Addressing Obstacles to Success: Increasing engagement with science

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Aim

• To find new ways to include the necessary science knowledge

• Two phases of research
  – Phase 1 (2006)
  – Phase 2 (2007)
What is the problem?

Science courses
- Abstract
- Decontextualised

Midwifery / Nursing practice
- Applied science
- In context

Tacit links

Educators decide what science knowledge is necessary

Midwives / Nurses translate science’s meaning in practice
A shift from traditional teaching

- Acontextual science learning
- Students make own translation
- Contextualised science learning
- Science course helps students make translation
- Recontextualised Midwifery & Nursing practice
- Contextualised Midwifery & Nursing practice

Science course helps students make translation

Recontextualised Midwifery & Nursing practice

Midwifery & Nursing practice
Phase Two

Bachelor of Nursing Intervention Topic
- Cardiovascular system
- Renal system

Evaluation Tools
- Staff
  - Self Review
  - Peer Review
- Students
  - SGID
  - ‘Ticket out of class’
  - Formative Tests
  - Moodle Activity
  - SETMAP
- Cohort 21
  - ‘Ticket out of Class’
  - Focus Group
  - SETMAP

Bachelor of Midwifery Intervention Topic
- Breastfeeding & Lactation module

Evaluation Tools
- Staff
  - Self Review
  - Peer Review
- Students
  - SGID
  - ‘Ticket out of class’
  - Summative Essay
  - Moodle Activity
Interventions

- Narrative stories added
- Content streamlined
- Feedback process put in place
- Changes made to Lab sessions
- Integrating & aligning science in Midwifery module
Establishing Relevance

- New Zealand race-walker Craig Barrett collapsed during the last kilometre of the 50 km walk in the 1998 Commonwealth Games. He became confused and disorientated and staggered aimlessly before being removed from the race and successfully treated.

(http://en.wikipedia.org/wiki/Craig_Barrett_(athlete))
Lab Questions for students

- Thinking back to the Craig Barrett story…..
- Do you think his problems were related to too little, or too much water?
- Could you use body weight to determine whether he had drunk too little or too much water?
- How much does a litre of water weigh?
- What was the average increase in weight after drinking the water?
Evaluating Intervention

• Range of strategies used to seek evidence of impact of changes
  – TOC
  – Small group instructional diagnosis
  – End of module evaluation

• Evidence of success drew on:
  – Formative & summative assessment results
Evidence of Effectiveness

• Students engagement of science
  “The story at the beginning – makes it more relevant to course, seems to help understanding and visualisation of issues talked about.”

• Emergent theory-practice links
  “How do you treat people that have too much water or too little water in their system, and how do you tell just by observing someone without weighing them?”
Challenges

• Content reduction
• Designing effective narratives
• Other challenges
• Rethinking assessment
Summary of conflicting findings

• Positive student feedback overall
• Evidence of increased motivation & engagement
• Not reflected in summative test results
• Continue with content reduction & narratives in all teaching
• Address assessment practice
Community of Practice

- Two sets of collaborations
- Relationships / Partnership
- Two-way interchange of knowledge
  - Paralleled the aim of the research
  - Building capability
- Trust & agreement
  - Science tutors in the spotlight