

Addressing Obstacles to Success: Increasing engagement with science

Presented by

Kelly Gibson-van Marrewijk

Jane Stewart



Acknowledgements

- Other Wintec Research Team Members:

Dr Gudrun Dannenfeldt

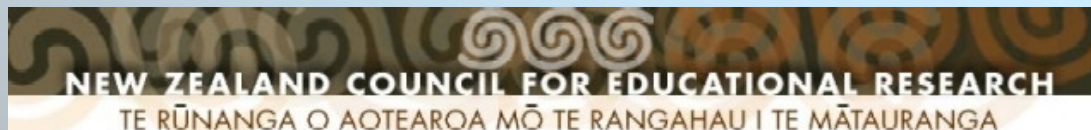
Dr Kevin Stewart

Dr Margaret Duff (previously at Wintec)



- Research Partners:

Dr. Rosemary Hipkins



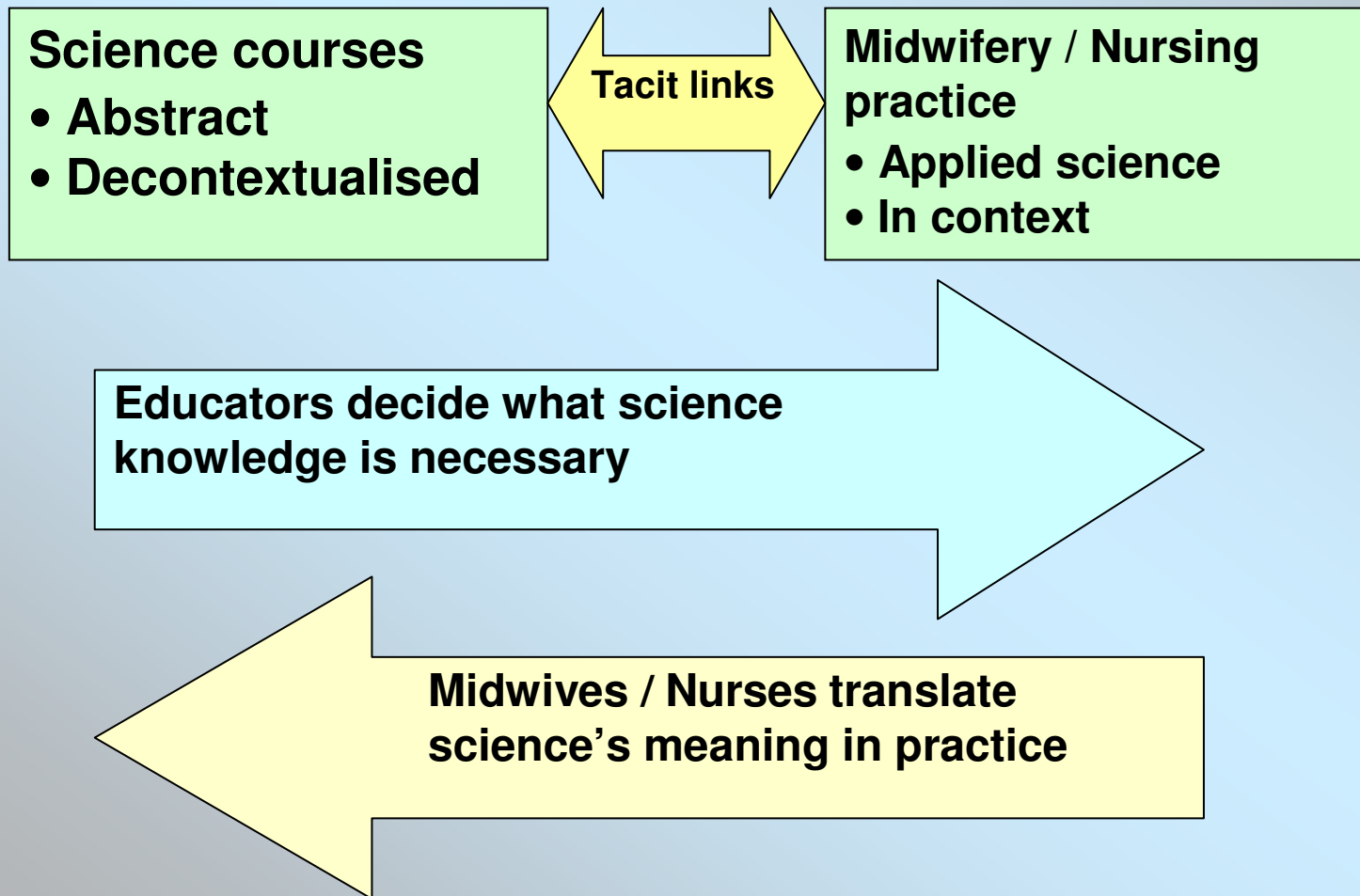
- Funding from:



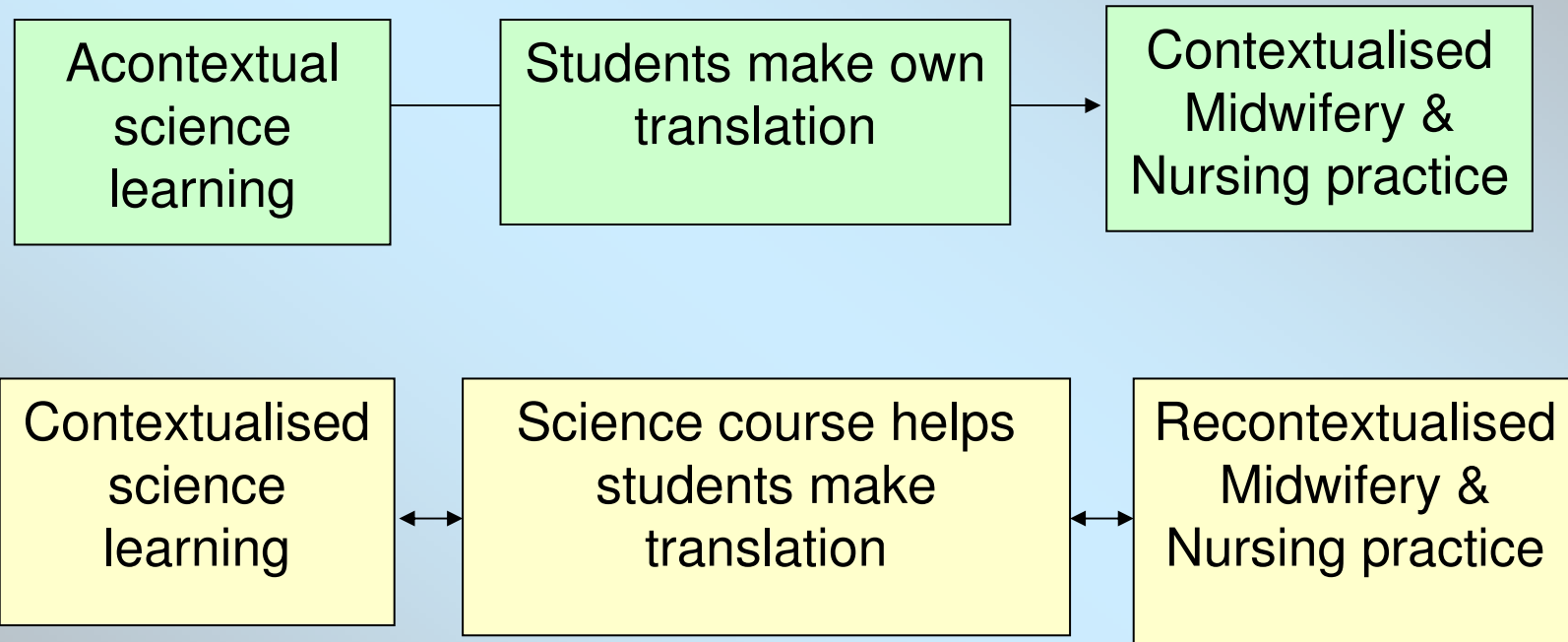
Aim

- **To find new ways to include the necessary science knowledge**
- **Two phases of research**
 - **Phase 1 (2006)**
 - **Phase 2 (2007)**

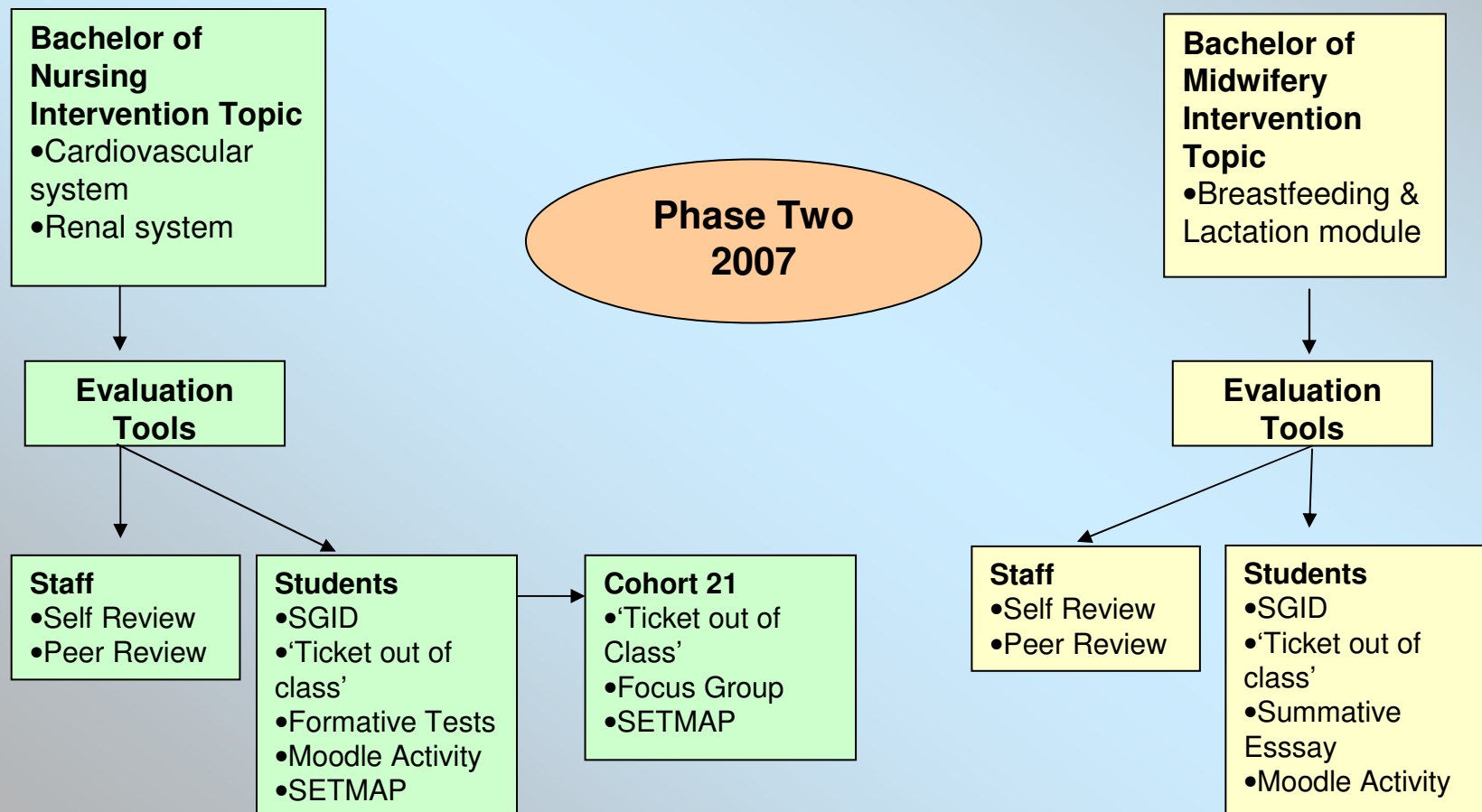
What is the problem?



A shift from traditional teaching



Phase Two



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_\(athlete\)](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