Making quant tutorials work!
DOs and DON'Ts of classroom inversion

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Does this scenario sound familiar?

- Tutorial room
- Two dozen students and a Graduate Teaching Assistant (GTA)
- A significant proportion of students did not attempt the exercises

Result

- GTA solves problems on the Board
- Only few questions

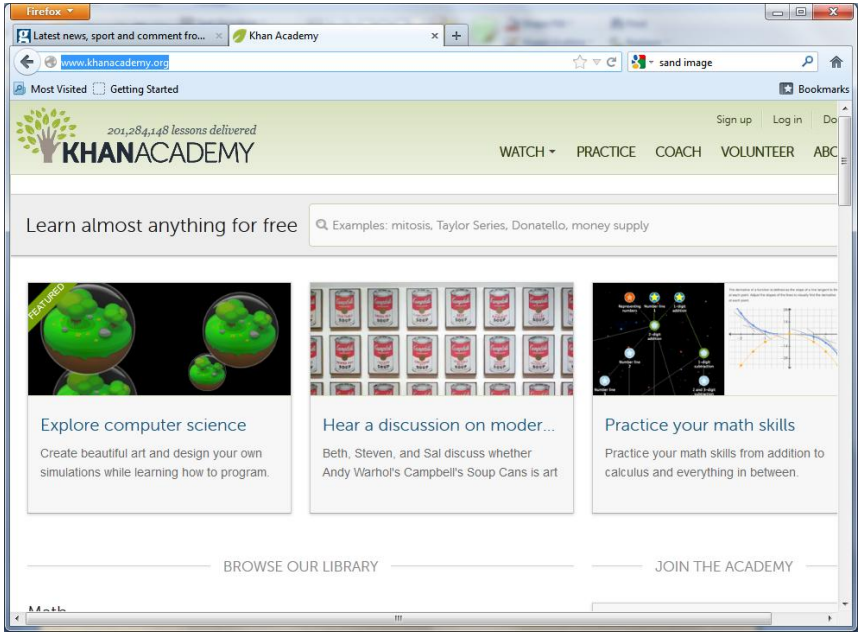
Waste of class contact

What we really want from tutorials:

- Deliver small group teaching – and give students facilitated access to a member of teaching staff
- Students to tell us where they struggle and GTA to feedback to lecturer
- GTAs to solve individuals' problems
- Demonstration of worked examples (as lectures often deliver mainly theoretical content)
- Facilitate discussion where appropriate

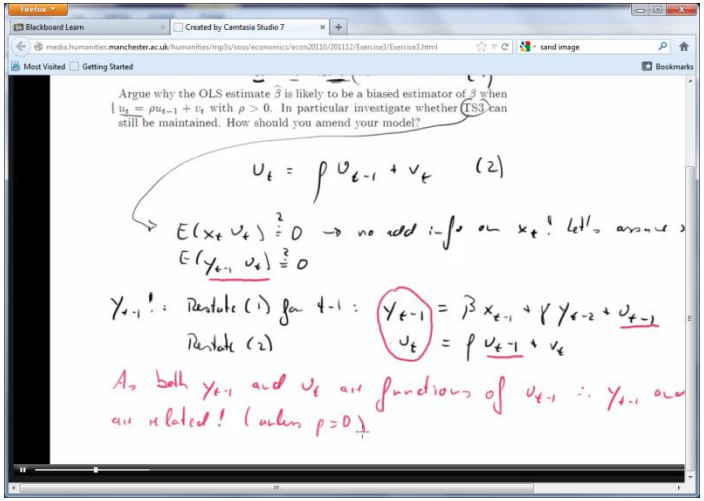
How can technology help

- Can be used to deliver the “worked example” function online
- My technical inspiration:



Worked examples as online clips

- Even if you have great GTAs you may be able to deliver a better working through examples
- It will be consistent for all students
- Can be recalled at any time
- Replaces old style tutorial classes almost 1:1



How to use the class time?

- Next inspiration (when he mentions lectures, think tutorials)
- Let students watch the “tutorial” video first
- Give students new set of questions to solve in class
- Let them work in small groups
- GTA is there to help and provide solutions (although not worked)

Instructions to students

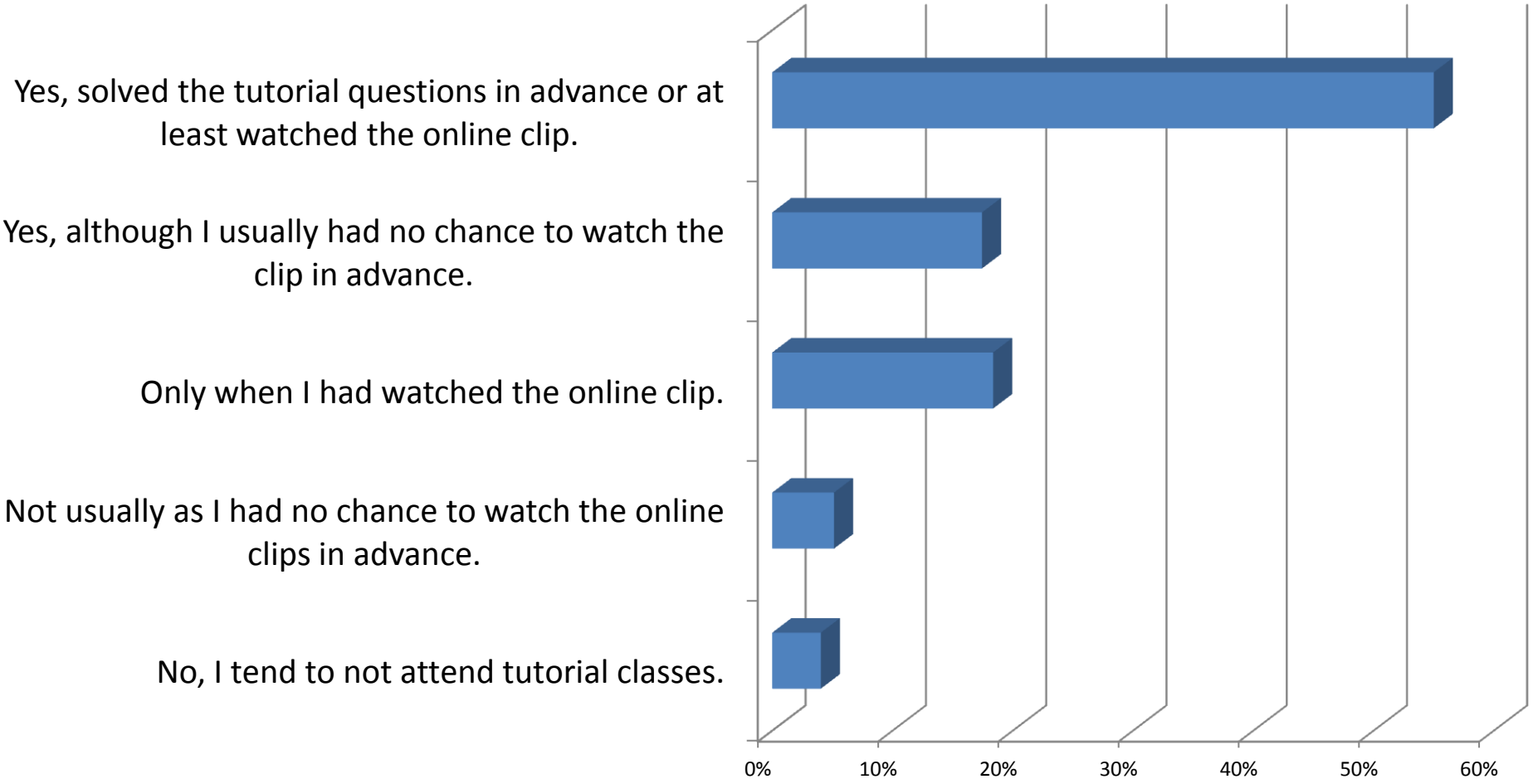
- For each exercise class a exercise sheet will be published well in advance. You are expected to attempt to solve these questions.
- I will also publish an online clip in which I solve these questions. This will also be published in advance to the actual exercise classes taking place. **I expect that, at a minimum, you have watched this clip BEFORE the exercise class.**
- In the actual exercise class the first 5 minutes are reserved for you to raise issues that remained unclear after watching the above mentioned video clip. You will then be issued with new and unseen questions (which will not be available for download from Bb!). For the remainder of the exercise class you will then (in small groups) attempt to solve these questions. The tutor will be available for questions and will be able to check that your solutions are correct.
- You will get final solutions to all questions (but no workings)

Implementation

- Two big UG course units
- Two academic years 2011/12 and 2012/13
- Level 1: Introductory Statistics (200-300 students)
- Level 2/3: Econometrics (2nd semester) (300-350 students)
- Both courses had Semester 1 equivalents that use traditional style tutorials
- End-of-course/Before-exam student questionnaires to evaluate student's experience
- App. 35%/45% (Level 1) and 65%/47% (Level 2) response rate, ca. 530 responses

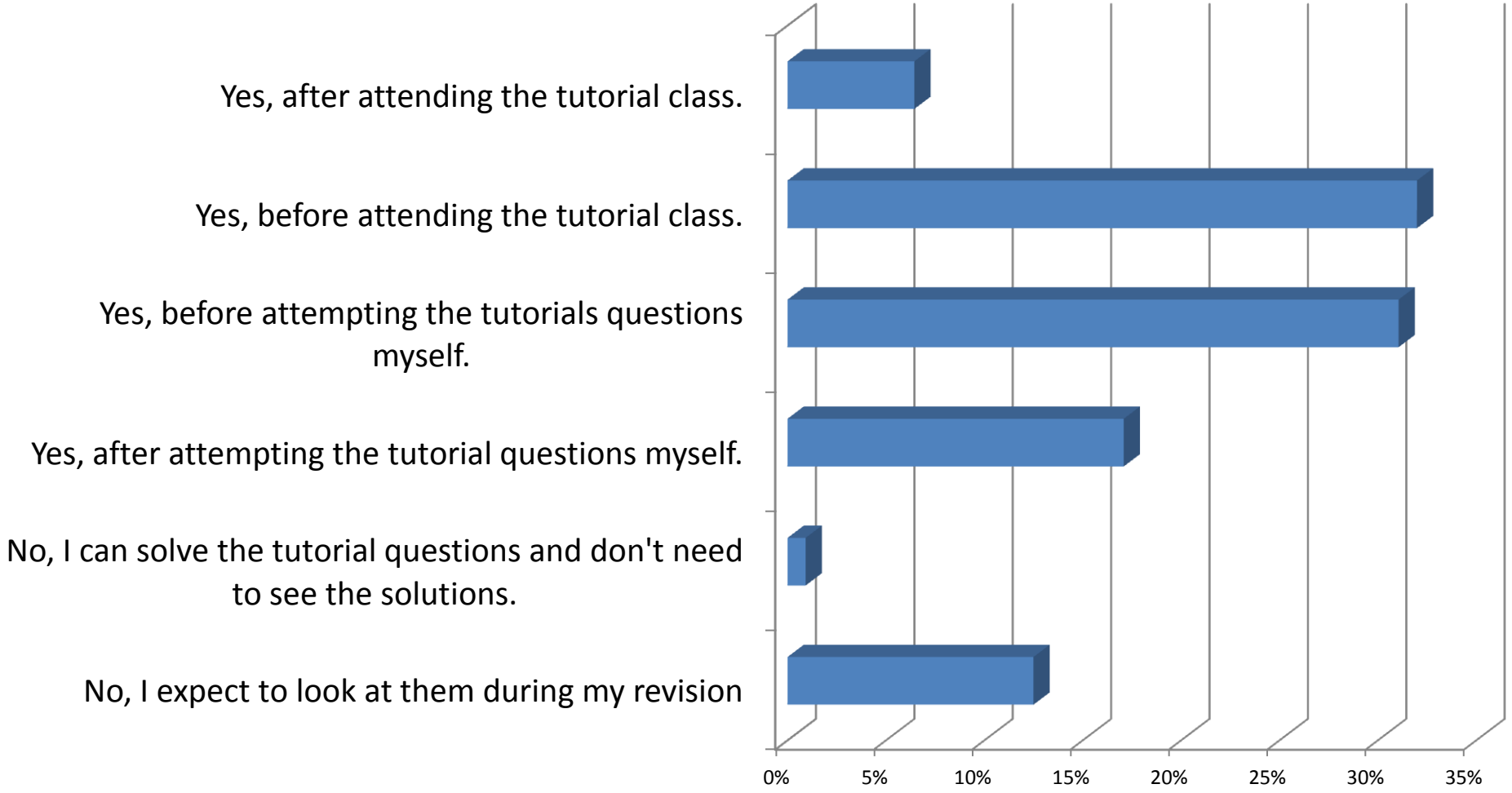
How do students use this system?

- Tutorial attendance



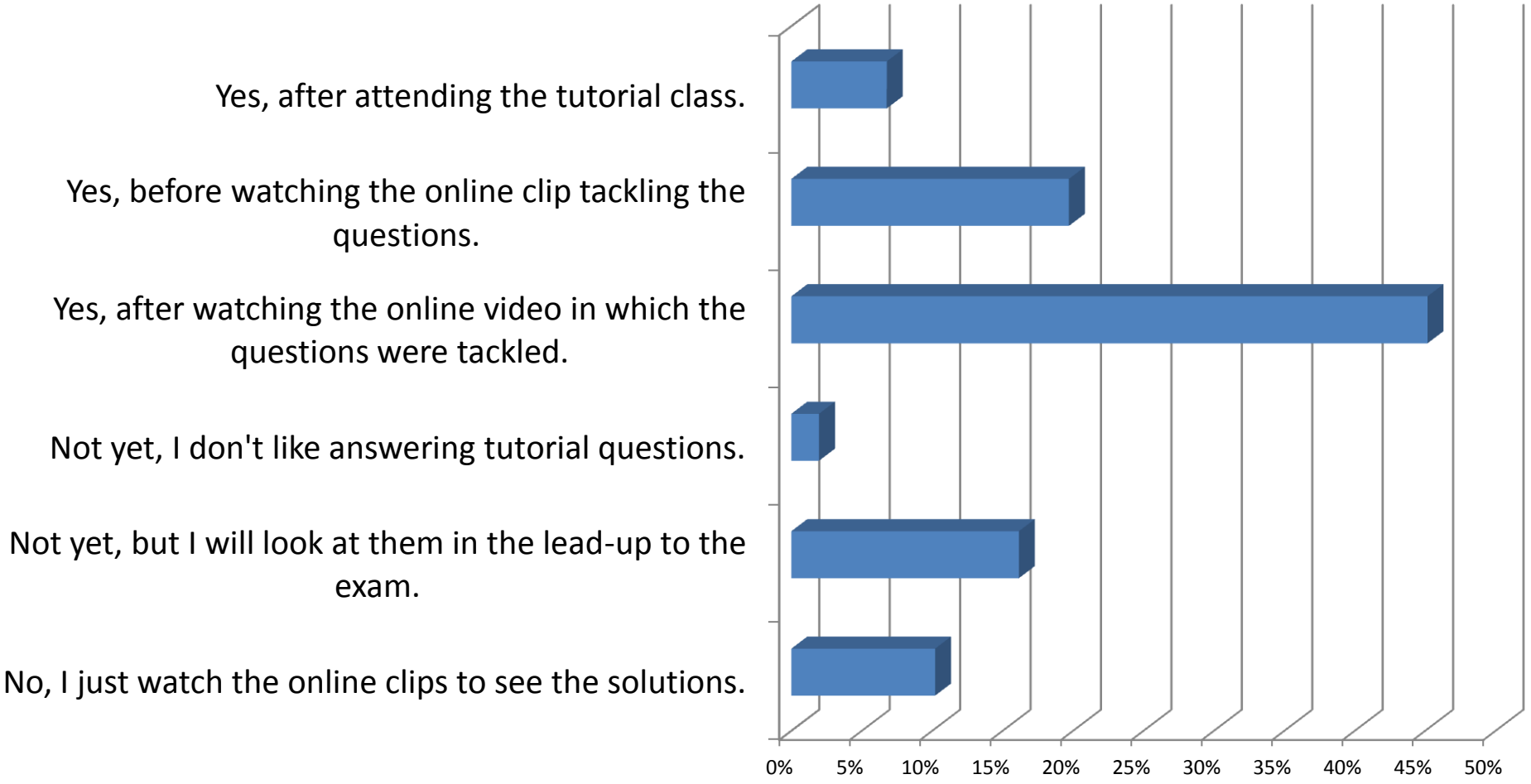
How do students use this system?

- Did you see the online clip



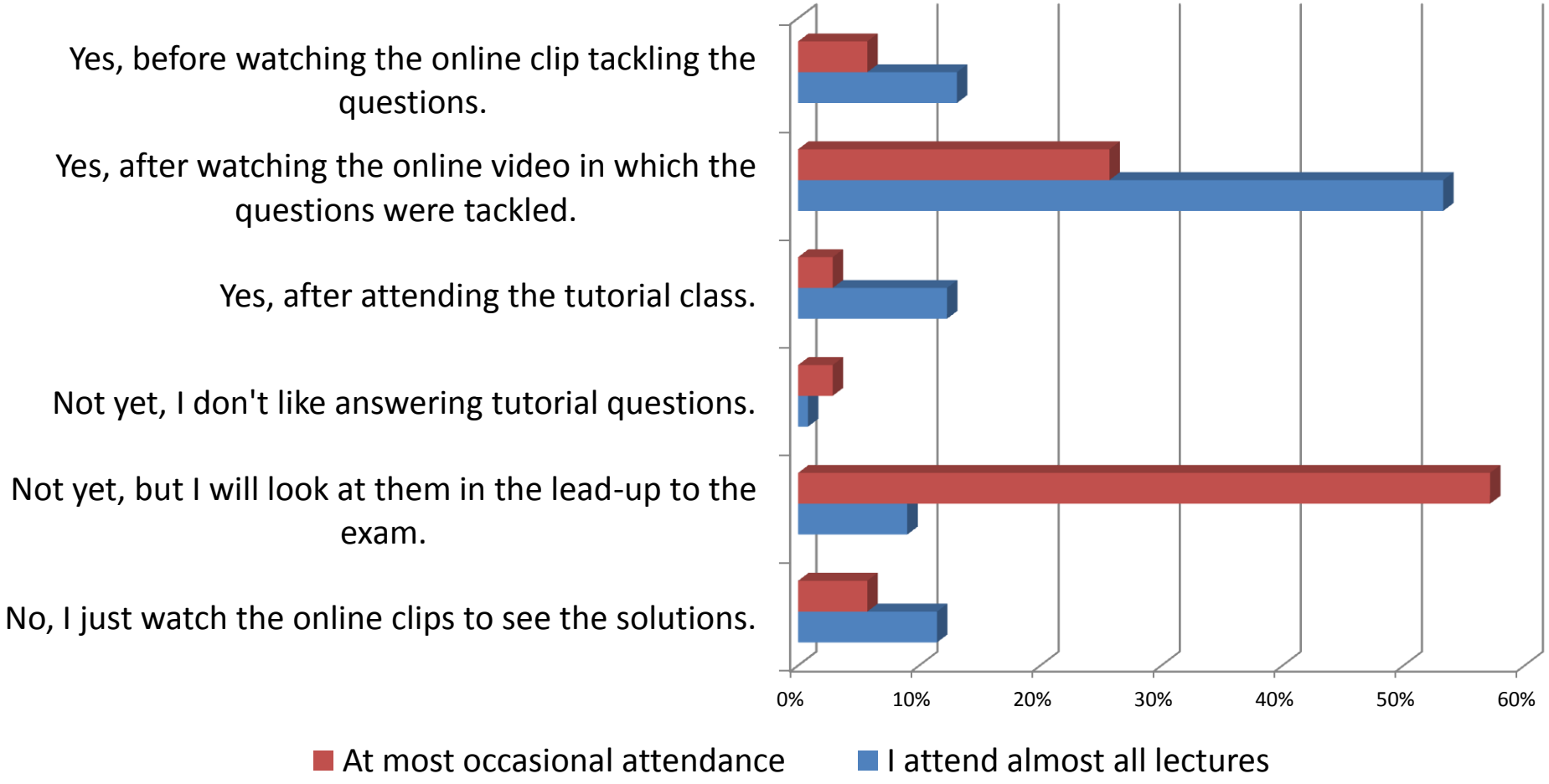
How do students use this system?

- Attempted Tutorial Questions?



Can we motivate reluctant students?

- Level 2/3 Econometrics (2012/13)
- Did you attempt questions? (35 students with bad and 122 with good lecture attendance)



Attendance / Usage

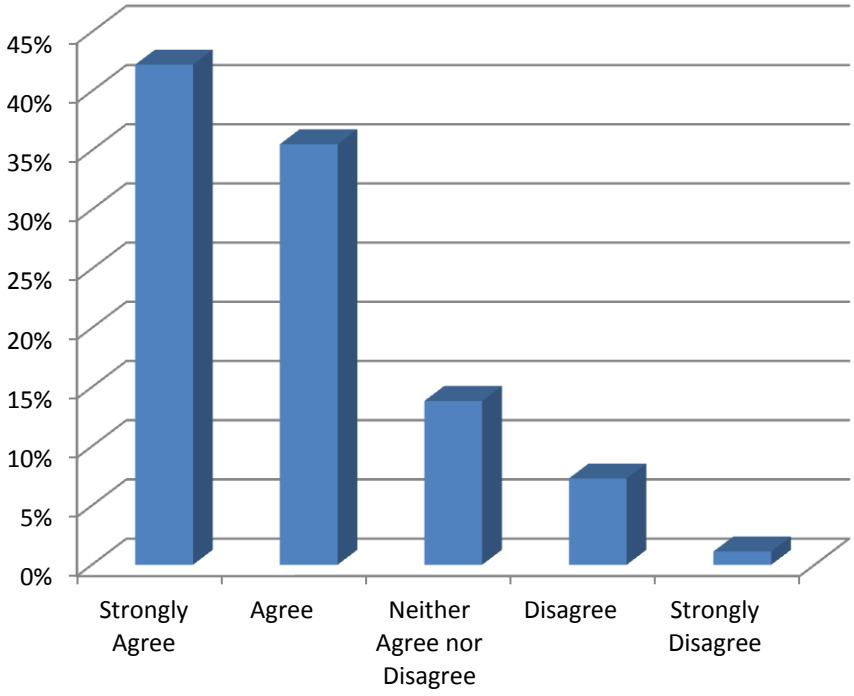
- The sample is unlikely to be representative (especially for Level 1 course unit)
- The critical element is that students watch the online clip
  - They do and …
  - Typically before the tutorial class …
  - But some students will not engage during the term

How do students judge the tutorials?

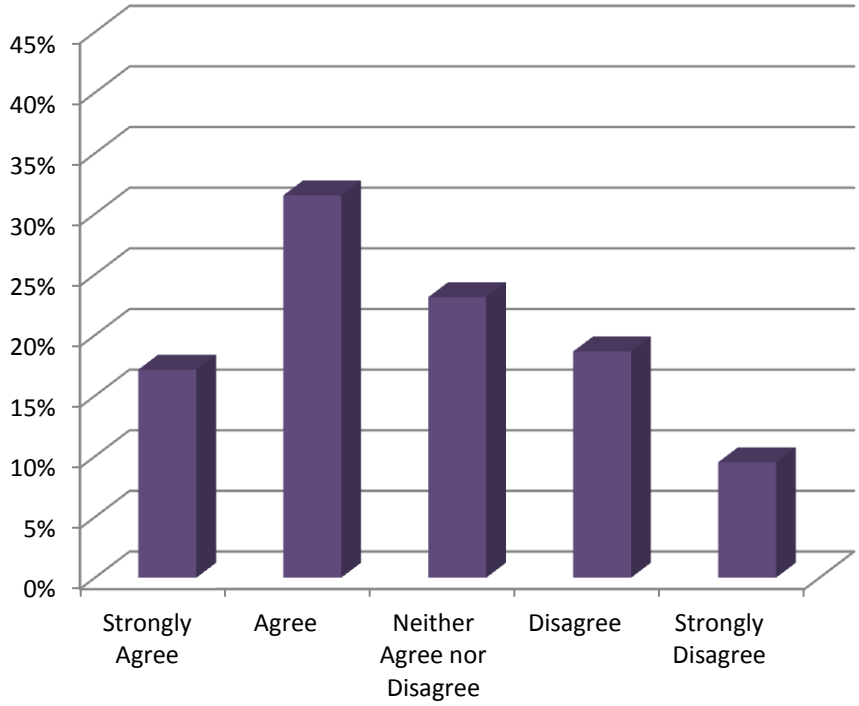
- They like the extra questions (2 sets instead of one)
- They are ambivalent about working in small groups

Do they like having to work themselves in tutorials?

I wish the tutors would go through all the solutions on the whiteboard.

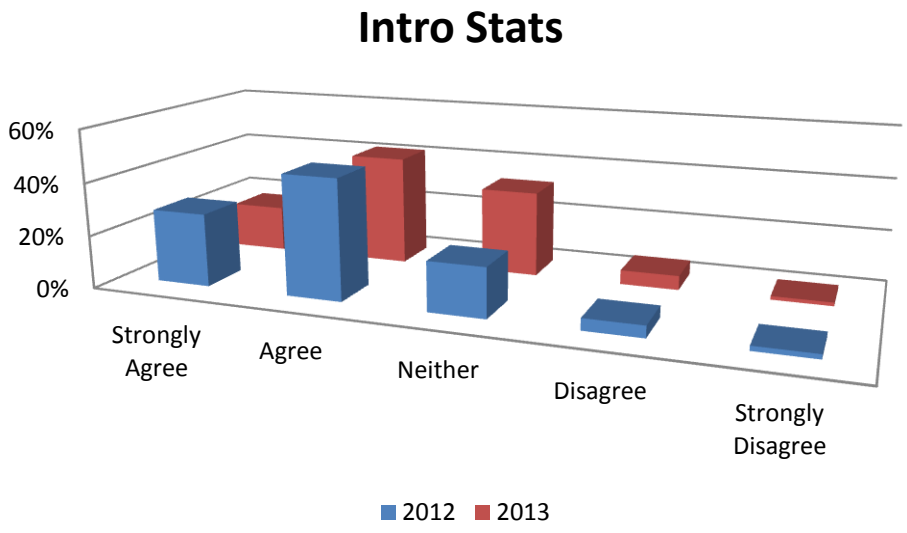


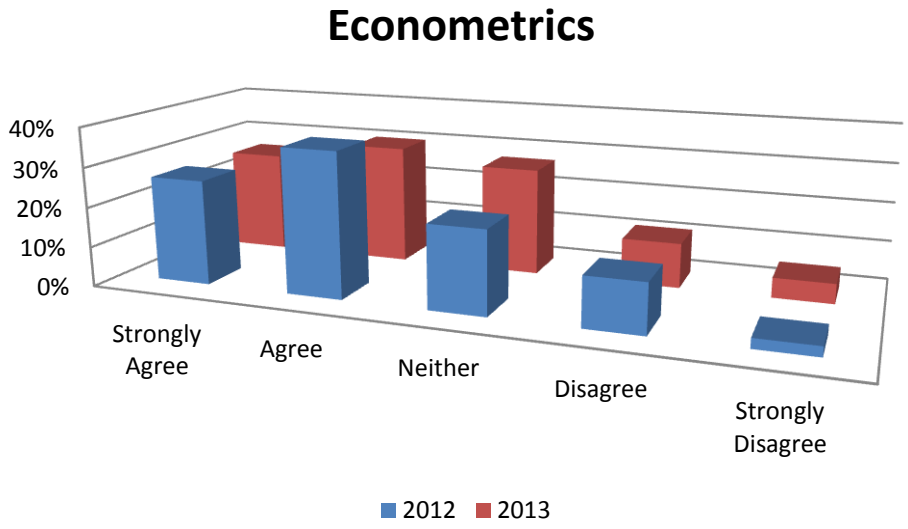
I like that the tutors ask us to work through the questions ourselves rather than presenting the answers on the board.



Overall student judgement

Compared to other exercise classes/tutorials the approach in this course unit makes me learn better.





Student Comments – To improve

- I rather wished tutor spend first half to give us question, then solve it on whiteboard after half. (or give out the answer at the end)
- As most groups had the same problems it would've been more efficient for the tutor to just go through it all on the whiteboard.
- Enjoyed the unseen questions, however wish that the tutor would solve it on the board after having attempted it in groups
- An answer sheet for the unseen questions so that we can check our answers at home of the questions we do not manage to complete in class.
- Nobody in reality worked in groups, and I couldn't do the questions
- Classes are too big

Student Comments – Well done

- I liked that the tutor would circulate the room and answer questions and explain items to the class which were difficult.
- I found the online clips to be very beneficial
- The questions before the tutorial and the accompanying videos were brilliant.
- Keep the current format. If some idiot doesn't watch the online clip, or try the questions at home beforehand or doesn't want to work through question in class, that is their own fault
- I think that the online clips were brilliant; they really helped me to understand the theory and practise the questions at my own pace
- the tutor is very approachable so it is fine working in groups before he gives the answer, as you can always ask him for explanations
- I have learnt and gained a lot of things through this method.

My lessons

- Clear communication with students about expectations
- Ensure the first tutorial questions are close to video questions
- Form groups according to whether they watched the clip
- GTAs to be more proactive in walking around and looking over the students shoulders as they work.
- Ensure all student's leave the tutorial with solutions (at least the final solutions), but ignore student's request for GTAs to work the solutions on the board