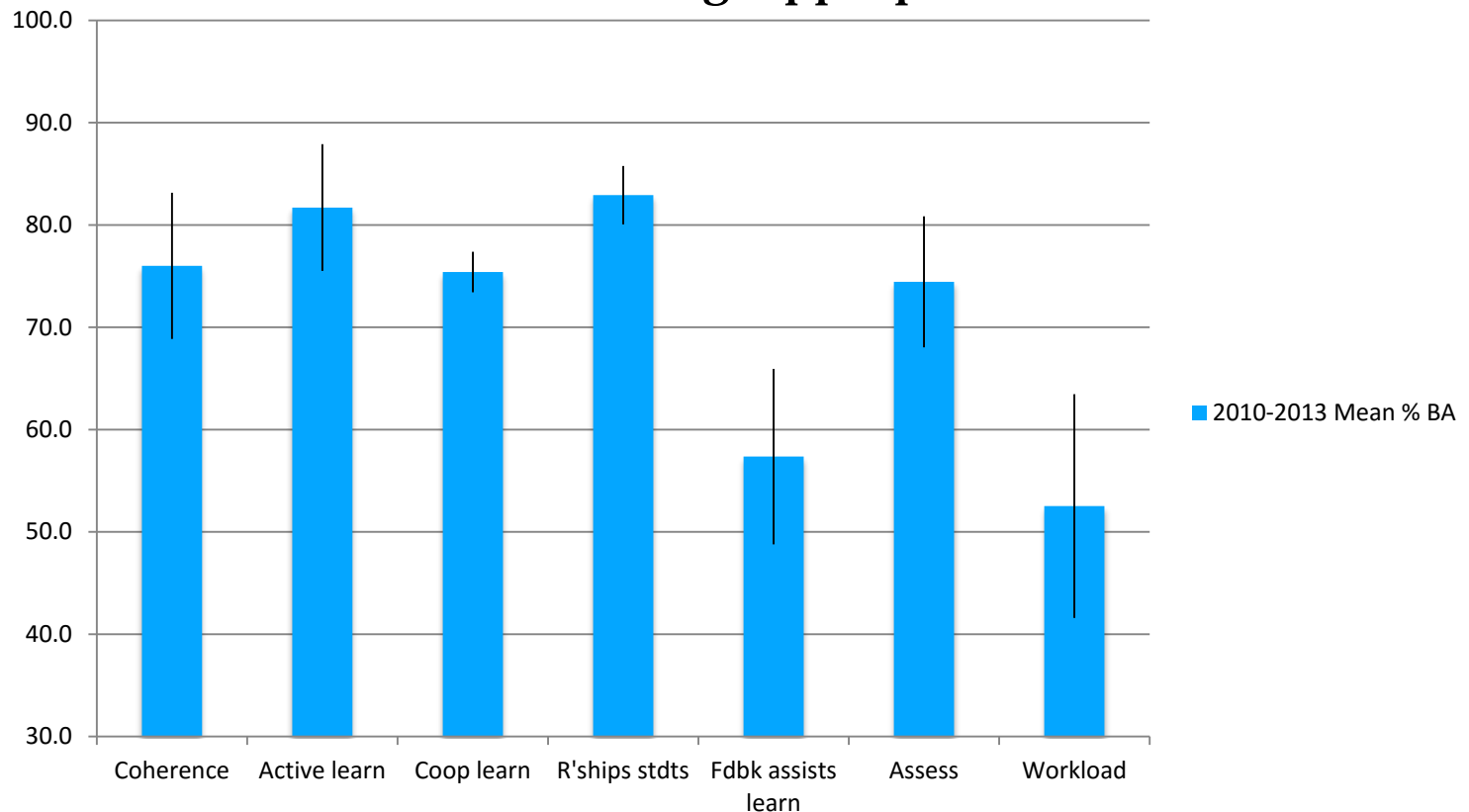
What students said?

- Generic capabilities developed
 - Valued group discussions, ‘more interactive’
 - Some: learnt skills re learning independently, including self-management and monitoring

What students rated?

Environment supports learning (SEQ):

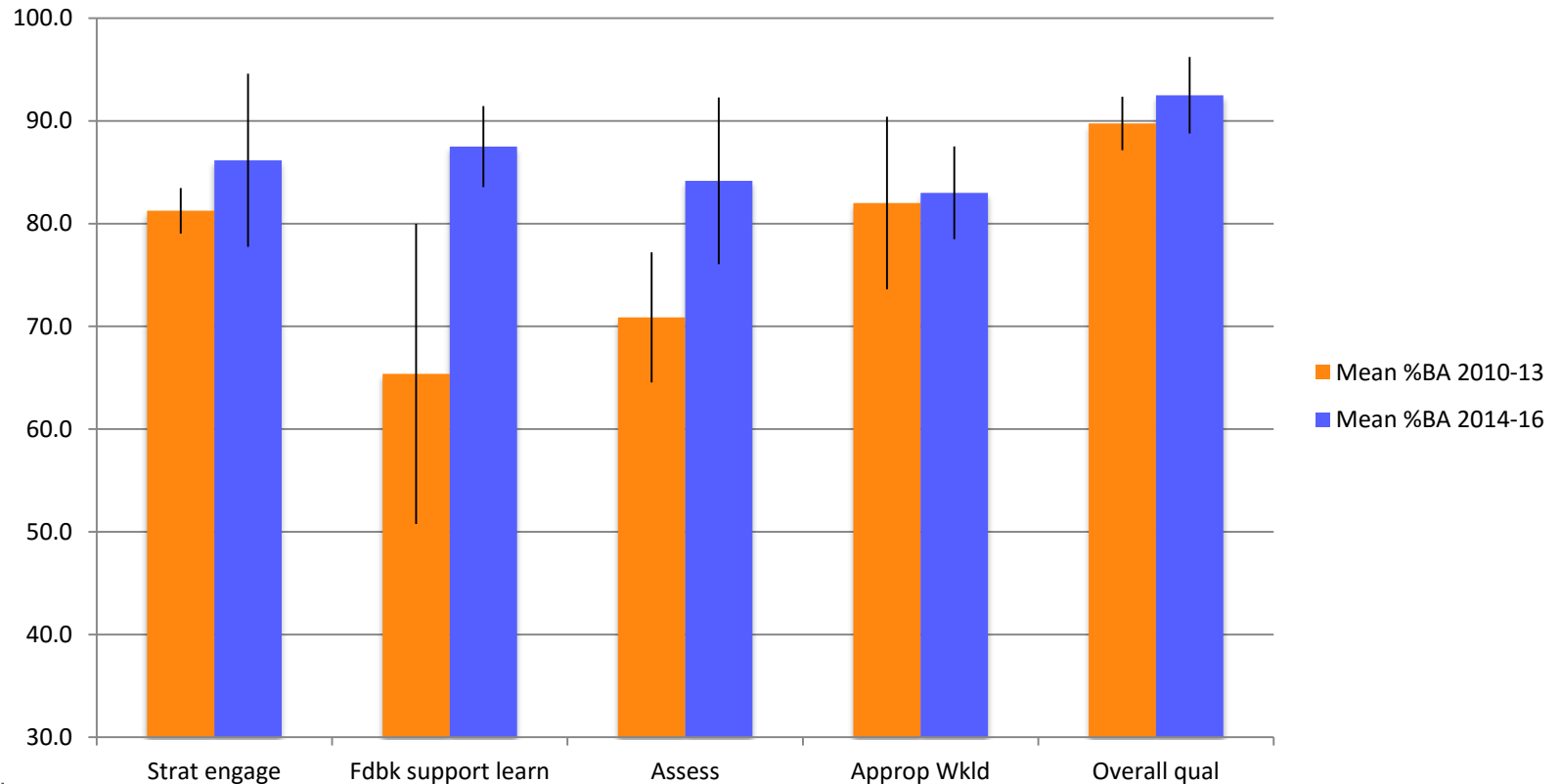
- coherence of curriculum, active/cooperative learning, positive student relationships, appropriate assessment
- Issues: feedback assists learning, appropriate workload



What students rated?

Environment supports learning (SELT):

- engaging activities, feedback supports learning, appropriate assessment & workload



What students said?

Valued integrated & professionally relevant learning :

- ‘link’ & ‘relate’ material from different disciplines
- ‘link’, ‘relate’ and ‘apply’ knowledge to ‘real-world’ situations and ‘practical parts of course’
 - ‘consolidate’ their knowledge
- ‘early clinical experience’, hands-on, practical & interactive focus

...clinic/Sim clinic...that in combination with the ILAs that help develop my thinking systematic and critically focusing about the patients is, to me, good to prepare students to be good practitioners in the future (2014)

What students said?

Valued other aspects:

- positive staff-student r'ships: 'supportive', 'understanding'
- course structure supported positive student-student r'ships
- regular and ongoing feedback → improve: provide answers

Lots of formative assessment which allows students to gauge their learning and abilities without stress & pressure (2012)

What clinic tutors said?

Endorsed integration as:

- student participation & engagement
- students integrated theory & practice across disciplines

Endorsed authentic patient cases + related activities

- engaged students

[Students] were discovering how everything they were learning would ultimately have a unified relevance (tutor 5)

- considered whole patient in social context (cf technical skills)
- communication skills = fundamental clinical skill

[teaching in BDS 2 as well, I can see the big difference in how they actually interact with their patient and with each other in a much more professional way (tutor 2)

What clinic tutors said?

Endorsed emphasis on team learning/interdependency

→ courteous, supportive & engaged learning teams

Endorsed redesign of clinic activities

→ enabled sustained student discussion/questions & practice

They respected each other's help. Like, they would all be keen to sort of give each other pointers, whereas in previous years they wouldn't do that (tutor 4)

Lessons learned

- Integration of learning & assessment with future practice
 - complex as expected...
 - time
 - meetings +++ for coordination....
 - negotiation....
 - diplomacy....
 - patience ...
 - ongoing ...
- Positive student experiences, improvements since 2010

Lessons learned

- Core areas for continued monitoring:
 - feedback that supports learning
 - expanded since 2010 with pre- & in-class with discussion + online
 - clearer re expectations eg peer review
 - assessment aligned with outcomes (year & program) & L&T
 - co-ordination & alignment of formative assessment activities
 - clarify feedback loops
 - alignment of summative assessment activities
 - workload management – flexibility but
 - pressure points → combine ILAs, reduce group activities
 - updated content/ clarify expectations eg culture & healthcare; peer review
 - team teaching
 - +++ learning & assessment connections (staff & students)
 - not all areas yet...
 - staff development for learning and assessment to improve use of evidence
 - informed leadership → ‘enduring reform’

(Bordage and Harris, 2011, p93)

Conclusions

- Students/Clinic tutors perceive first year
 - integrated
 - relevant
 - developed generic capabilities
 - learning design/environment supported learning
- Challenge to maintain....

Thank-you

Comments...

Questions

Acknowledgements:

- First-year students and academic and casual staff

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What do we mean by integration?

- **Integration: Horizontal**
 - disciplines organised around systems or functions
 - problems or tasks centred on themes
 - learning in actual practice settings

(Dornan & Bundy, 2004; Dyrbye et al., 2011; Eriksen et al., 2006; Greiner & Knebel, 2003; Harden et al, 1984; Harden 2000; Kingsley et al., 2007; Littlewood et al., 2005; Neville & Norman, 2007; Rohlin et al., 1998; Schmidt et al., 1996; Stewart, 2001; Straus et al., 2005; Tresolini & Shugars, 1994)

What do we mean by intergation?

- **Integration: Vertical**
 - themes as organisers requiring analysis at greater depth or complexity in subsequent years,
 - patient-centred care with related communication skills content and processes learnt in the context of sequenced problems/tasks
 - oral ecosystem
 - evidence-based practice

(Eriksen et al., 2006; Harden et al, 1984; Harden, 2000; Stewart, 2001; Straus et al., 2005; Rohlin et al., 1998)

Improve integration to...

- Address ‘competitive curriculum’ → fragmentation of students’ focus and a ‘cram and purge’ approach
- Opportunities for students to work at higher cognitive levels
- Improve relevance by requiring application in context
- Motivate through relevance, working with patient problems plus experience in practice
- Minimise negative issues of abrupt transition to clinical environment
- Broaden staff understanding of curriculum & encourage team teaching

(Dornan & Bundy, 2004; Hendricson, 2012, p137; Harden et al., 1984)

Evidence for integrating...

- Attitudes (mostly descriptive studies):
 - Motivating; more confident interacting with patients; more satisfied; reduced stress with transition to patient care
- Learnt knowledge (mostly descriptive studies):
 - ‘what could not be learned from books’, science was more understandable/relevant; to think as a clinician; professional roles/responsibilities, social and behavioural sciences
- Learnt clinical skills (comparative & descriptive studies)
 - understanding of patient-doctor r’ship, need for listening, exploring social/psychological aspects of health
 - how to obtain history/simple examination → felt better prepared to approach patients
 - improved ability to communicate with empathy

(Dyrbye et al., 2011; Littlewood et al., 2005)

How? DSP I implementation

- Program Outcomes developed
- First and second-year Outcomes identified → mapped to Program Outcomes
- First-year Outcomes organised into weekly sequence
- First -year outcomes mapped to specific topics and relevant L&T activities (and assessment) →
 - Integrated learning activities
 - class meetings - interactive
 - laboratories, clinics, tutorials - activity based

(or: Outcomes → Assessment → L&T Topics and activities)

How?: DSP I implementation

Assessment → Clinic and ILA

- criteria and standards developed/modified
- clinical criteria and standards workshops
- ILA formative assessment wk 1-6: self & tutor
- professional behaviours:
 - process for notification and attendance record, eg recording sheets with student photos for staff

How? DSP I Implementation

Assessment → Written

- blueprinting
- formative questions – in class or online
- summative assessment questions: SBA, EMQ, Short Ans, Key Feature (Page and Farmer, 200??)
- peer review (Malau-Aduli and Zimitat, 2011) and proof exam questions, standard setting, marking and grading exams
- To do →
 - assessment item database
 - automated plus extended item analysis with interpretation

How? DSP I Implementation

Evaluation plan (Cook, 2010)

Discussed by team as develop curriculum

- Who wants/needs evaluation information?
- What do they want?
- Approach:
 - Core Curriculum Goals/Outcomes, eg integrated, authentic – can't evaluate all aspects
 - People involved– students, staff
 - Methods – self-report, observation, assessment tasks... (ethics approval)
 - Instruments – survey, focus groups...
 - Advantages/Disadvantages

How? Participation Criteria

— behaviours related to content & process

- **Knowledge, reasoning skills & use of evidence:**
 - Uses and evaluates relevant resources
 - Provides logical explanations based on evidence
 - Makes links between topics and resources
 - Seeks clarification/explanations by asking questions
 - Identifies and tries to resolve discrepancies between colleagues' ideas and/or resources
- **Professionalism**
 - Works and learns effectively as an individual/team member
- **Communication skills and learning skills**
 - Communicates effectively in different professional contexts
 - Constructively evaluates self/peer/group performance

How? ILA (case) format

- Patient presentation:
 - whole class Monday am → Steps → develop research questions
- Practitioner research and consultation:
 - small group meetings – organised by students
 - Thursday am (Wk 1) – small group with tutor – research review
 - Thursday am (Wk 2) – small group with tutor - research review, final group summary 'ILA map/poster'
 - research supported by class meetings, learning labs, clinics, tutes
- Review patient management:
 - Whole class Thursday am Wk 3 → review of research / ILA maps, core points, application, discussion, feedback

Logos



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What do we mean?

- Integration: Horizontal cont.
 - learning in actual practice settings, eg, clinical/community settings
 - Early experience
 - generalist focus (vs specialist) to demonstrate integration of psychosocial and biomedical care aspects
 - interdisciplinary or interprofessional learning & care
 - **Need to explain this more...or delete** → transdisciplinary learning (Harden, 2000)

(Dornan & Bundy, 2004; Dyrbye et al., 2011; Greiner & Knebel, 2003; Harden 2000; Littlewood et al., 2005; Tresolini & Shugars, 1994)

How? Participation Criteria

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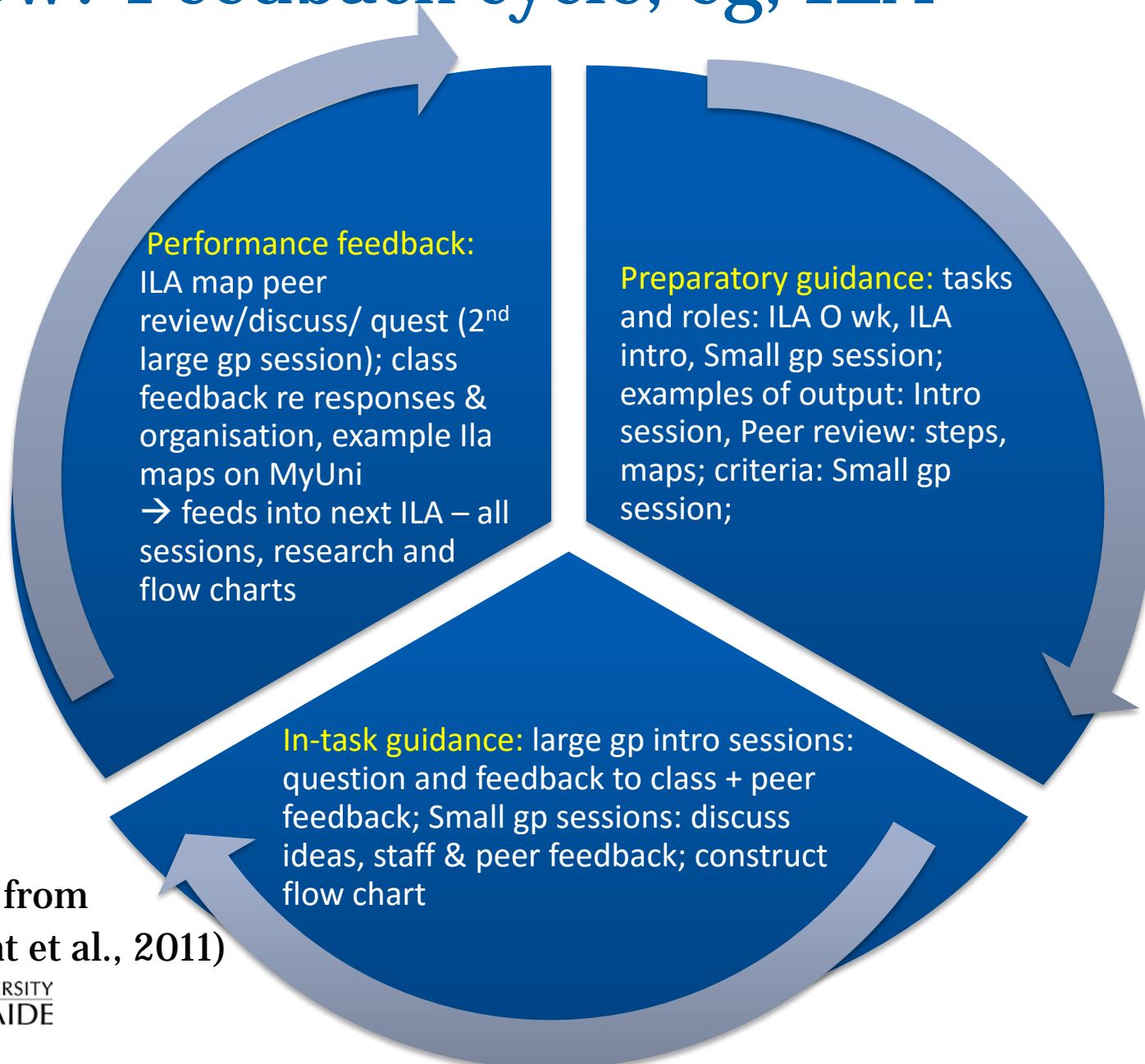
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Why? Design of learning activities

Recommendations for learning activities	DSP I class
Alternate between reviewing worked examples and working through new examples on own	ILA introduction; ILA 1.1-1.3 examples
Review course content over time	Used in subsequent ILAs, Labs, Clinic
'Think aloud' when speaking or writing explanations	ILAs, Class meetings, Tutorials, Labs, Clinic
Answer why, how, what if questions	ILAs, Class meetings, Tutorials, Labs, Clinic
Use quizzes for practice over a period of time (ie not just straight after learnt topic)	Online quizzes: wks 5, 8, 12
Provide feedback	ILA, Class meetings, Tutorials, Labs, Clinic

(Pashler et al.,2007)

How? Feedback cycle, eg, ILA



(adapted from
Beaumont et al., 2011)

A current issue:

- Areas least well developed in US dental education in 2011:
 - ‘Application of basic sciences to patient care’ with the aim of enabling students to be explain findings
 - ‘Coordination and collaboration among departments’ and provision of ‘interdisciplinary teaching’

(Hendricson, 2012, p123)

How? Core concepts for integration

DSP I: Focus on health of whole person

- Maintenance of health: homeostatic balance of functional systems
 - homeostasis; organisation of life; tissues working together
 - transport, nutrition and waste management, respiration, defense (intro), movement, communication, (growth and development DSP II)
- Ecosystems
- Evidence-based practice
- Patient-centred care

(Rohlin et al., 1998; Eriksen et al., 2006)