



Mathematics Online Project & Elluminate *Live!*

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The Open University



- Europe's leading distance learning organisation
- Part-time students
 - ▶ High quality course notes
 - ▶ (Local) tutors
 - ★ Correspondence tuition
 - ★ Face to face tutorials
- 180,000 active students
- 15,000 maths students
- 550 mathematics tutors



Mathematics Online Project (MOL)

Consider and develop tools and techniques needed to teach mathematics in a blended environment.

- eTutorials & eSupport (using Elluminate *Live!*)
- eTMAs
- Computer algebra based assessment
- Mathematics in the VLE

Elluminate Live!



- Audio/Video
- Text Chat
- Whiteboard
- Application Sharing
- Breakout rooms
- etc

OU Adoption of Elluminate *Live!*



- Unlimited licence from April 2008, used from Summer 2008
- Rooms accessed via (Moodle-based) VLE
- Tutor group specific rooms
 - ▶ ... that hopefully others can access too
 - ▶ incrementally from Feb 2009
- Individual early adopters rooms (>300)



Illuminate Activities

- eTutorials, eLectures, student support (Video)
- eColloquium for Maths MSc programme
- “Broadcasting” research seminars
- Staff training (use of Illuminate and via Illuminate)
- Staff meetings
- COLMSCT Projects:
 - ▶ eTutorial Trial 2008B (BM, TWL, GA, GW)
 - ▶ MathCAD support trial (2008-) (AK)
 - ▶ eTutorial resources for MU120 (FB)
- Supporting uptake in MCT (inc. Best Practice Wiki)



Maths MSc eColloquium

- Prof Jon Keating, University of Bristol
- “The Riemann zeta function and random matrices”
- September 2008
- ≈ 50 students

The screenshot shows a software interface for an online meeting. On the left, a 'Participants' list includes moderators Ben Mestel, Camilla Jordan, Gareth Williams, and Prof Jon Keating, along with other attendees like Andrew Davies and Anne Donnelly. Below this is a 'Chat' window with messages from Douglas McEwen, John Osborne, Douglas Mensah, and Sheila McCann. On the right, a 'Whiteboard - Main Room' displays the Riemann zeta function formula $\zeta(s) = \sum_{n=1}^{\infty} \frac{1}{n^s} = \prod_p (1 - \frac{1}{p^s})^{-1}$. A complex plane diagram is drawn with a vertical line at $\sigma = \frac{1}{2}$ and a horizontal line at $\sigma = 1$. The critical line is marked with $\frac{1}{2} + it_n$ and circled. The region to the right of the critical line is shaded with yellow wavy lines. Below the diagram, the text 'RH: $t_n \in \mathbb{R} \forall n$ ' is written.



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eTutorial Trial: Feb – Sept 2008



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Aims

- How good is Elluminate for teaching maths?
- How can we make best use of tools?
- How can the tools be improved?

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Participants

- 29 tutors (Maths, computing, technology)
- 19 courses at all levels (Level 1 to MSc)

- Offered graphics tablet ,
some tablet PCs 

eTutorial Trial: Feb – Sept 2008



Method

Two stage evaluation via online student/tutor surveys

- After each session
 - ▶ Technical performance
 - ▶ Pedagogic effectiveness
- Extensive survey after trial
 - ▶ Overall experience
 - ▶ Social and privacy issues
 - ▶ Accessibility
 - ▶ eTutorials v face to face

eTutorial Trial: Feb – Sept 2008



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- 485 student responses
 - ▶ 241 first time users
- 147 staff responses

eTutorial Trial: Feb – Sept 2008



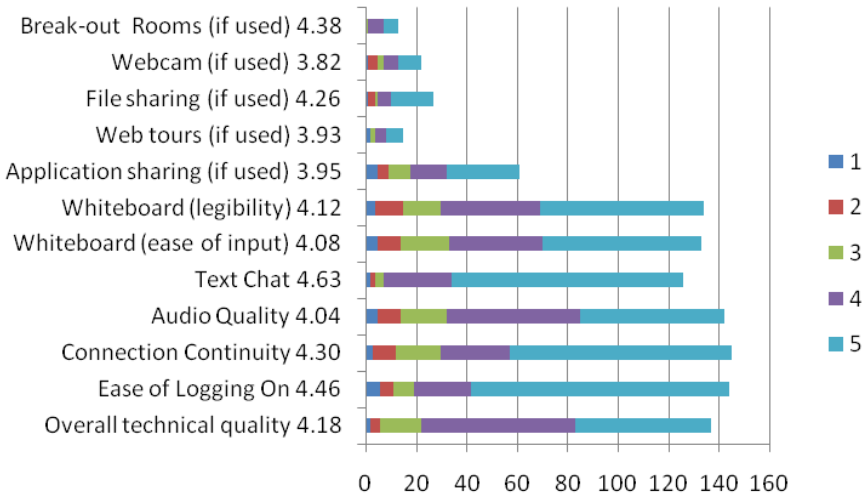
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- 170 student responses
 - ▶ 65 non-participants
 - ▶ 105 participants
- 29 staff responses

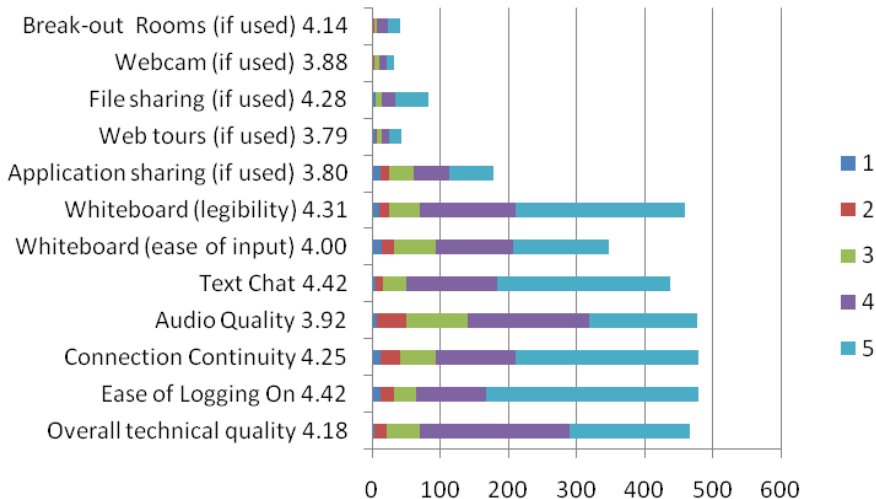


Technical Quality: Staff



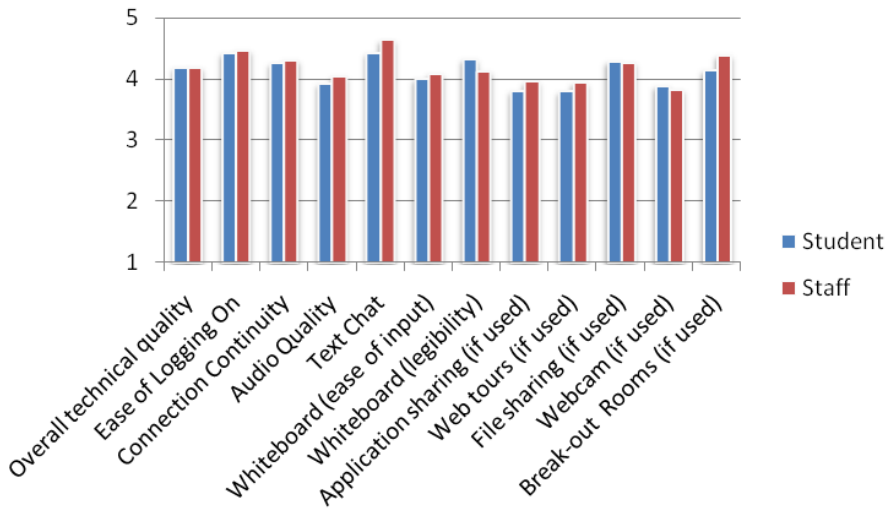


Technical Quality: Students



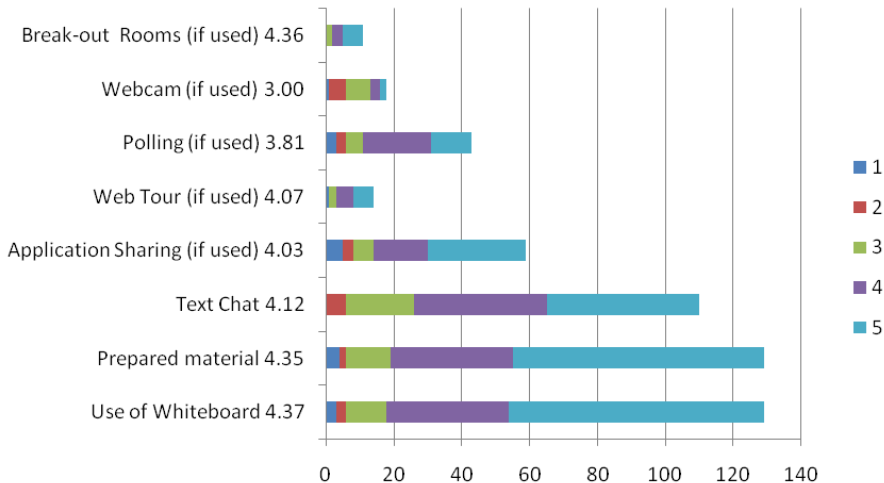


Technical Quality: Means

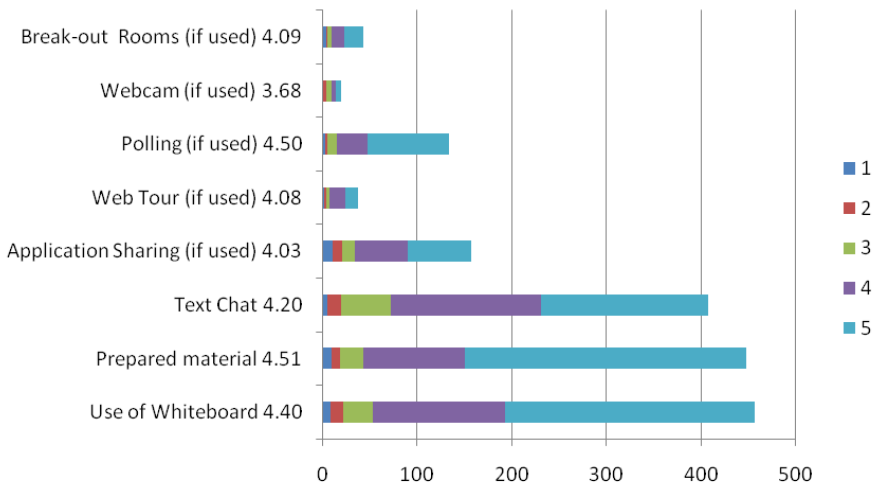




Aid to Learning: Staff

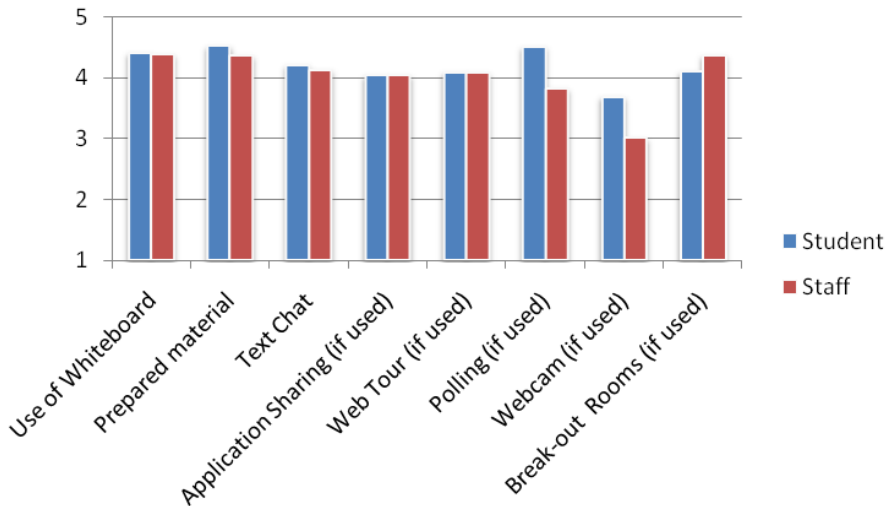


Aid to Learning: Student



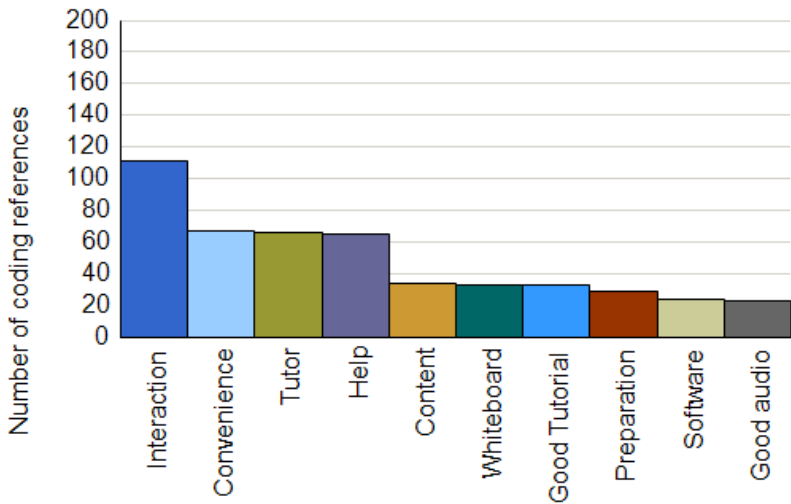


Aid to Learning: Means

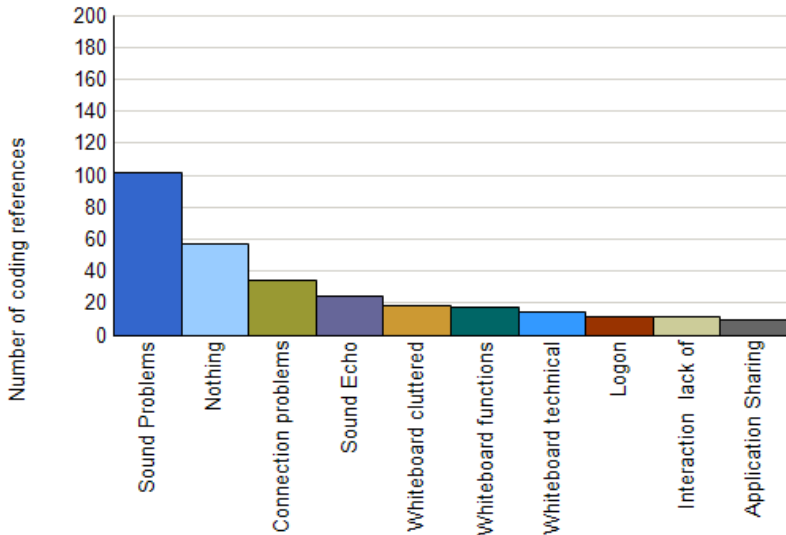




Positive Student Comments



Negative Student Comments





Negative Student Comments

- Audio quality - lost some of the words the tutor was saying.
- The lag that occurs when different people talk was the main problem. Another issue was the heavy breathing!
- My connection broke at one point.
- The tutor's connection got broken a couple of times and the class had to wait for her to reconnect.
- The whiteboard was not really big enough.



Some Tutor Comments

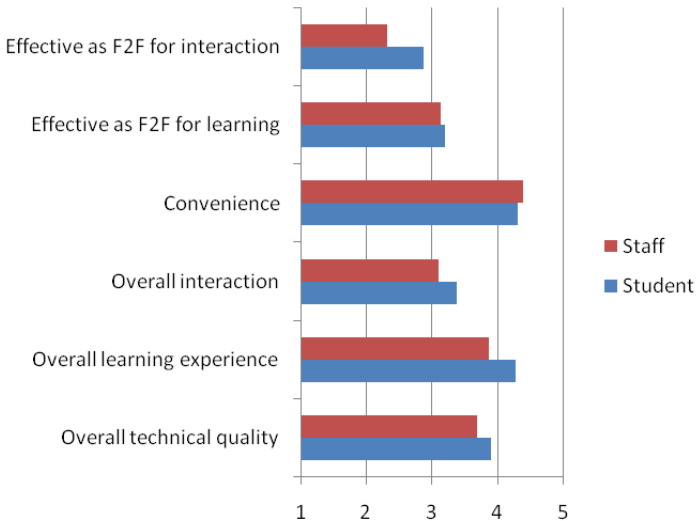
- I enjoyed myself once I calmed down and got in the swing of it :-)
- Very helpful to share an application with the group
- Breakout rooms really got students talking - prior to that they were very quiet.
- For the record, doing two two hour sessions in a day isn't that bad at all - although I did spend most of the time between sessions in bed and now need a stiff drink!



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- Thankfully no students had turned up.

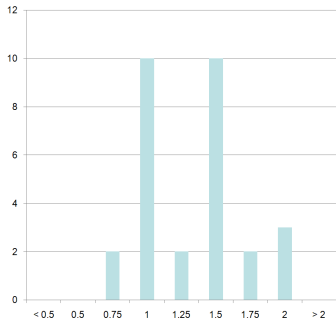
Survey 2: Overall Opinion



Optimal Tutorial Time

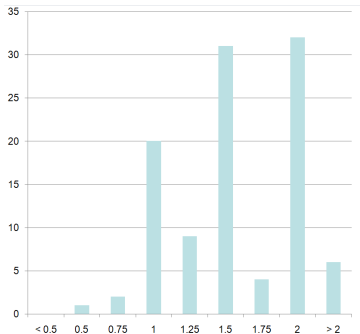


Staff



(hours)

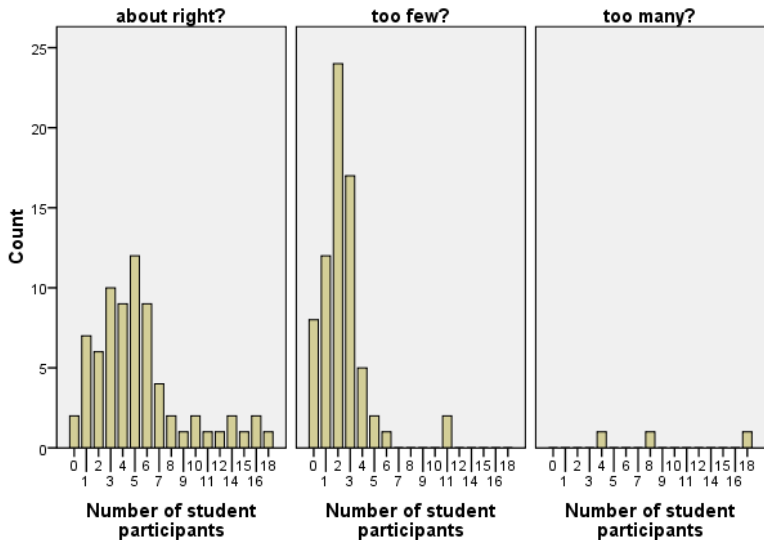
Student



(hours)



Optimal Group Size (staff)

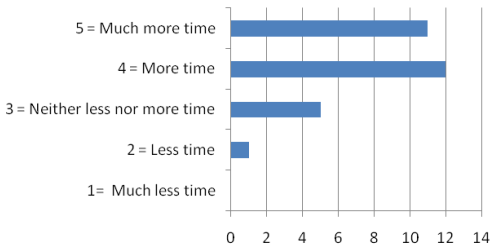


Staff Preparation Time ν F-2-F



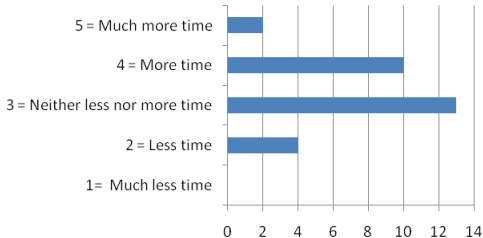
Initial preparation

Mean = 4.14



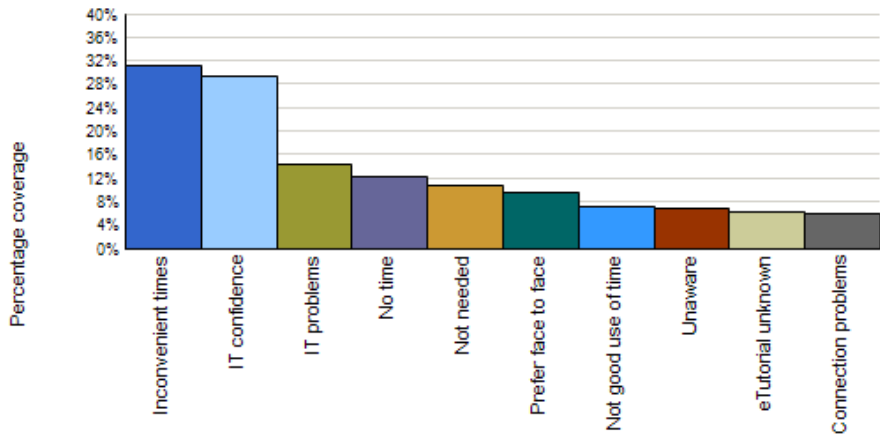
Repeat session

Mean = 3.24



(hours)

Reasons for Non-participation





Disabilities

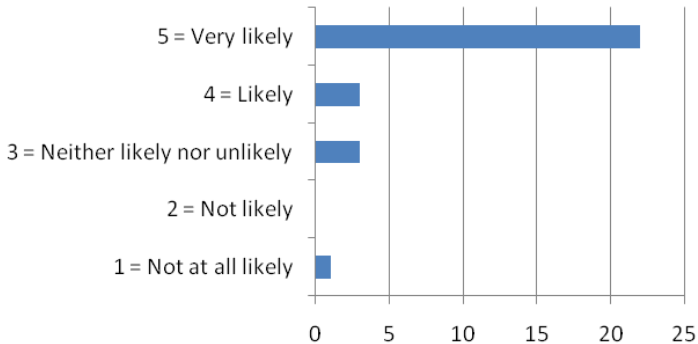
Physical and psychiatric

- I suffer from severe chronic clinical depression and have never attended a tutorial because of problems related to confidence, etc. The online tutorial was excellent for me ...
- I am disabled and without the Elluminate sessions I would not have had any tutorials.

Visual/aural impairment, dyslexia

- I have a hearing impairment and need to lipread - this was not possible ... so I feel disadvantaged.
- Had difficulty following what was going on mainly because there were so many different activities simultaneously, and screen reader can only focus on one at a time.

Future Use: Staff



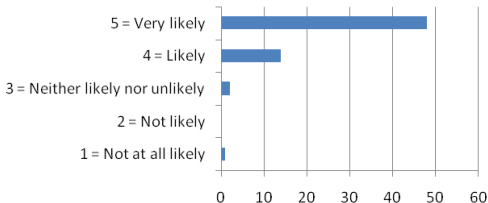
Mean = 4.55

Future Use: Students



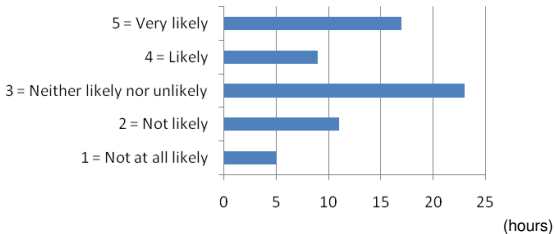
Participants

Mean = 4.66



Non-participants

Mean = 3.34





Summary

Liked by both students and tutors, but:

- Lost connections
- Audio (delay, echo, interruptions)
- Applications sharing slow
- Get less done
- A different way of working
- Lack of student feedback
- Tendency to become lectures
- Home distractions
- Student input of mathematics



Try it out!

Vrooms

- Free room for three people (slightly limited functionality)
- <http://www.illuminate.com/vroom/>



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