Student Research Projects:

- *What's in it for them?*

- *What's in it for us?*

Martin Luck
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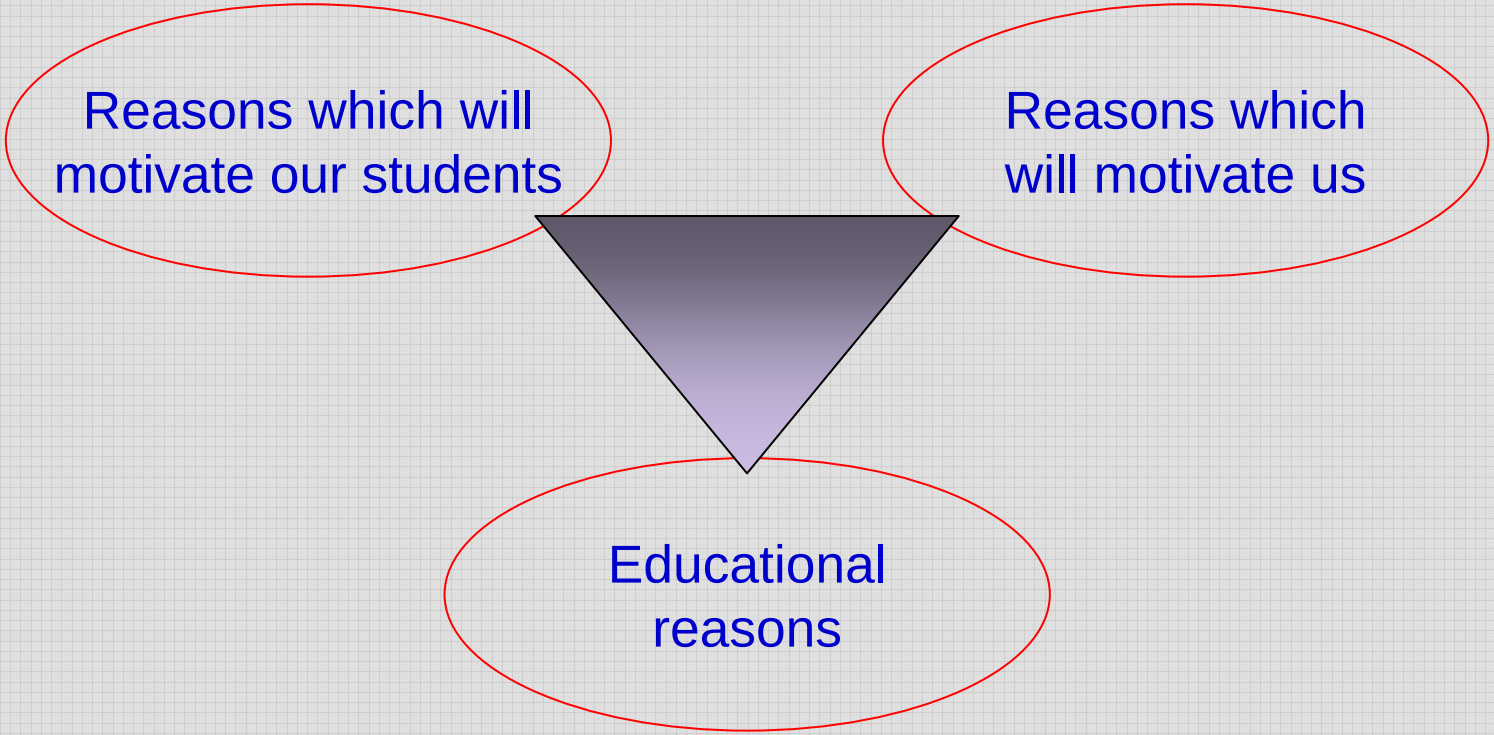
Getting undergraduates to carry out research takes a lot of effort
(…time…resources…patience…skill…)

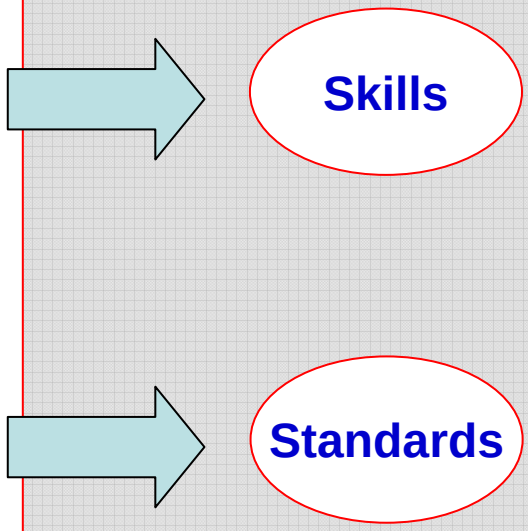
So…why bother?

We need good reasons



Educational reasons

4.6 All honours degree students are expected to have **some personal experience of the approach, practice and evaluation of scientific research (eg within a project or research-based assignments**). This is likely to be in the student's final year, and may draw on the experience gathered during the course as a whole. Such work is likely to include collection and analysis of information (eg from fieldwork, laboratory work, or questionnaires, as well as from the literature), interpretation of the information within the context of current knowledge, suggestions for further work, reference to safety and ethical considerations where relevant and a presentation or report on the findings.



Biosciences **Benchmark Statement (QAA, 2002)**

Educational reasons

3.5 Intellectual skills **[abridged]**

- recognising and applying subject-specific theories, paradigms, concepts or principles.
- analysing, synthesising and summarising information critically, including published research or reports;
- obtaining and integrating several lines of subject-specific evidence to formulate and test hypotheses;
- applying subject knowledge and understanding to address familiar and unfamiliar problems;
- recognising the moral and ethical issues of investigations and appreciating the need for ethical standards and professional codes of conduct.

Biosciences **Benchmark Statement (QAA, 2002)**

Educational reasons

Generic standards **[abridged]**

Good:

- be able to access and evaluate bioscience information … and to communicate the principles … in a way that is well-organised, topical and recognises the limits of current hypotheses;

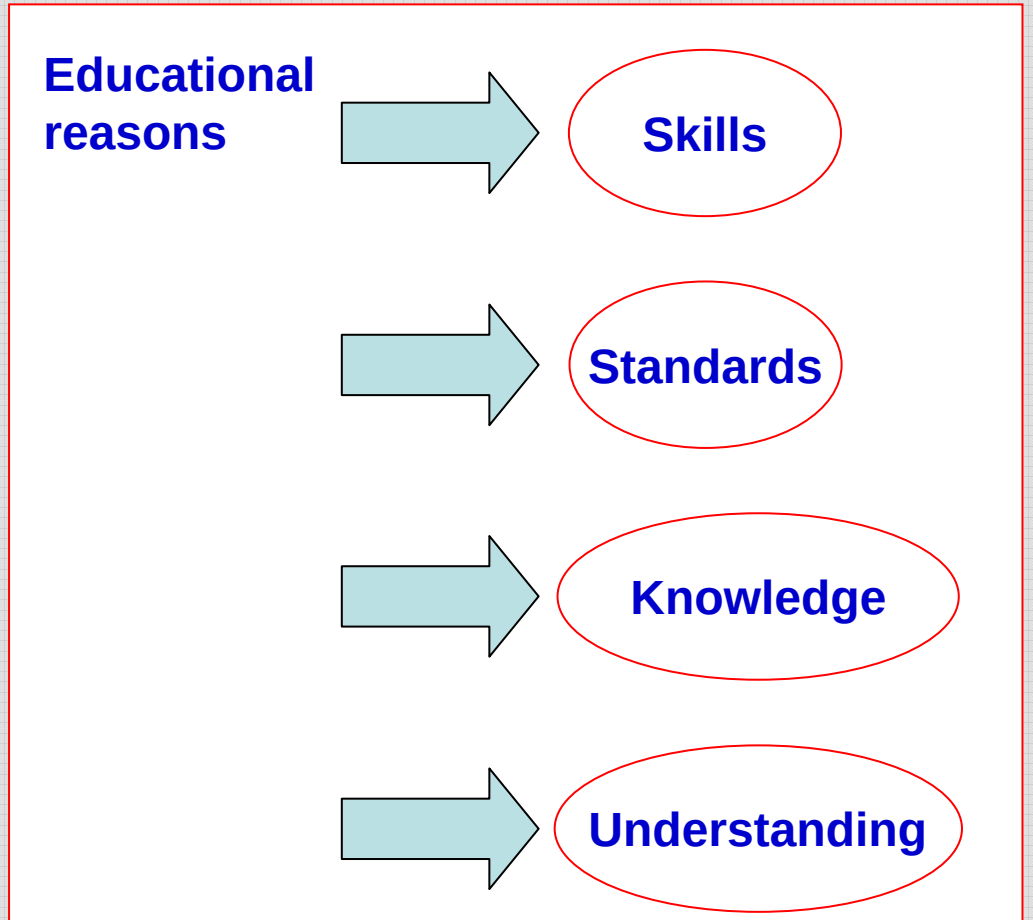
… ability to place the work in context and to suggest lines of further investigation;

… be able to plan, execute and present an independent piece of work (e.g. a project) …time management, problem solving and independence… interpretation and critical awareness of the quality of evidence;

… be able to construct reasoned arguments

… have well-developed strategies for updating, maintaining and enhancing their knowledge of the biosciences.

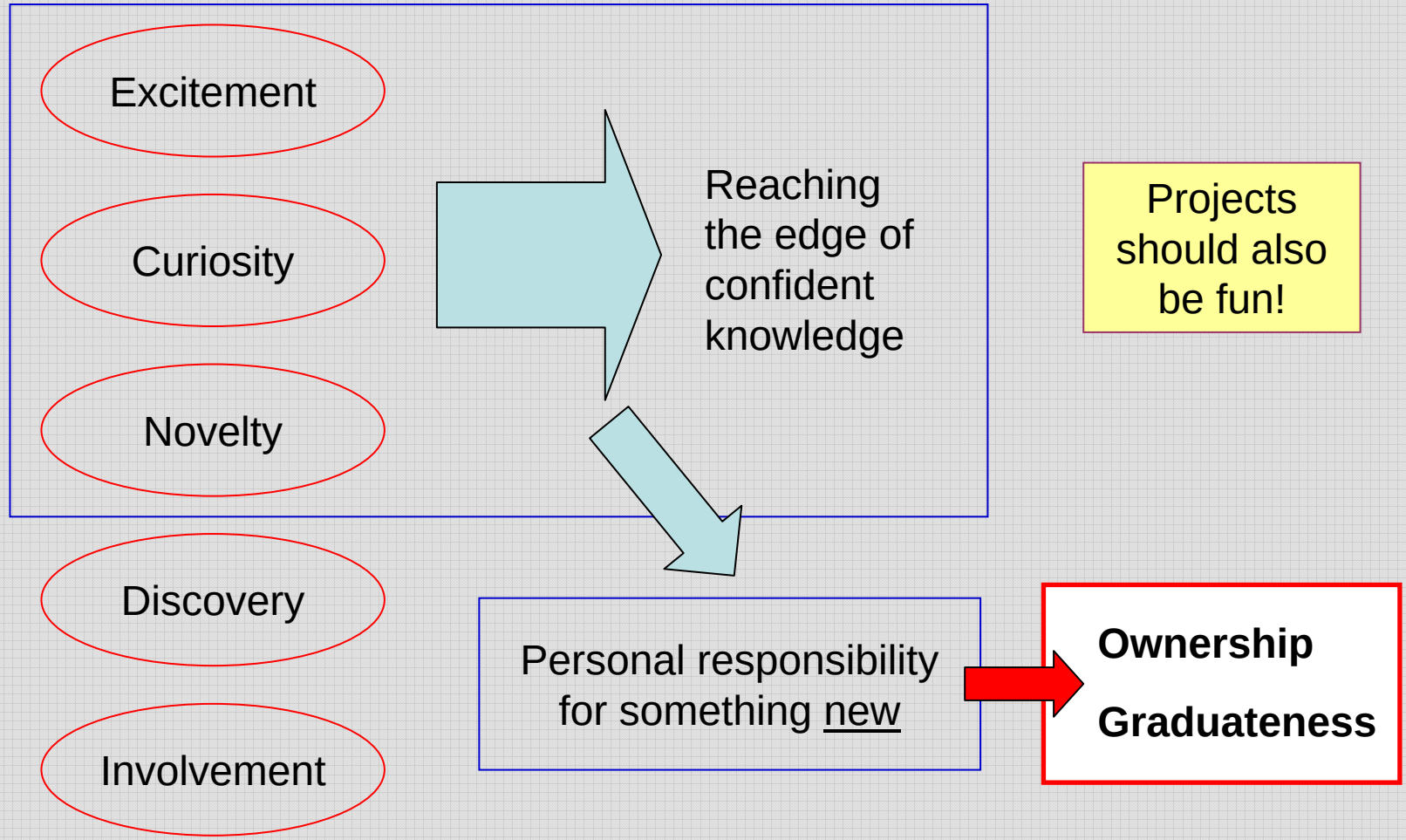
Biosciences **Benchmark Statement (QAA, 2002)**



Do these motivate students?

Possibly, but…

Students respond to more immediate motivators



Ownership

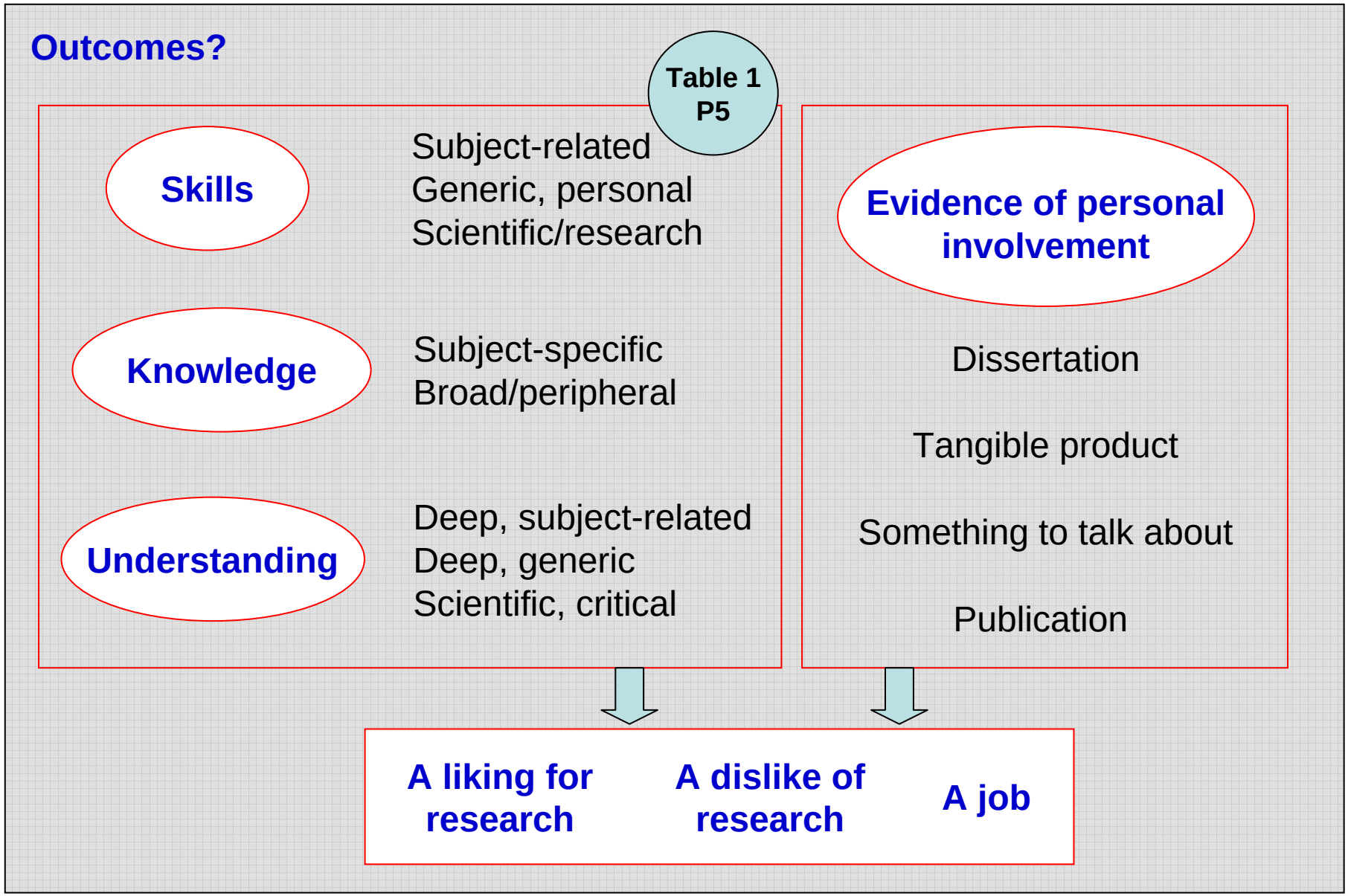
Graduateness

For the students who are the professionals of the future, developing the ability to investigate problems, make judgments on the basis of sound evidence, take decisions on a rational basis, and understand what they are doing and why is vital. Research and inquiry is not just for those who choose to pursue an academic career. It is central to professional life in the twenty-first century.

(Angela Brew, 2007)

Brew A (2007) *Research and Teaching from the Students' Perspective*. International Colloquium on Research and Teaching: International policies and practices for academic enquiry. Winchester, UK. 19-21 April. http://portallive.solent.ac.uk/university/rtconference/2007/resources/angela_brew.pdf [21/10/08].

See also : Healey M, Jenkins A (2008) *Developing Students as Researchers* UC Magazine, University and College Union, October 2008, 17-19


Outcomes?
Table 1
P5
Skills
Subject-related
Generic, personal
Scientific/research
Knowledge
Subject-specific
Broad/peripheral
Understanding
Deep, subject-related
Deep, generic
Scientific, critical
Evidence of personal involvement
Dissertation
Tangible product
Something to talk about
Publication
A liking for research
A dislike of research
A job

Outcomes?

Skills **Scientific/research**

Understanding **Scientific, critical**

Any research project should give students

- direct involvement with the scientific method
- a deep appreciation of how science works
- familiarity with the language and discourse of bioscience

The educational value of a project depends on the extent to which it provides these experiences, not on its intrinsic content, topic or methodology.

Outcomes?

Evidence of personal involvement

Publication

Few undergraduate projects have the chance of publication

This is a waste!

Consider:

Incorporation in other publications of research group

Publication in an undergraduate research journal (*Bioscience Horizons*)

“Publication” in house

Internal research symposium

Use in outreach work

What's in it for us?

A great deal of hard work

- Suggesting feasible topics
- Locating scarce resources
- Training in techniques
- Motivating recalcitrants
- Moderating over-enthusiasts
- Day-to-day supervision
- Problem solving
- Crisis avoidance
- Crisis management
- Minimising risk
- Moderating written work
- Maintaining personal sanity and having a life

Anything else?

What's in it for us?

Intellectual

Improved understanding → "The best way to learn is to teach"

The potential for surprise → As with any research, properly conducted

Utilitarian

Strengthening the research team (an extra pair of hands) → OK, provided roles and responsibilities are clear

Testing ideas
Taking (calculated) risks → OK, provided focus is on **process** and does not *depend* on outcome

Pedagogical

One-to-one education

The potential for surprise

→ Getting to know students,
- watching them change,
- finding their strengths

Supervision is a singular privilege

Supervision: a supervisory contract

The student-supervisor relationship: "amicable professionalism"

Table 6 P27

A set of mutually agreed obligations, responsibilities and expectations

Can be implicit, but best if explicit

Can be incorporated into project guidance literature

Summary: What's in it for (both of) us?