

# Good Teaching in Biology: The six-fold path?



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# How can we find out?



## ⌘ From Literature?

Good teachers were 'men and women who came into my dark head and lit a match'

Yann Martel, *Life of Pi*.

## ⌘ From personal experience?

## ⌘ From 'The literature'?

# Entwistle et al.'s three Es



⌘ Explanation

⌘ Empathy

⌘ Enthusiasm

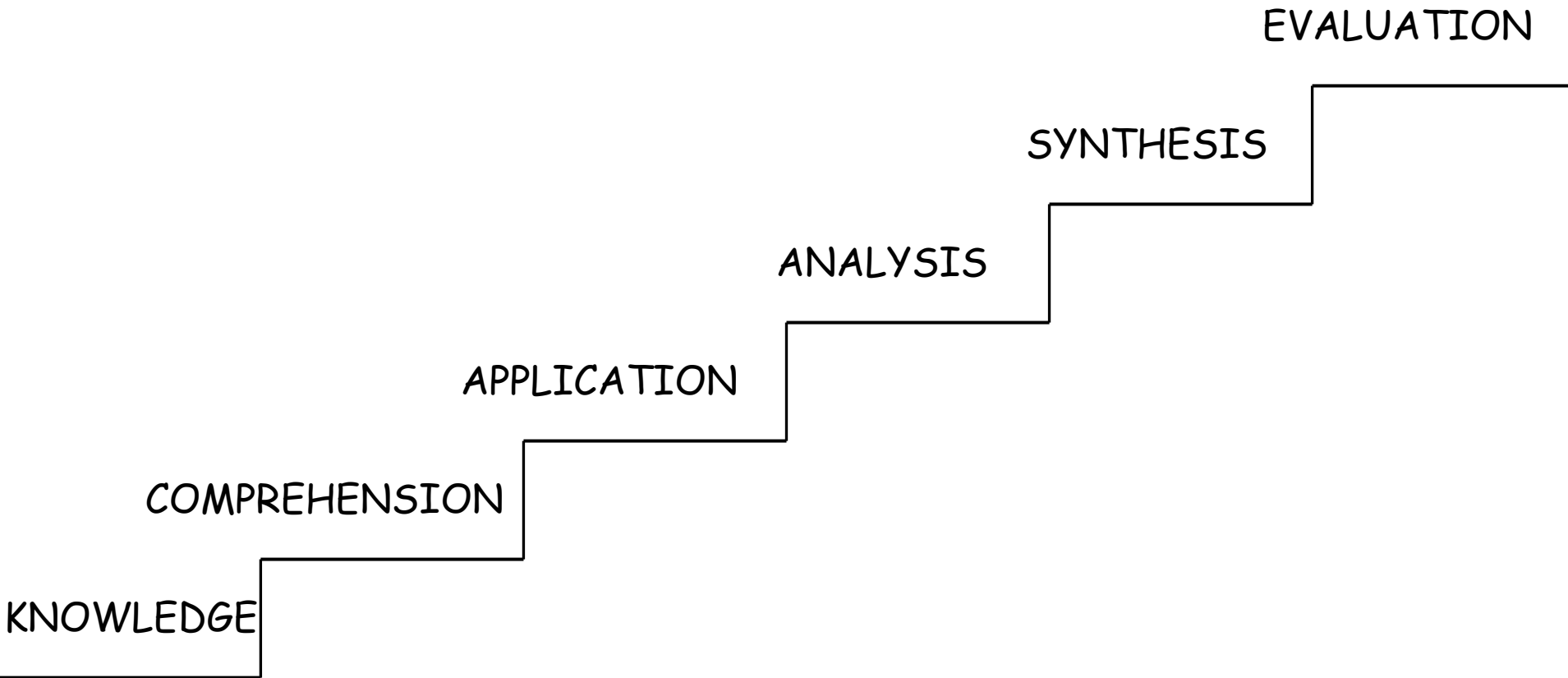
And my additions:

⌘ Evaluation

⌘ Engagement

⌘ Expertise?

# Consider Bloom's Taxonomy:



# How can we evaluate?



- ⌘ Self evaluation and reflection
- ⌘ Peer observation
- ⌘ Institutional ('automatic') sources
  - assessment marks
  - external's comments
  - staff/student liaison committees
- ⌘ Student feedback

Self Assessment Sheet

TITLE: CHAOS LECTURE

DATE

COMMENTS

10.10.98 WENT V. WELL! EXERCISE INTERPRETING  
MAY'S GRAPH IS USEFUL (GOOD EXAM QUESTION

21.10.99 SHOWER CLASS - RAN OUT OF TIME INTERPRETING  
GRAPH. IN FUTURE HAVE MORE OF THE OHS  
AS HANDOUTS TO SAVE TIME.

12.10.2000 NOT SURE I EXPLAINED LINEAR/NON  
LINEAR DISTINCTION WELL. THINK OF  
SOME GOOD EXAMPLES

# Engagement



- ⌘ Involving students in *active learning* - field trips, laboratories, tutorials and....  
Lectures??

# Are lectures any use?



- ⌘ BLIGH, D. A. (1998) *What's the Use of Lectures?* Exeter: Intellect.
- ⌘ Abundant evidence that lectures compare poorly with alternative methods in stimulating thought and changing attitudes
- ⌘ More modest goal of imparting information is achieved marginally more efficiently



# So are we ditching lectures?



- ⌘ NO! Lectures continue to fill traditional HE timetables, and 'traditional' lecturing predominates (e.g. Lammers and Murphy, 2002)
- ⌘ Why the tenacity?
  - economic efficiency?
  - institutional inertia?
  - personal inertia and professional pride?


# What Should be Done?



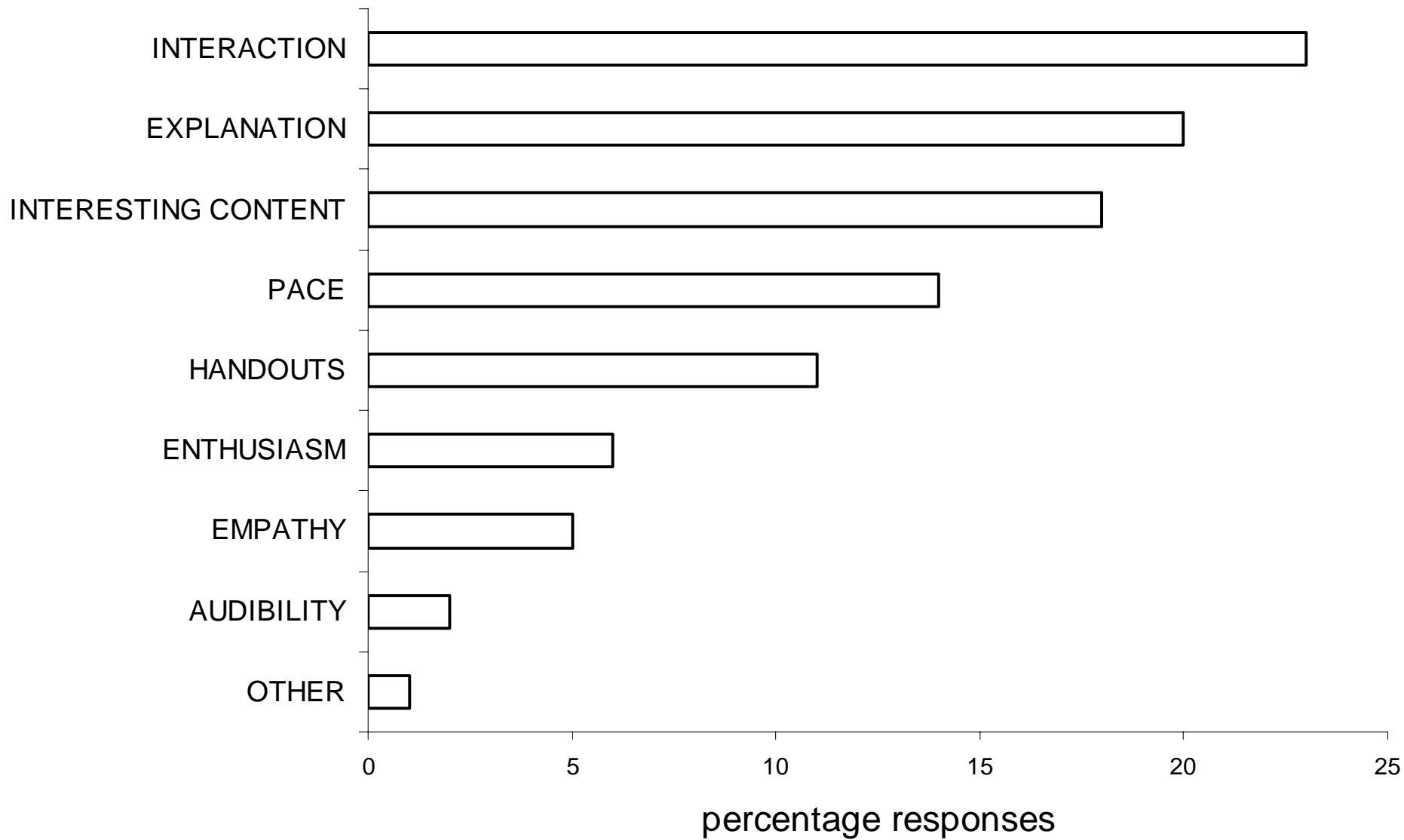
⌘ Consistent message from educational developers, 'tips' books etc is summarised by Bligh:

*It behoves lecturers to lecture less, to convince students of the intellectual aims of their courses, and to create opportunities, in lessons and outside, in which thinking can flourish.*

# My project (Huxham 2005\*):



- ⌘ First year group - 80 - 130 students.
- ⌘ Five years evaluation data (rapid feedback method)
- ⌘ Two years of controlled experiment
- ⌘ Replicate interactive windows, allow comparisons without confounding by student ability



Test	P value	Expected Trend?
<b>2001 results</b>		
Class test	0.33	√
Exam (short answer 1)	0.90	√
Exam (short answer 2)	0.18	√
Exam (short answer 3)	0.85	√
Exam (essay answer 1)	0.06	√
Exam (essay answer 2)	0.50	√
<b>2002 results</b>		
Class test	<b>0.009</b>	√
Exam (short answer 1)	<b>0.003</b>	√
Exam (short answer 2)	0.900	√
Exam (short answer 3)	0.800	√
Exam (short answer 4)	0.150	×
Exam (essay answer 1)		
Exam (essay answer 2)		

# So.....



- ⌘ Students like interaction
- ⌘ Some evidence of rather weak effect of individual interactive 'windows' on retention and understanding
- ⌘ BUT - cannot compare effects of interaction *per se*, because whole lecture may be affected.

# And finally...Expertise



- ⌘ Must good teachers in HE biology also be researchers?  
Experience suggests not always.
- ⌘ But...good HE teachers need to be part of 'Communities of Practice' (E. Wenger) and induct students into 'Ways of Thinking and Practicing' (D. Hounsell) in their subject.

# References:



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