

It's good to talk: encouraging learning conversations in biology

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Good learning is rooted in, and inspired by, good relationships...

Good relationships require conversation...

‘At its best, higher education is a conversational journey shared among different learners’ (modified from Watson, 2007)

So now... please introduce yourselves to your neighbours, and discuss what you think of this definition.



‘Conversational’ (oral) assessments – why use them?

- Oral communication skills
- Relevance – the only ‘real world’ exam?
- Interactivity – you really can probe understanding, and help remove ambiguity.
- Plagiarism is impossible (?)
- Publicity, ‘ownership’ and ‘authenticity’:

‘speech..is one way in which individuals ..help to form their own pedagogical identities. It has an authenticity that writing cannot possess’ (Barnett, 2007 p89)

- They are more inclusive (Waterfield and West, 2008)?

The written versus the spoken word...

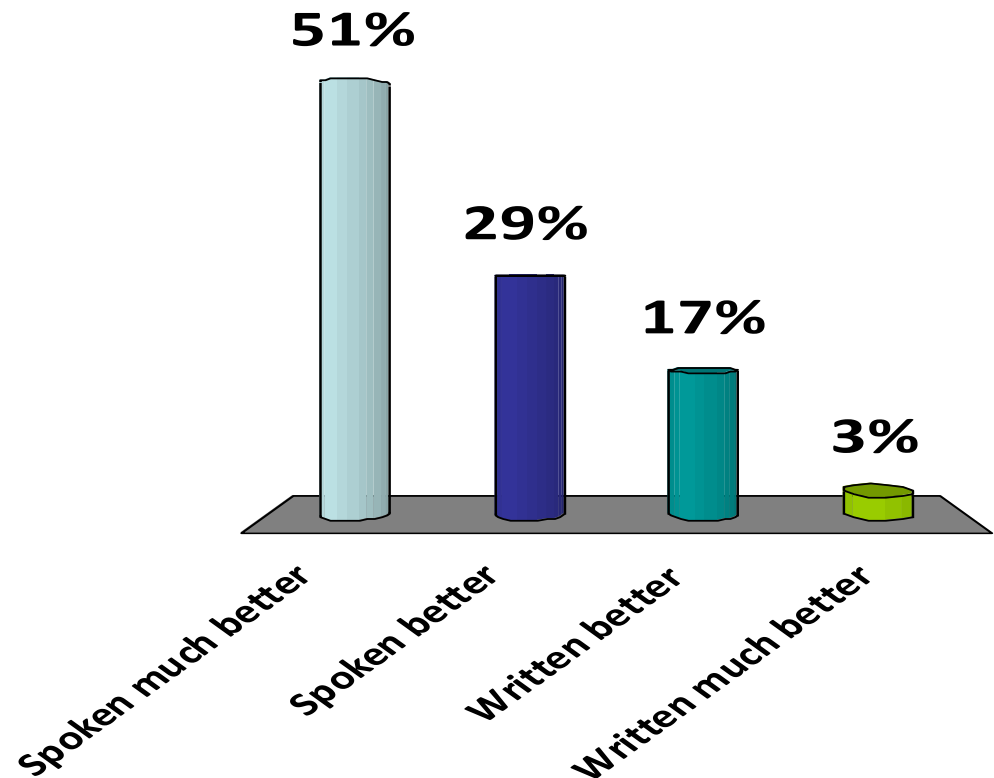
- In pairs, with your neighbours, please :

First, nominate one person a 'speaker', one a 'listener'. Now the speakers have 2 minutes to describe to the listeners what they consider to be the most important theoretical advance in their disciplinary field in the last 30 years (or so), and explain why they made their choice.

- Second, both people in a pair should write down (without speaking) what you think the next major advance in your chosen field will (or should) be, again with justification. You have 2 minutes, then please swap your papers.

Out of the spoken and the written answers, which was the better one (which was clearer, most comprehensive and most convincing)?

1. Spoken much better
2. Spoken better
3. Written better
4. Written much better



So is there quantitative evidence?

- Huxham, Campbell and Westwood (2009 – in prep.) – we looked at two classes:
 - large first year class divided randomly into oral and written groups for short answer tests
 - smaller 3rd year class, all students answered both oral and written questions during the same examination
 - marks compared and students interviewed

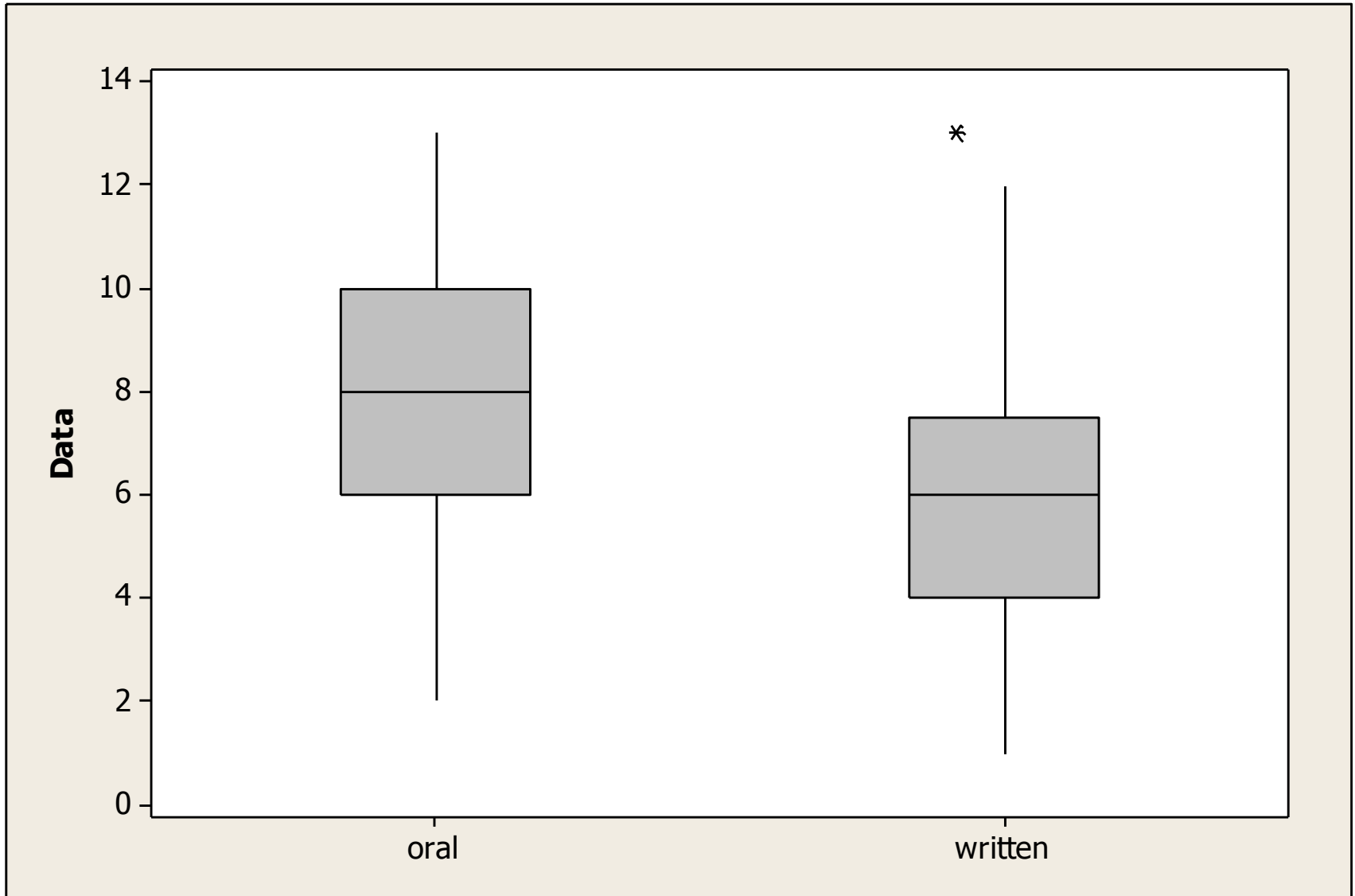
1. What is meant by 'the argument from design'? Give an example.

If we (the population and Earth as a whole) ~~are~~ ^{are} a design. Then there must be a designer. Now with the design as complex as it is Surely who designed the designer. This infinite regress is the main argument for design.

1. What is meant by 'the argument from design'? Give an example.

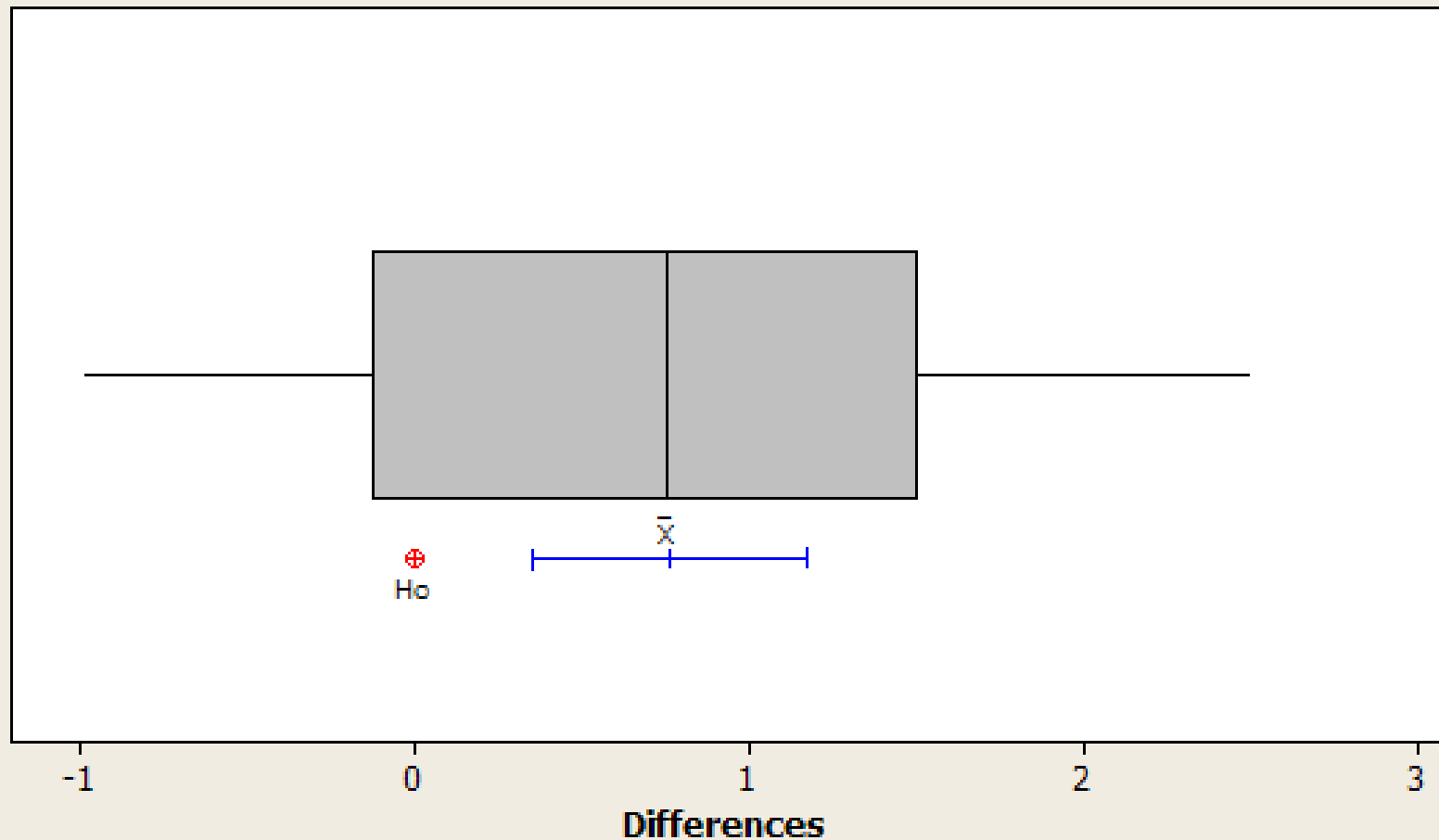
It mean how well ~~organs~~ Organs ect have ~~been~~ evolved like the human eye it has a flaw in the design as It has a ~~the~~ blind spot an eyes function is to be able to see every thing so this is a flaw in its design

Median test marks in oral vs written two sample comparison (n=46, p <0.001. Huxham et al. unpublished)



Median mark paired sample test (n = 24, P = 0.001, Huxham et al. unpublished)

Boxplot of Differences
(with H_0 and 95% t-confidence interval for the mean)

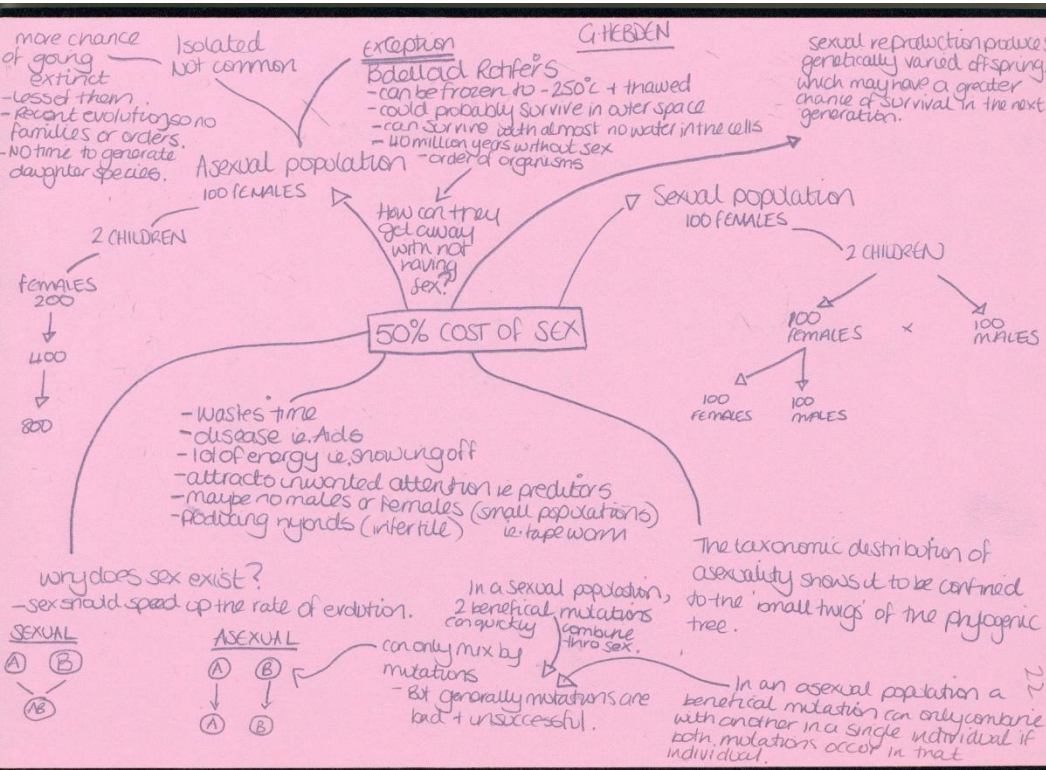


And what students said:

- *Writing takes a long time. Nobody writes anymore but for three hours three times a year you are compelled to and I end up with writer's claw.*
- *I think I remembered more because I remember sitting down and talking to people, their expressions, for me its easier to remember because I am one of these hands and arms people.*
- *I did keep thinking "they are next door saying what they mean and I am struggling to put down on paper what I mean".*

Support for study skills by talking with peers

Notes in lectures- 238 1st yr note-sets examined using copy paper



Historical Evidence

1. Similarities between organisms
- analogous (caused by convergent evo)
- homologous (shared ancestry)
* morphological eg The Pentadactyl Limb
* molecular

2. Fossil

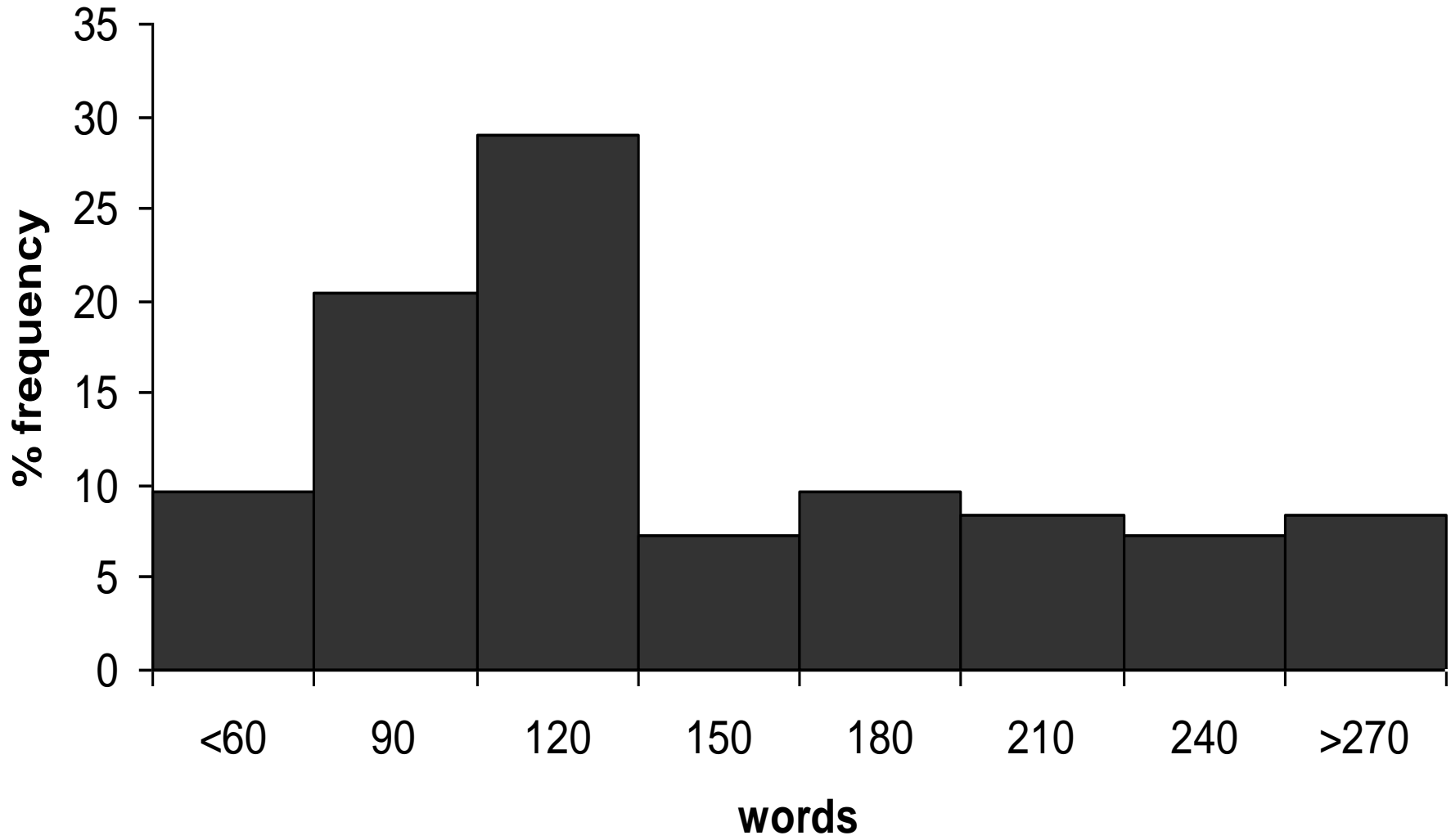
1. Homology of taking 1 gene from 1 animal & putting it into another and it still works - derived from a common ancestor.

During development embryos develop similarly

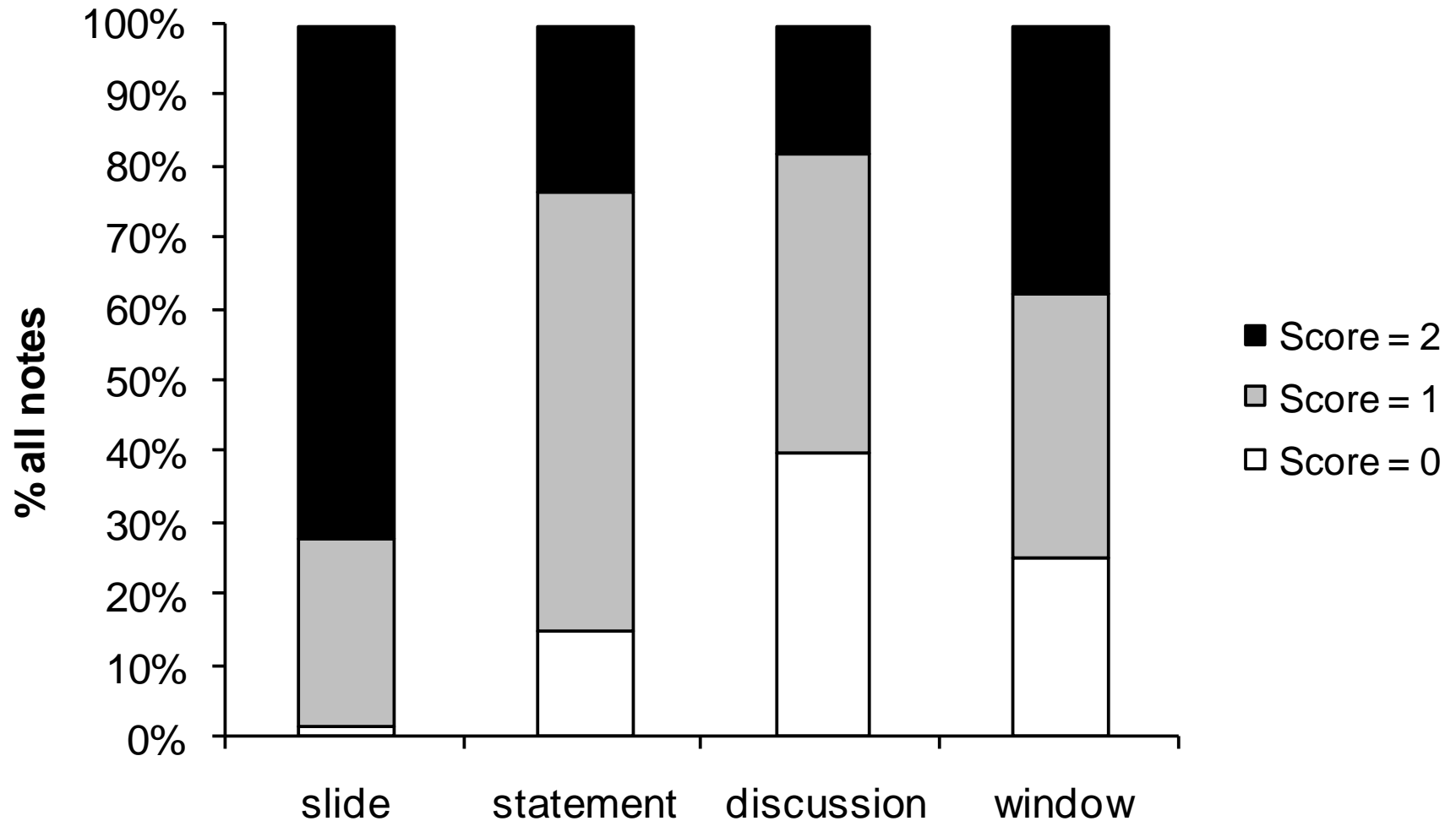
ONTOGENY
RECAPITULATES = form follows evolutionary history.
PHYLOGENY

vestigial organs - vestige (something left behind).
pelvic bone of whale snakes - external buds
- whales ancestors used to have limbs - ~~external buds~~ vestigial pelvic pelvis/limbs

2. REPTILE (3)
FISH (1)
MAMMAL (4)
AMPHIBIAN (2)



..and when do they record them?



And in conclusion – creating learning conversations?

- We can use simple methods to maintain dialogue between students and tutors
- Oral assessments have many advantages and there is evidence that students do better in them.
- Many study skills are essential but assumed (e.g. Note-taking). Explicit instruction in these has a poor record. So harness the power of peers and encourage peer conversations, about topics and about skills.