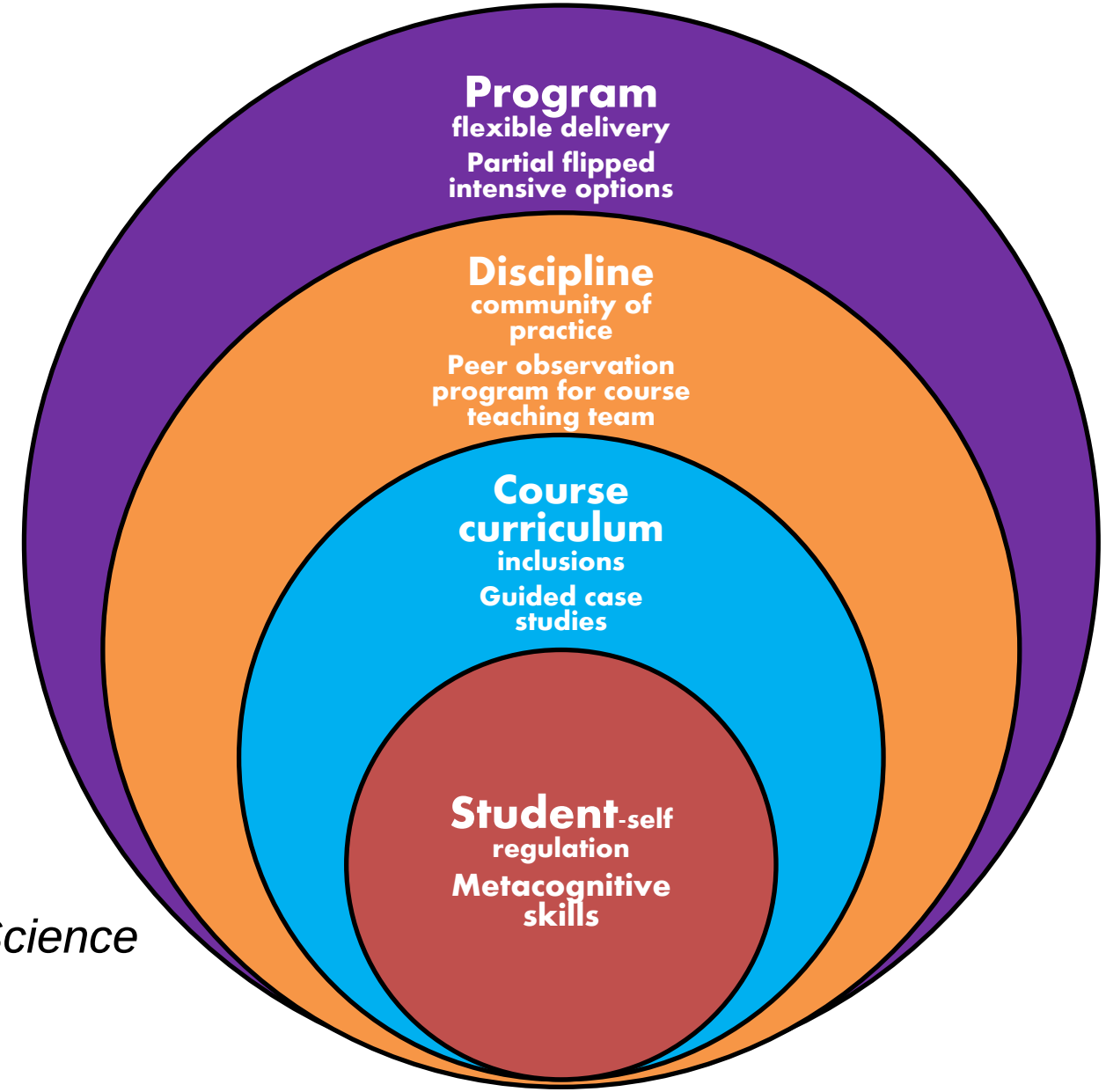
A Multilevel Approach to Student Empowerment: Examples from Biomedical Science



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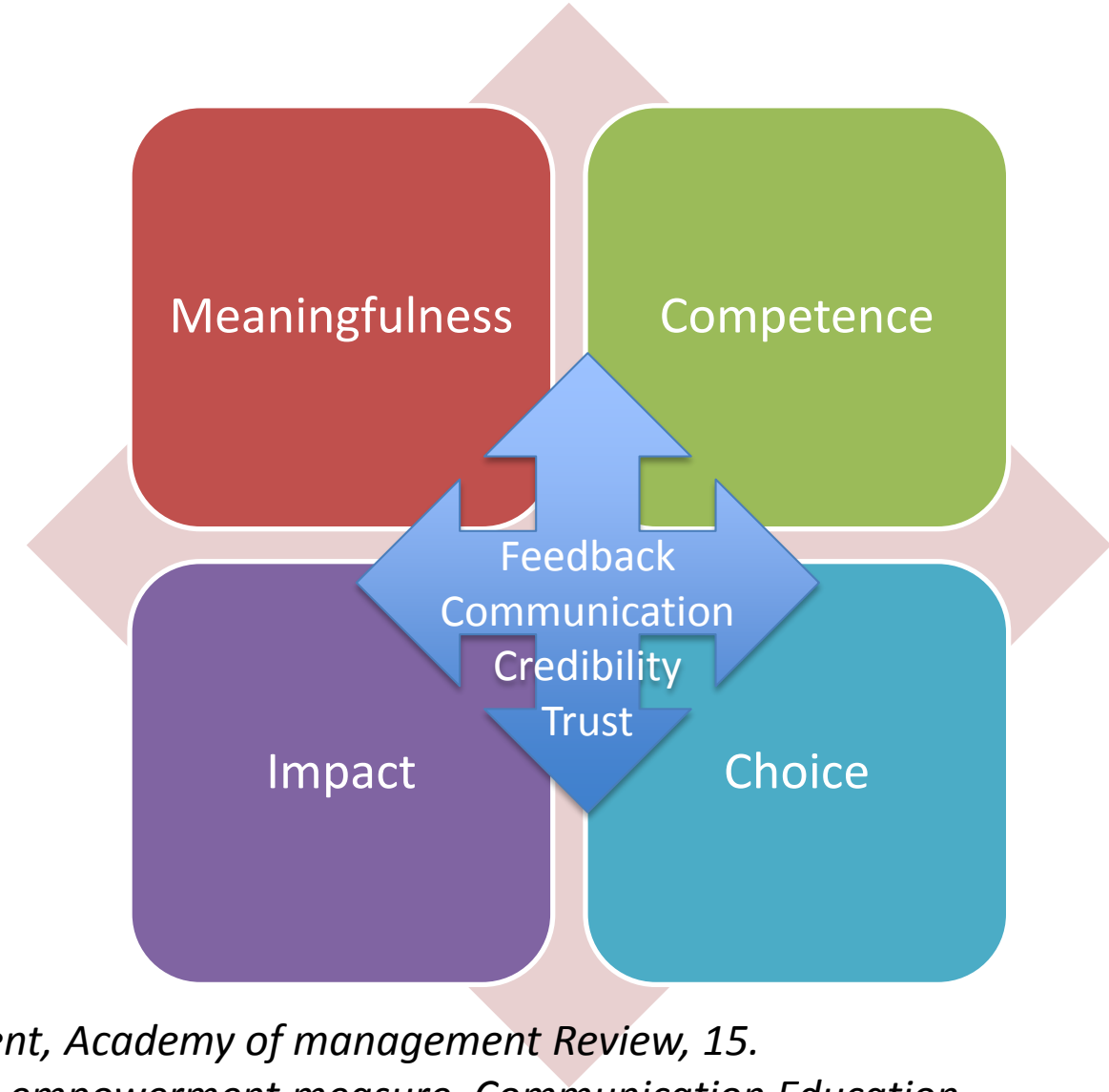
Empowerment

- Process of creating intrinsic task motivation by providing an environment and tasks which increase feelings of self-efficacy and energy



Thomas & Velthouse 1990 Cognitive elements of Empowerment, Academy of management Review, 15.
Frymier, Shulman, Houser 1996 The development of a learner empowerment measure, Communication Education, Vol 45.

Demonstrating 'Meaning' by the use of Case Studies

- Students appreciate meaning when we provide learning tasks that are relevant, realistic, authentic and represent the natural complexities of the 'real world'

Murphy, Elizabeth. "Characteristics of Constructivist Learning & Teaching." In Constructivism: From Philosophy to Practice by E. Murphy. http://www.stemnet.nf.ca/~elmurphy/emurphy/cle3.html

Course curriculum inclusions

Guided case studies

Developing ‘Competence’ by the use of Case Studies

- Empower students by developing mastery in
  - applying knowledge to real-world problems
  - synthesising information: eg. molecules & human disease
  - analytical skills
  - diagnostic thinking skills

Course curriculum inclusions

Guided case studies

Challenge: FY Health course Genes and Disease

- **Source:** Authenticity important to demonstrate the complexities of real life
- **Approach:** Enhance working knowledge of the material, develop problem solving skills
- **Delivery & Assessment:** Integrated into curriculum, LOs & assessed

Course curriculum inclusions

Guided case studies

Source

Molecular Cytogenetics

BioMed Central

Case report

Open Access

Novel complex translocation involving 5 different chromosomes in a chronic myeloid leukemia with Philadelphia chromosome: a case report

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Abstract

Background: The well-known typical fusion gene BCR/ABL can be observed in connection with a complex translocation event in only 2-10% of cases with chronic myeloid leukemia (CML). As currently most CML cases are treated with Imatinib, variant rearrangements have in general no specific prognostic significance, though the emergence of therapy resistance remains to be studied.

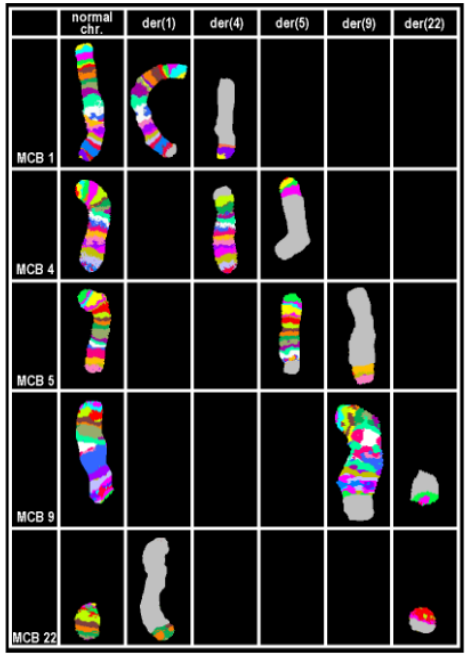


Figure 3
Array-proven multicolor banding (aMCB) was applied to determine the involved in this complex rearrangement. In each lane the results of aMCB analysis using probe-sets for chromosomes 1, 4, 5, 9 and 22 are shown. The normal chromosomes are shown in the first column, the derivative of all five chromosomes in the following ones. In the light gray by aMCB-probes unstained regions on the derivative chromosomes are depicted.

Course curriculum inclusions

Guided case studies

Approach: Open-ended vs directed

Open-ended

- Involves a problem that needs solving
- Students provide a solution
- May involve complex analysis of information

Directed

- Involves a story or scenario
- Asks students specific questions that leads them to apply information just learned
- Teacher controlled

Cliff W & Wright A. 1996 Directed case study method for teaching human anatomy and physiology, Advances in Physiology Education, 15:1

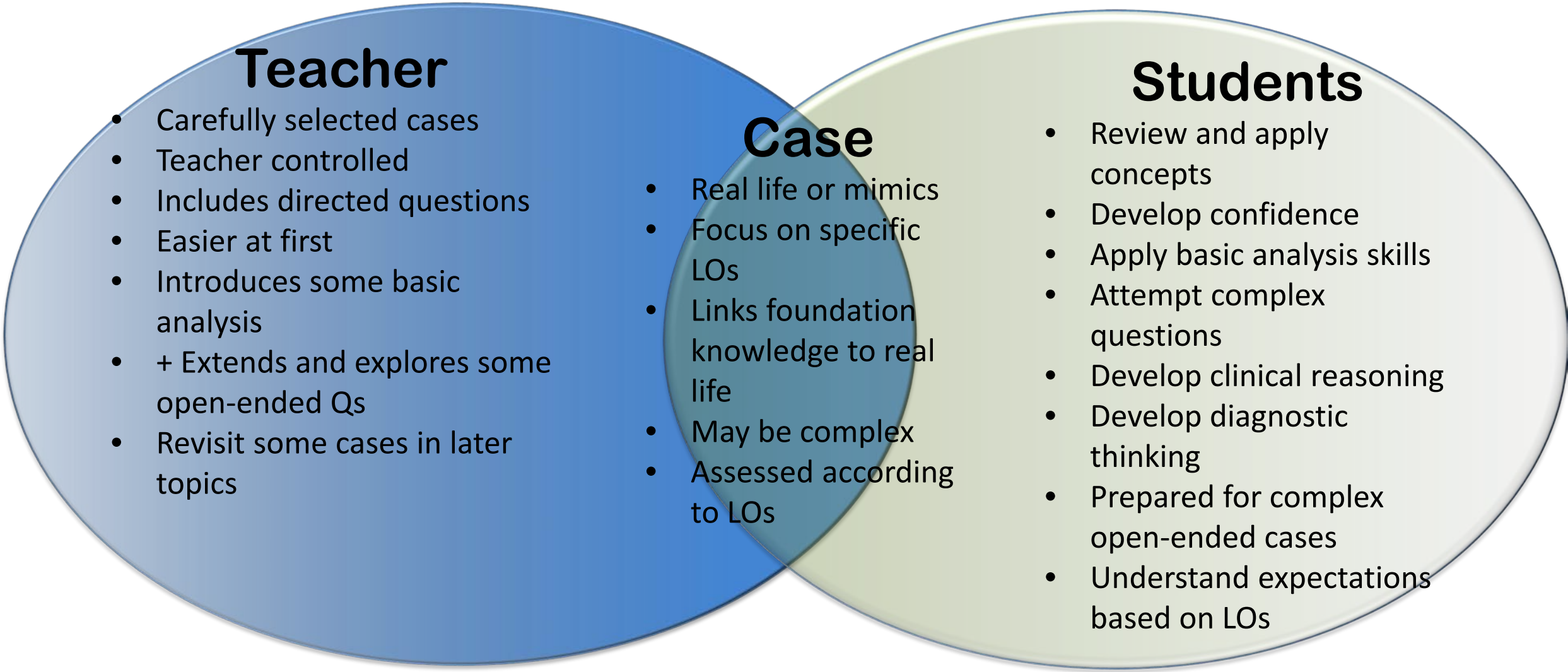
Course curriculum inclusions

Guided case studies

Delivery and assessment

- Case information provided in course materials with citations and electronic links to source
- Included specific leading questions to apply information just learned + further problem/s that encouraged analytical thinking
- Teacher controlled
- Specific LOs for assessment

Integrated case-study approach



Course curriculum inclusions

Guided case studies

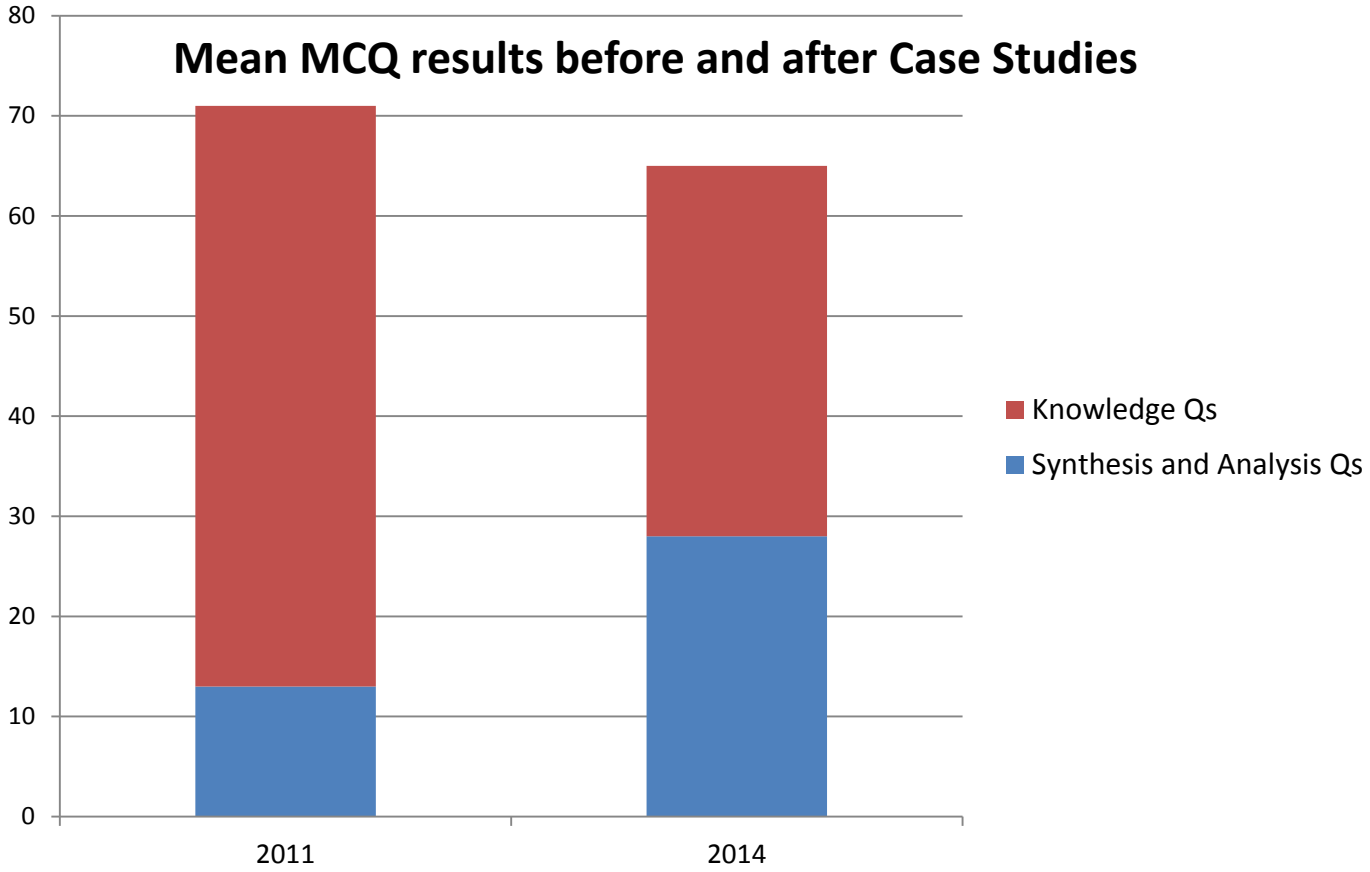
Evidence for effectiveness: meaning

- *Case studies, and examples were really interesting and comprehensive. It allowed me to really understand the content, and at the same time relate it back to the real world.*
- Case studies presented at the end of lecture content highlighted the relevance/ application of our learning.
- *The thing I liked most about this course was how at the end of each theoretical unit, there were case studies; this tied the information to real life and made a connection with why we were studying it, thus consolidating our knowledge.*
- The case studies were interesting and were a "treat" at the end of a lecture.

Course curriculum inclusions

Guided case studies

Evidence for effectiveness: competence



Discussion

- Think of a course /topic for which you might like to teach a case study.
- What benefits and challenges do you foresee?
- Where would you source your case study, what type of approach & delivery would you use and why?

Discussion

Benefits/challenges:

Source:

Approach:

Delivery: