

**CAA Southampton July 2012 – Research Into E-Assessment Symposium: Innovations In e-Assessment In Medicine**

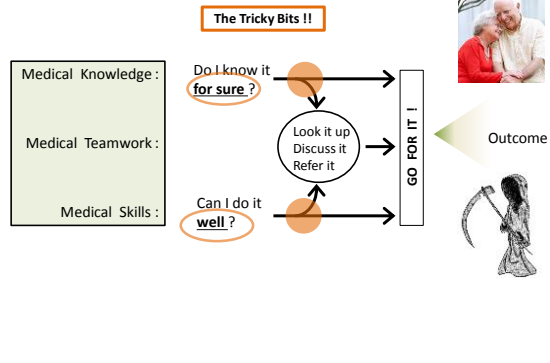
*Self-test exercises & exams with Certainty Based Marking (CBM) – Switching to CBM*

Tony Gardner-Medwin - Physiology (NPP), UCL

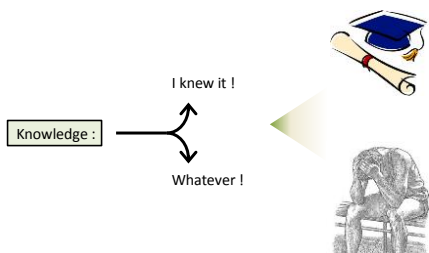
- Judgments in medicine
- The measurement of ignorance
- Worrying features of conventional marking
- CBM: the student perspective
- Enhancement of exam assessment
- Managing self-test tools outside a VLE

Publications, software, try-out, contact, etc: [www.ucl.ac.uk/LAPT](http://www.ucl.ac.uk/LAPT)

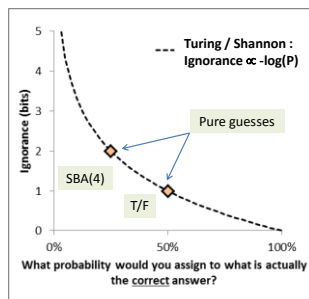
*The challenge of medicine*



*The beginning medical student*

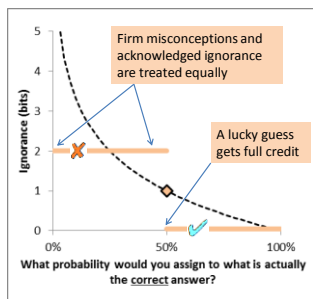


*Ignorance (unlike knowledge) has a clear definition*



With a good mark scheme, ignorance can be inferred in proportion to marks lost

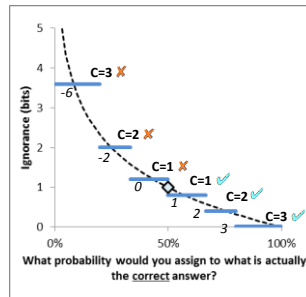
*Ignorance from conventional marking (T/F qs)*



**The most serious inadequacies**

(Ignorance inferred in proportion to marks lost)

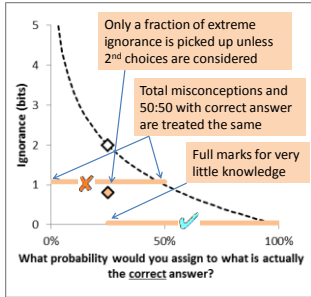
*Ignorance measured with Certainty-Based Marking (T/F qs)*



(Ignorance inferred in proportion to marks lost)

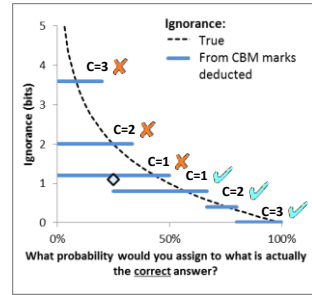


Additional problems with MCQs (SBA 4options)

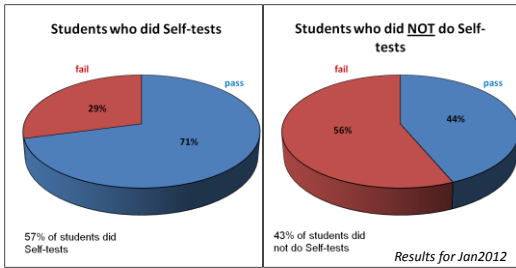


(Ignorance inferred in proportion to marks lost)

Ignorance measured with Certainty-Based Marking (SBA 4 opts)



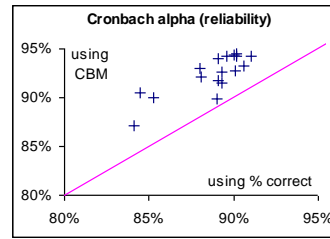
Performance in January Formative: first on-paper test in Med Sch



- Students who did NOT do Self-tests are about twice as likely to fail as students who did Self tests.
- Pattern similar every year: Use is a good predictor of Formative performance  
*N.A. Curtin, Imperial College*

CBM increases the reliability of exam data with True/False Questions

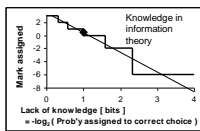
'Reliability' indicates to what extent a score measures something about the student's ability, as opposed to 'luck' or chance.



To achieve these increases using only % correct would have required on average 58% more questions.

What is knowledge anyway ?

- ✓ knowledge
  - ✓ uncertainty
  - 0 ignorance
  - x misconception
  - x delusion
- ↓ decreasing confidence in what is true, increasing confidence in what is false

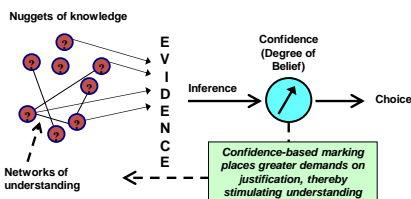


Knowledge is justified true belief. Proper justification requires understanding.

What is understanding?

To understand = to link correctly the facts that bear on an issue.

(This is how you tell a student from a parrot!)



T/F Qs: Ignorance, as measured with right/wrong Marking (1,0 or 1,-1)

