

Student Perceptions of Infection & Immunity A and B Practicals and Assessments: A foray into action research

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The Context

- Infection & Immunity A & B - Level III
- Intensive Practical classes
 - I&I A 9x5 hr lab sessions
 - I&I B 12x5 hr lab sessions
- Practical related assessments
 - I&I A - Prac report (10%), **Daybook (15%)**
 - I&I B - Workshop (5%), **Viva (10%), Daybook (15%)**
- Beginning of an Action research cycle
 - Contributed to Grad. Cert in Ed. (Higher Ed.)

Aims

- To gain an insight into student perceptions of the value of I&I A and I&I B practicals
 - Many anecdotal comments suggesting students “enjoy/get a lot out of” the practicals
 - Partially supported by generic course SELTs
 - What do they *really* think & understand?
- To determine what areas (if any 😊) require changes/improvements
 - Improve the quality of the course
 - Proactive in addressing student concerns

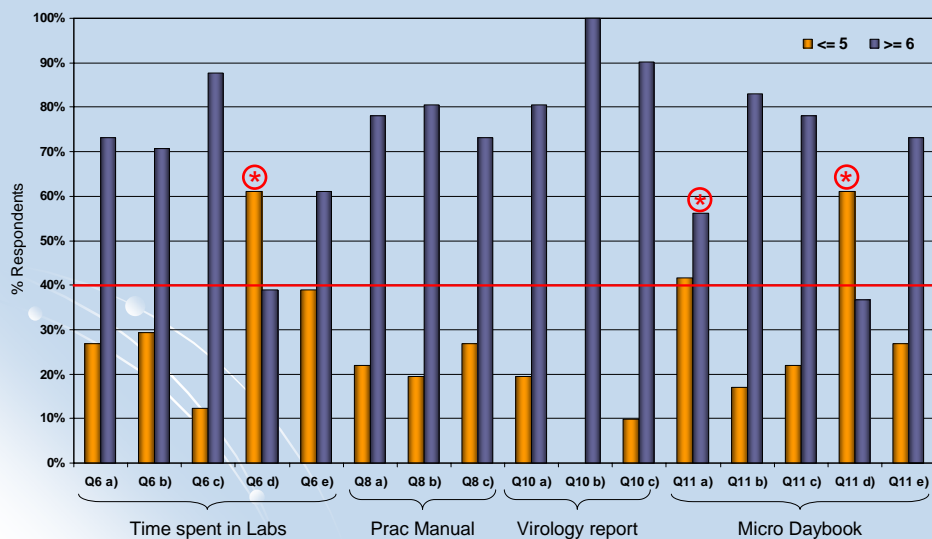
The Surveys

- Anonymous, linked surveys
- Three types of questions
 - Selecting from a range of choices
 - Likert-style 1-10 scale (where 10 is “positive”)
 - Written comments - chance to praise or vent
- Some differences between surveys
 - Reflect the differences in assessments
 - Improvements due to experience

Demographics

- I&I A: Effective enrolment - 69 students
 - 41 Respondents, 59.4% (21 Unique)
- I&I B: Effective enrolment - 65 students
 - 27 Respondents, 41.5% (7 Unique)
- Incentives didn't help all that much!

Comparison of broad agreement (i.e. ≥ 6) for Likert-type Questions (I&I A)



Overview of Likert-type Questions (I&I A)

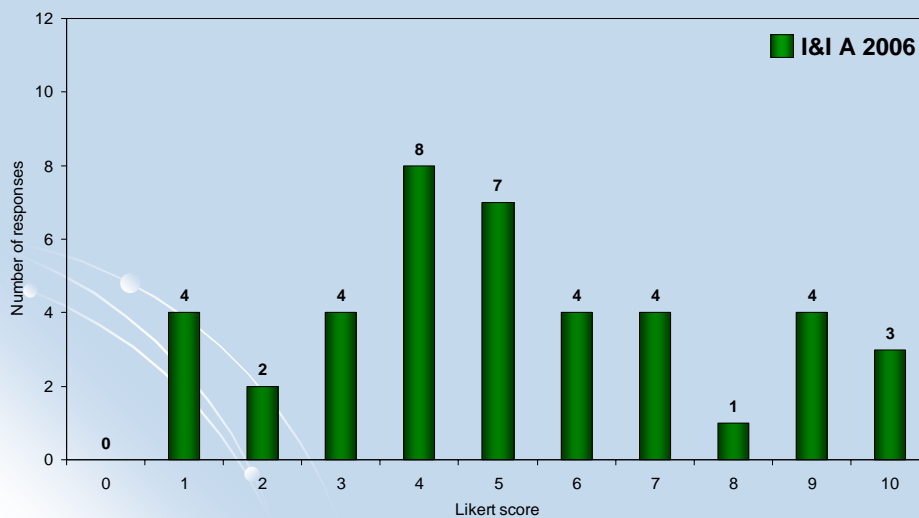
Comparison of broad agreement (i.e. ≥ 6) for Likert-type Questions

What areas would benefit from improvement?

- Q6d) Provision of materials and/or equipment in the lab
- Q11a) Explaining the requirements of the Daybook
- Q11d) Providing sufficient time to fill out the daybook during prac classes



Question 6 - Thinking about time spent in the laboratory:
d) It was easy to access equipment and/or materials in the lab



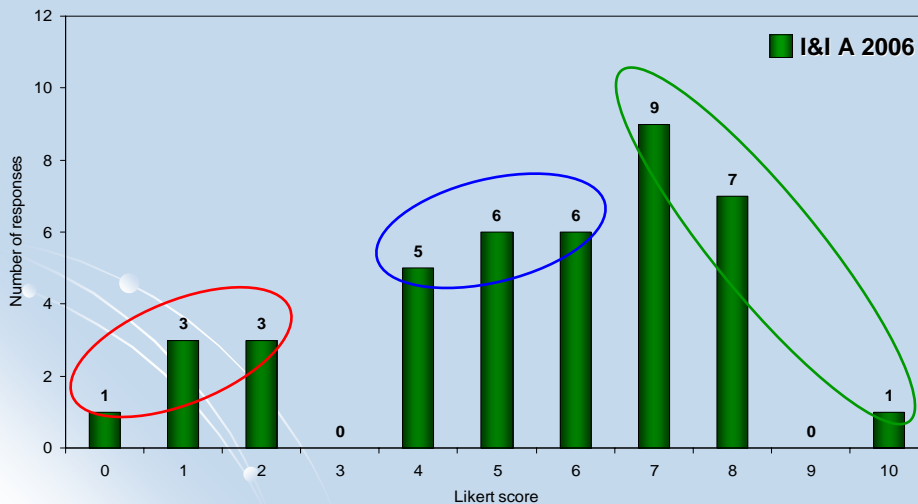
Associated Student Comments

- Q7 - Please comment on how your experience in the I&I A practical sessions might have been improved
 - 19/41 (46%) comments related to lack of equipment
 - 11/41 (27%) comments related to overcrowding

The Resource Issue

- An uneasy balance between:
 - Amount of equipment (expensive to replace and/or upgrade)
 - Maintaining student enthusiasm
 - Number of students
 - Pressure to grow (or at the very least maintain) student numbers
- Few palatable options
 - ↓ number of practical hours
 - ↓ resource intensive practicals } = ↓ Quality?
 - Computer Based Simulations? (Hughes, 2001)

Question 11 - Thinking about your Microbiology Daybook:
a) I understood what was required to do well



“What the....?”

- First use of daybook assessment
- Students provided with “clear” guidelines
 - Presentation Format
 - Specific Guidelines
 - Assessment
 - Nicely condensed into one page
 - not too much to read!
 - But made a number of assumptions
- Ultimately the students didn’t understand what originally considered straightforward...

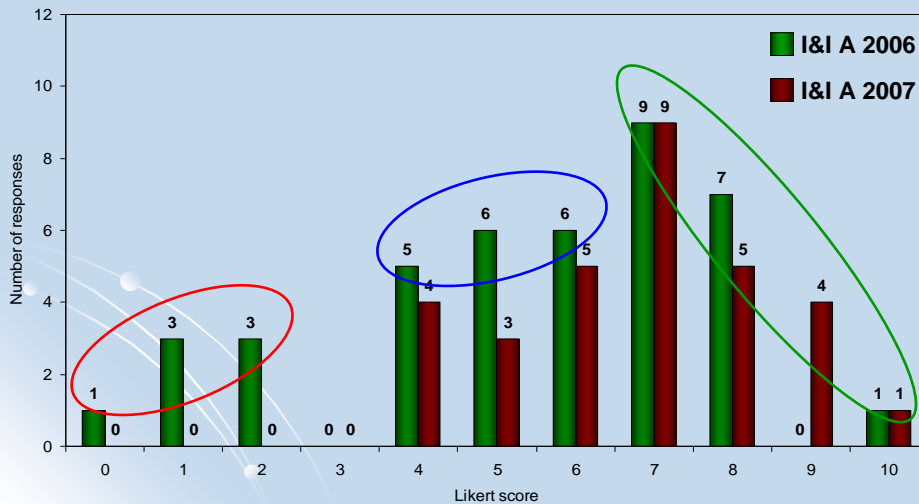
Associated Student Comments

- Q12 - Please use the space to below to comment on how the report and/or daybook assessments might be improved
 - 13/41 (32%) comments requested clear assessment criteria (unsure of detail required)
 - 9/41 (22%) comments requested guidance on how to write report/daybook
 - 6/41 (15%) comments suggested the assessments were okay in their current form

Improvements?

- The following changes were made:
 - Expanded expectations (2 pages)
 - Provided flowchart linking all experiments
 - Provided good vs bad examples
 - Total of 9 pages!

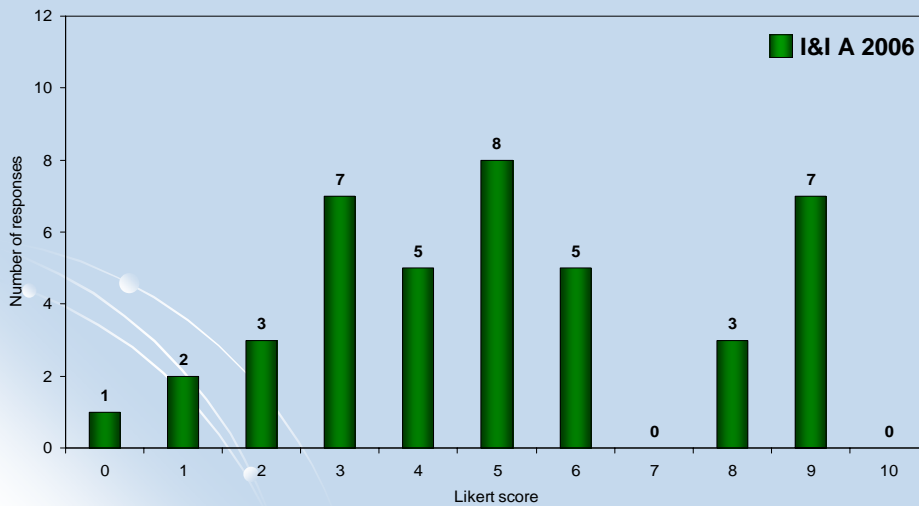
Question 14 - Thinking about your Microbiology Daybook:
a) I understood what was required to do well



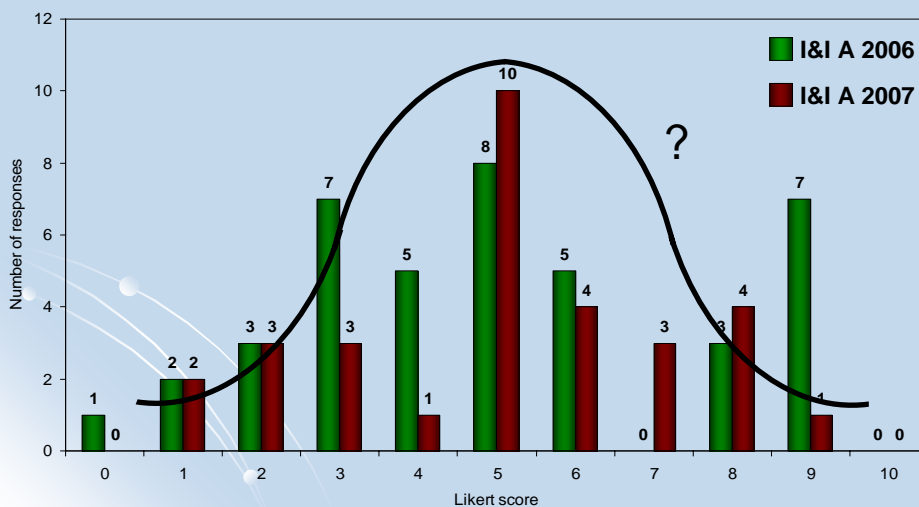
Did they *really* understand?

- Rampant plagiarism!!
 - “Good” example was based on 1st experiment
 - Students used this as a template for their own 1st experiment
 - High marks for this part of the day book
 - average 17/19
 - Did not carry onto rest ☹️
 - averages of 20.1/28, 15.2/29, 9.6/15, 13.9/20

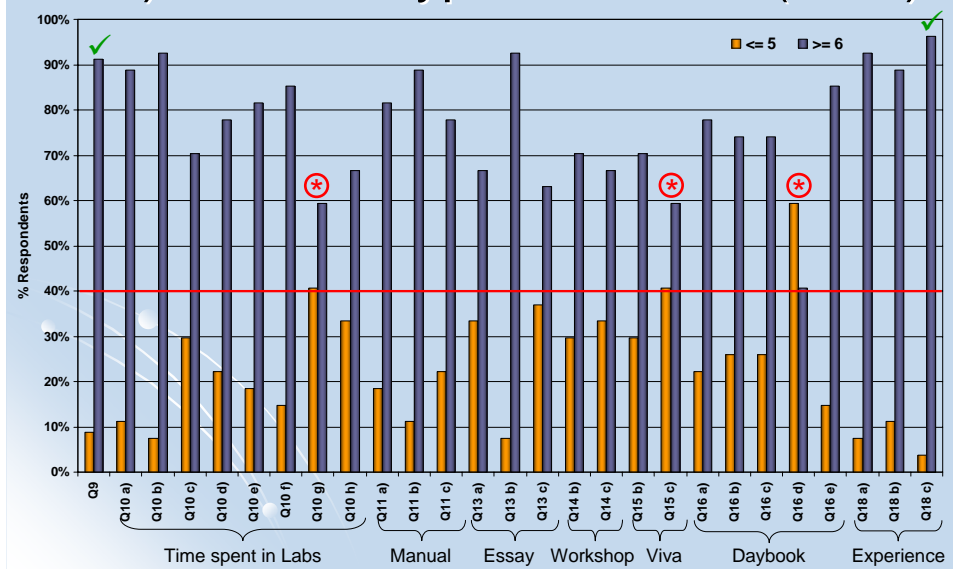
Question 11 - Thinking about your Microbiology Daybook:
 d) There was sufficient time available in the practical classes to work on the daybook



Question 14 - Thinking about your Microbiology Daybook:
 d) There was sufficient time available in the practical classes to work on the daybook



Comparison of broad agreement (i.e. ≥ 6) for Likert-type Questions (I&I B)



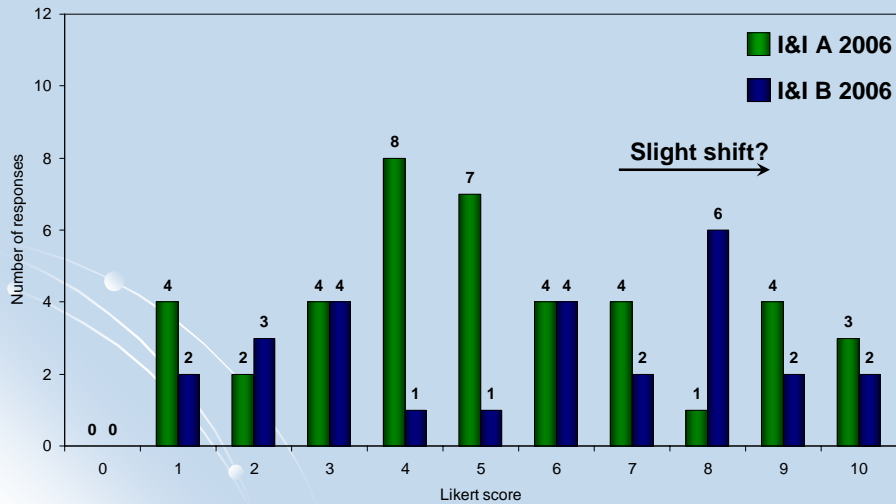
Overview of Likert-type Questions (I&I B)

Comparison of broad agreement (i.e. ≥ 6) for Likert-type Questions

What areas would benefit from improvement?

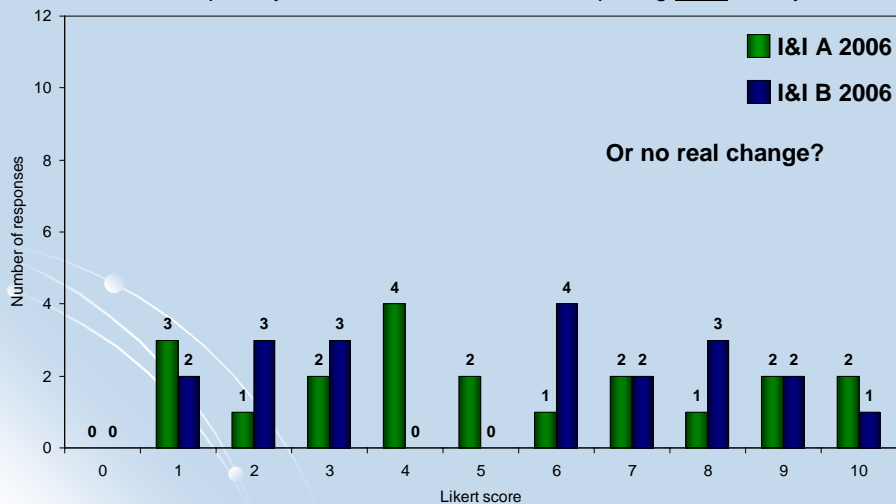
- Q10g) Provision of materials and/or equipment in the lab
- Q15c) Explaining how the Viva reflects the students' knowledge of the pracs
- Q16d) Providing sufficient time to fill out the daybook during prac classes

Question 10 - With respect to time spent in the laboratory:
g) It was easy to access equipment and/or materials in the lab



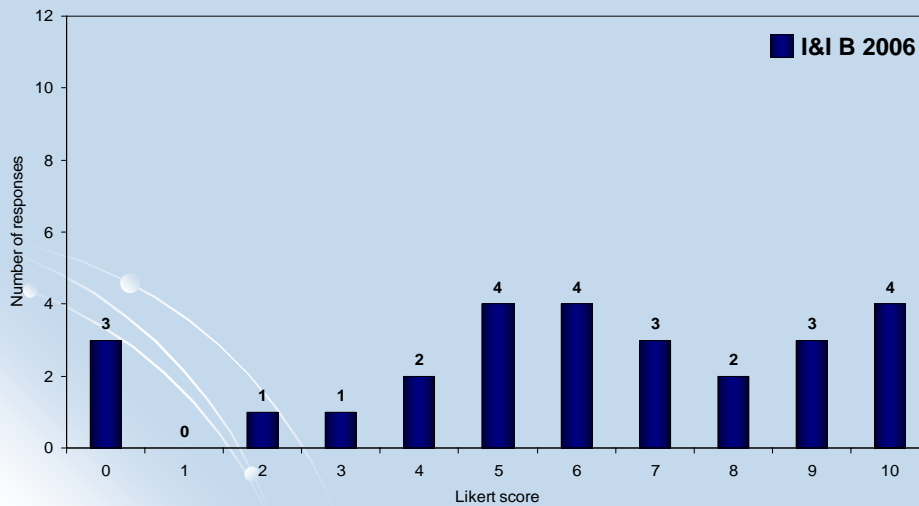
Question 10 - With respect to time spent in the laboratory:
g) It was easy to access equipment and/or materials in the lab

NOTE: Graph only shows data for students completing **both** surveys



Question 15 - With respect to the Viva:

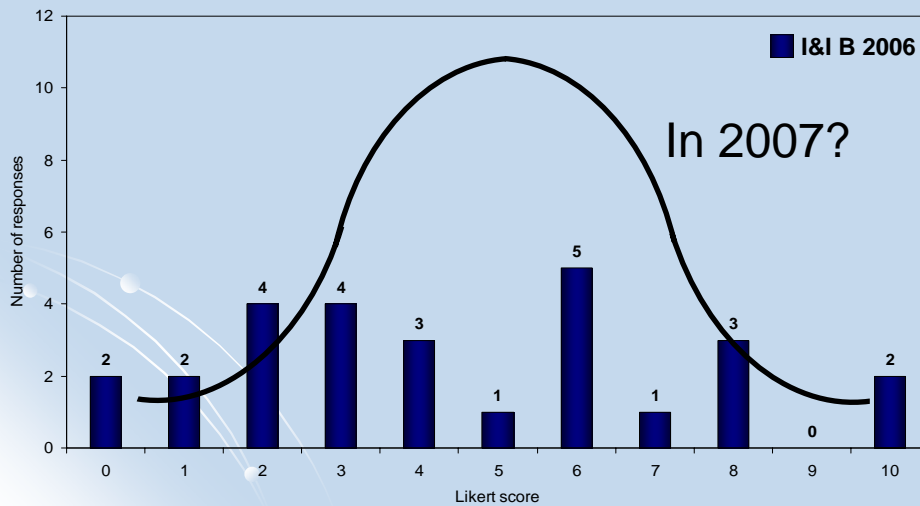
c) The viva gave an accurate reflection of my understanding of the practical material



“Vive le Viva”

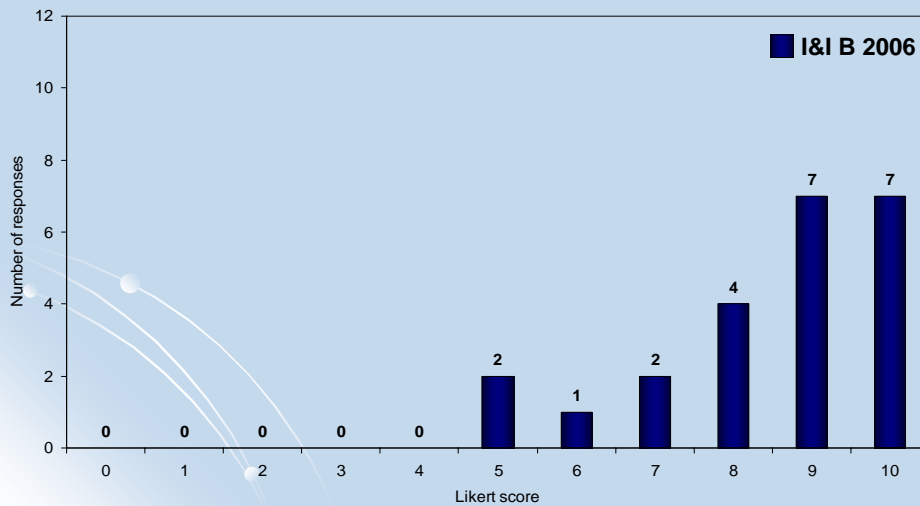
- Disadvantages
 - Some students cannot think on their feet
 - Some simply freeze!
- Advantages
 - Encourages students to review material
 - Excellent way to probe students’ deep understanding of the material (Lawson, 2005)

Question 16 -With respect to the Daybook:
d) There was sufficient time available in the practical classes to work on the daybook

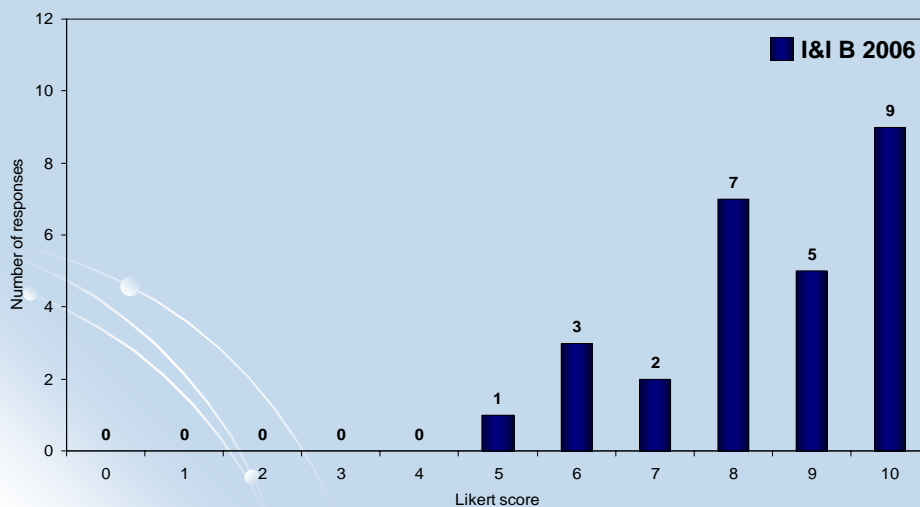


And the good stuff?

Question 9 - My experiences in I&I B have had a significant positive impact on my desire to continue on to further study



Question 18 - With respect to the practical experience gained during the I&I B practicals:
c) The immunology practicals improved the quality of my university experience



Conclusions

- Favourable response to both courses
- Some change/improvement required
- The “action”
 - Significant changes in the I&I A manual
 - Added detailed information on what is expected in a daybook
- Some insight into the disparity between what *we think* and what the students *actually* know!

New additions for Survey 2007

- I&I A 2007 updated to include questions from I&I B 2006
- Also further new questions
 - Students self assess how much they *actually* read the practical manual 😊
 - Students indicate how well the practical course helps them achieve Faculty of Science graduate attributes.

Why keep practicals?

- Review of practical work and the associated advantages by Johnstonea & Al-Shuailib (2001)

“Laboratory work has gained wide, but not universal acceptance as one of the most important and essential elements in the teaching and learning of Science”

Thanks To....

- Dr John Willison
- Dr Lindsay Dent
- Edward Palmer

References

- Hughes I. E. (2001) Alternatives to Laboratory Practicals – Do They Meet the Needs? *Innovations in Education & Teaching International*. **28(1)**:3-7.
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