



Learning Environments: Designing for Inclusion

Shane Cryer



If I can hear, I can learn

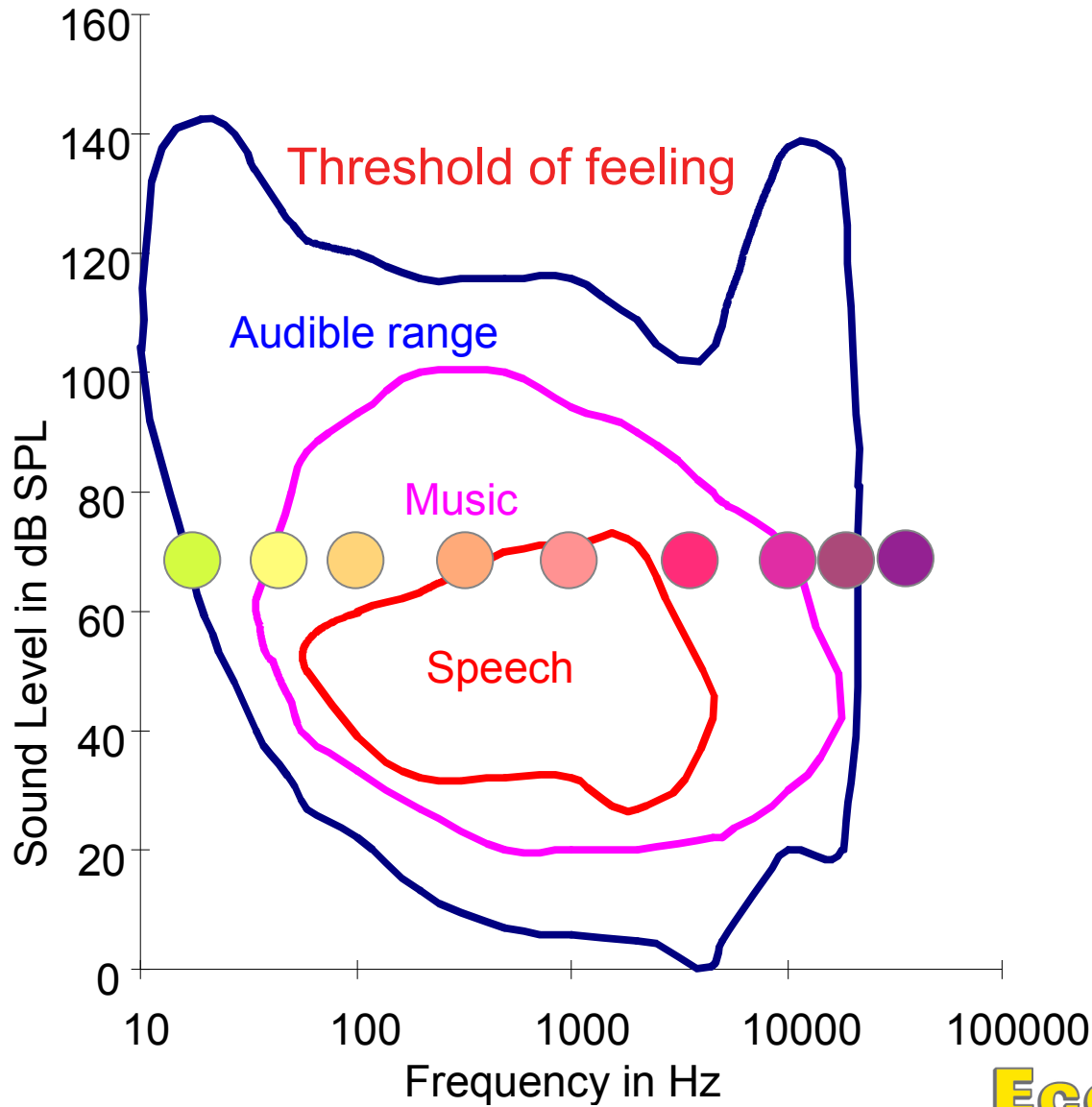
Our mission is to contribute to
a good working environment for
the eye, the ear and the mind



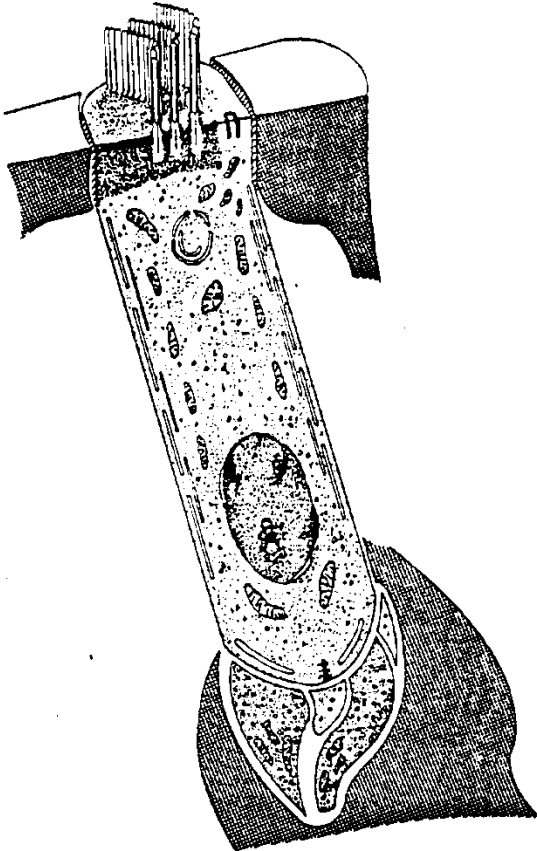
Internal environment

There are many considerations in designing the internal environment...





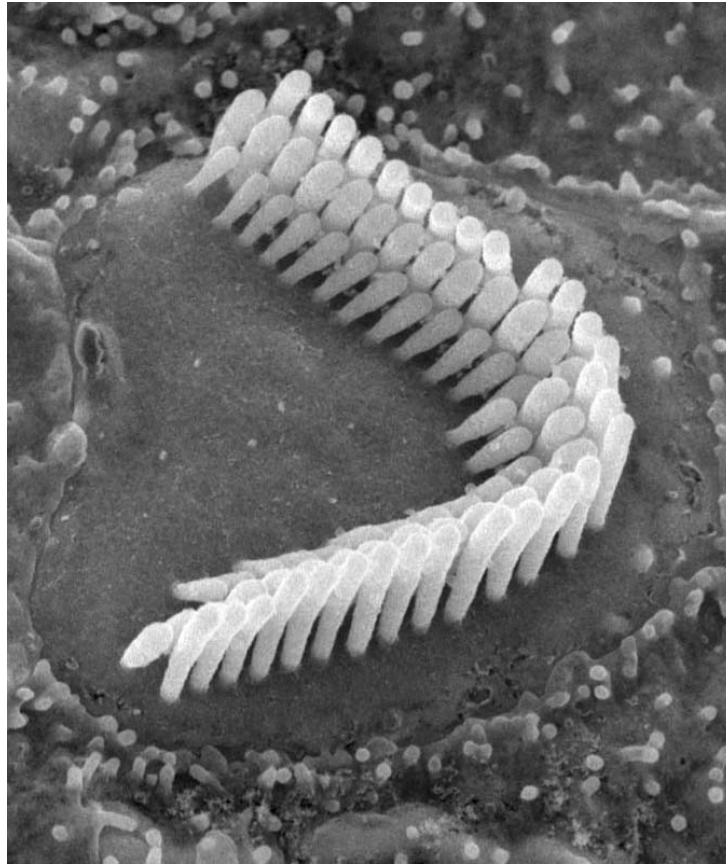
Outer Hair Cell (Motor)



Outer hairs (dyed and magnified)



Close up



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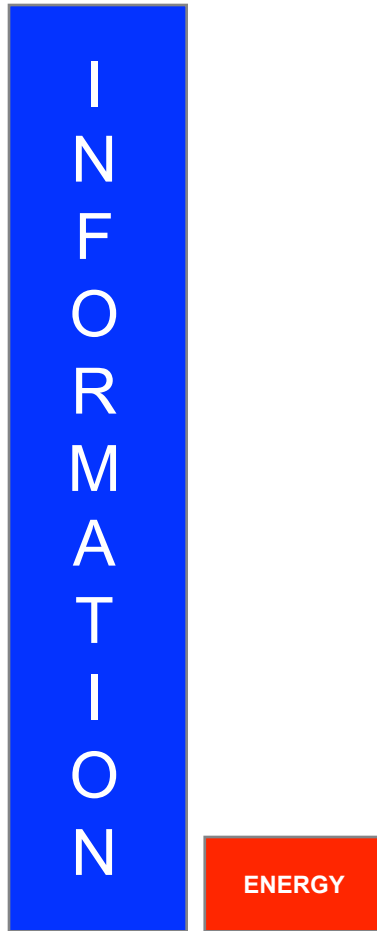
A SOUND EFFECT ON PEOPLE



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Information - Energy



Consonants

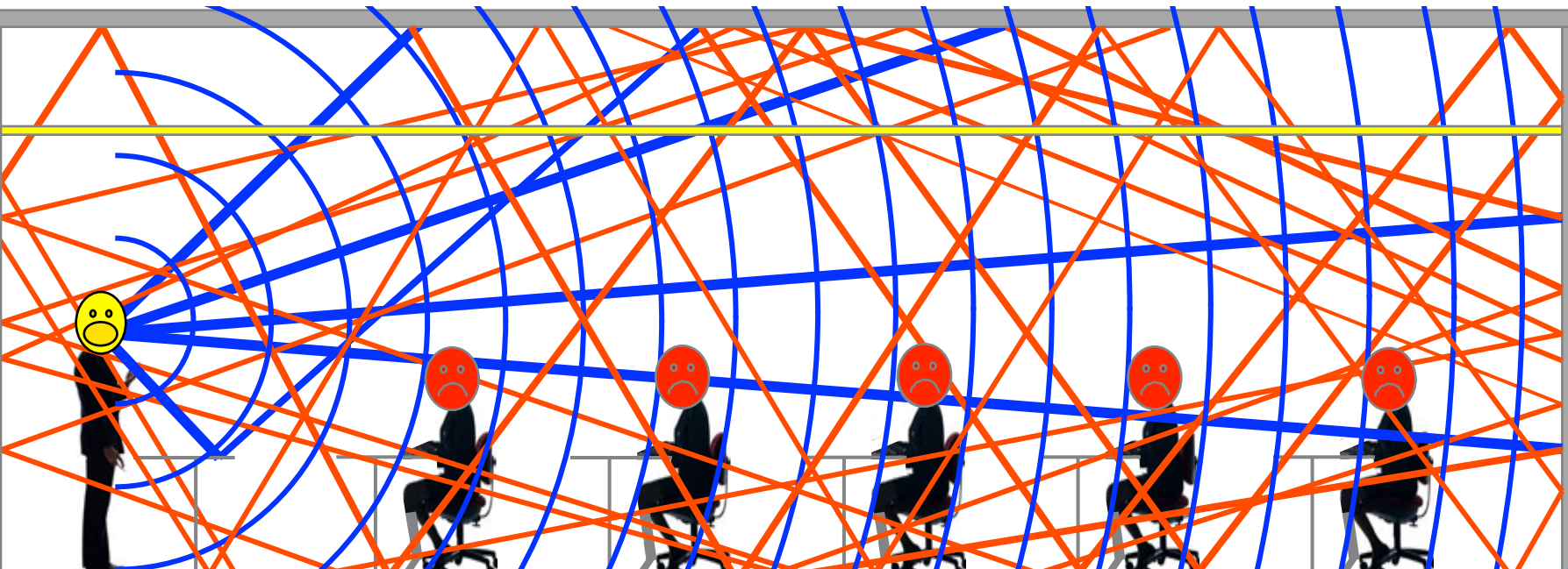


Vowels

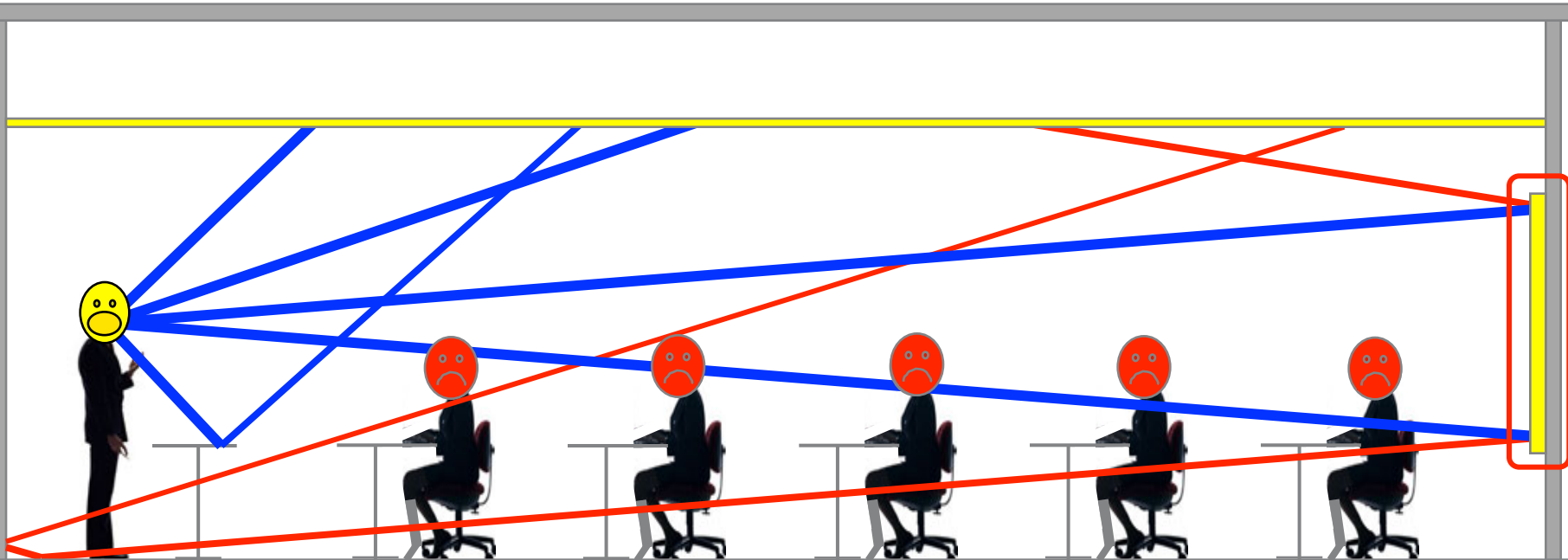
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A SOUND EFFECT ON PEOPLE

Outside - Inside



Outside - Inside



Sound absorber lowers the sound pressure level



Increases speech intelligibility over short distances



Building Regulations

“Each room or other space in a school building shall be designed and constructed in such a way that it has the acoustic conditions and the insulation against disturbance by noise appropriate to its intended use.”

**Requirement E4 from Part E of Schedule 1 to
The Building Regulations 2000 (as amended). (Building
Bulletin 93 p3)**

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A SOUND EFFECT ON PEOPLE

Studies show ...

Higher noise levels

- = lower academic performance in schools
- = increased stress in both teachers and children.

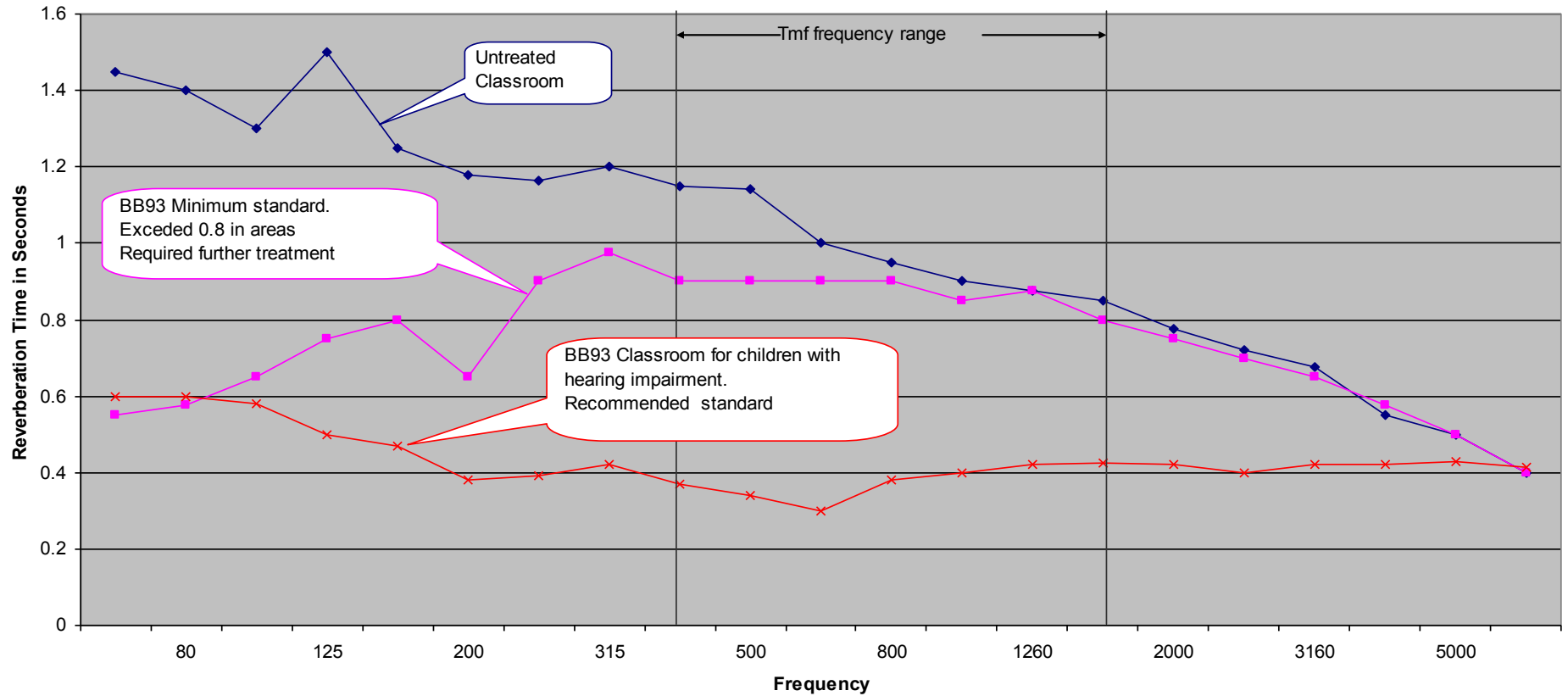
- Shield and Dockrell (2003).

The Essex Study: Methodology

- Approximately 400 children were taught within four treated classrooms
- There were 24 hearing impaired children involved within the study (although not all were taught within the experimental classrooms).
- Considerable effort was given to obtaining objective acoustic data.
- More than 120 hours of lessons recorded using high quality audio recordings and 78 hours of detailed acoustic data.

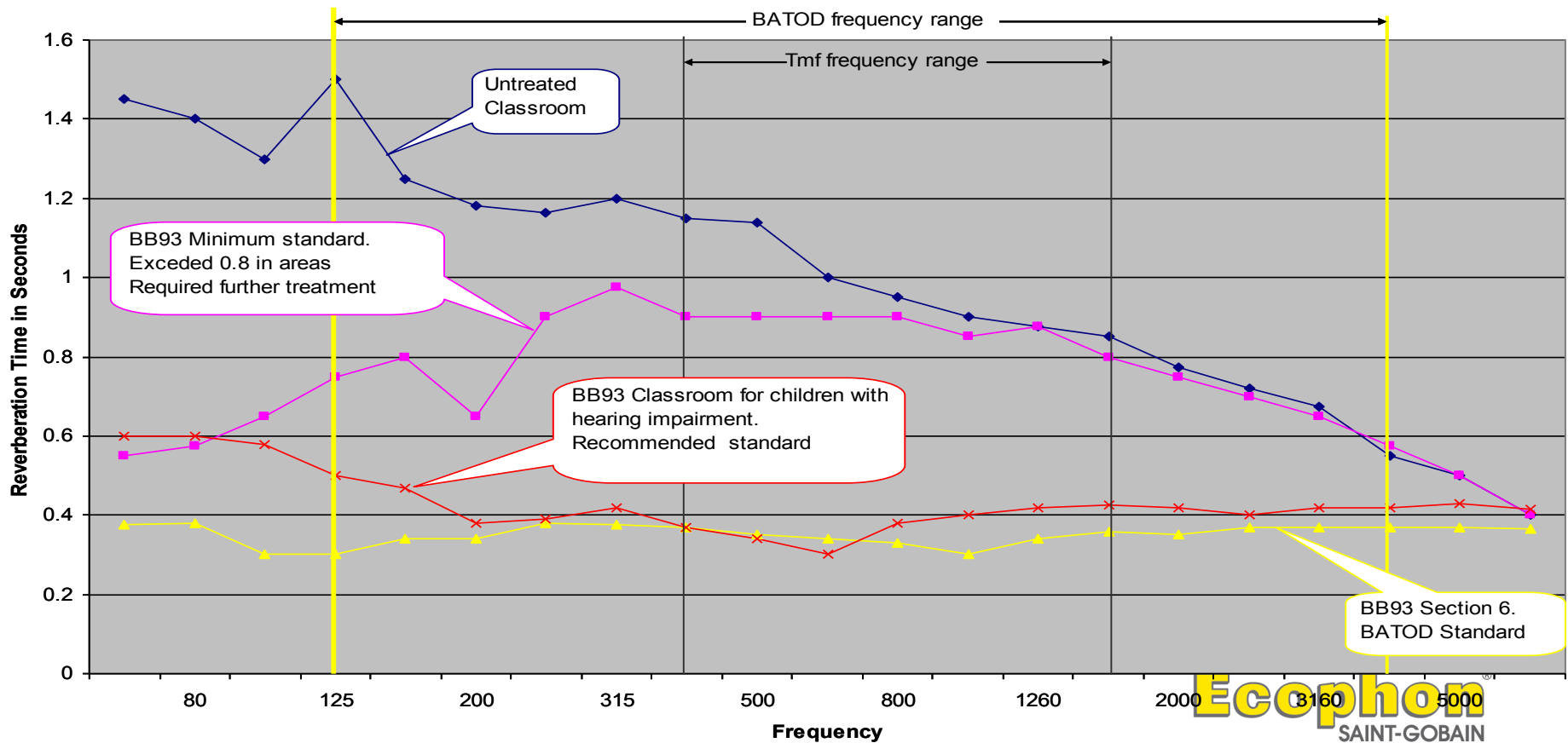
Findings

Reverberation times in Classroom MA3



Findings

Reverberation times in Classroom MA3



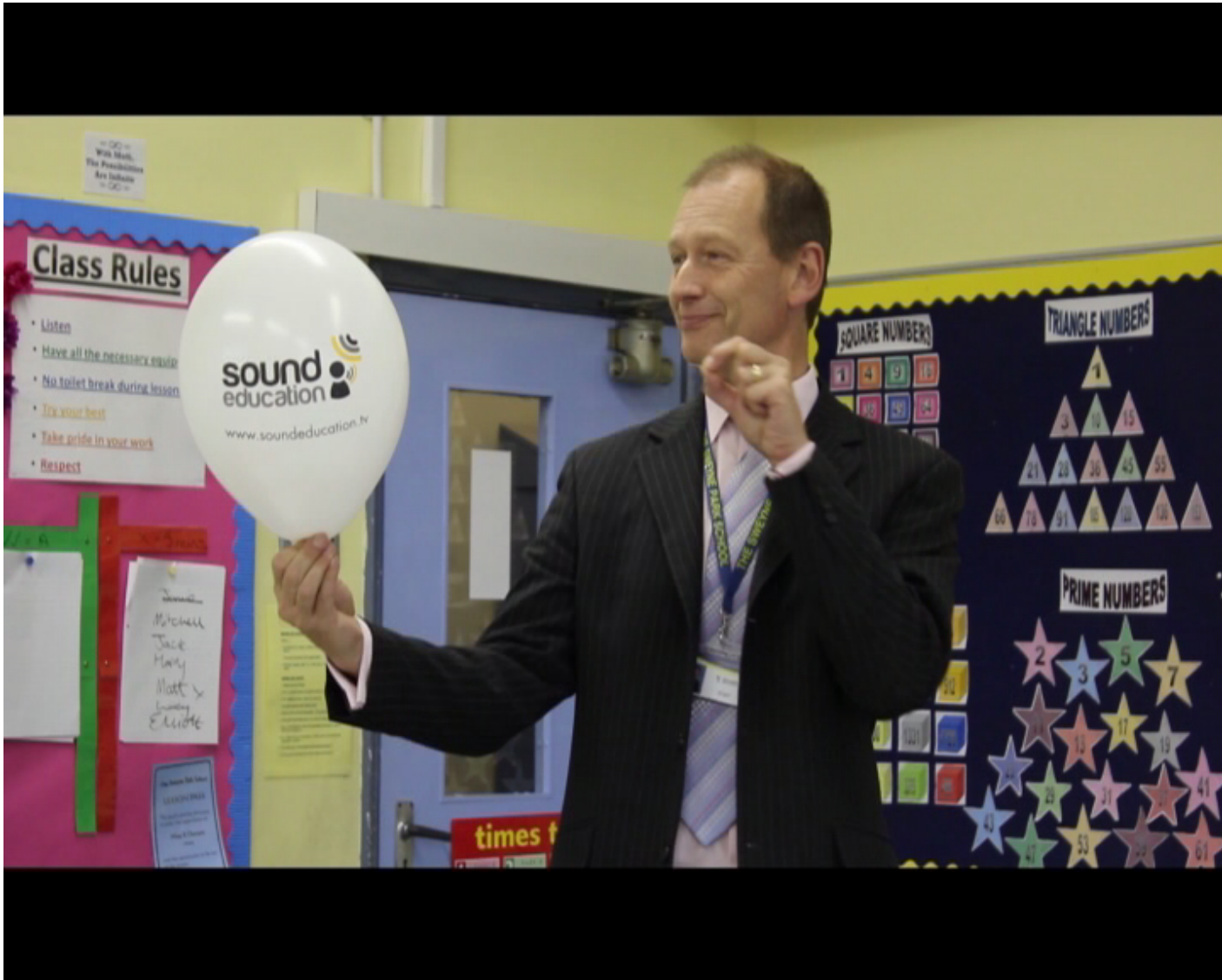
Findings

- It has been possible to see that increasing the sound absorbency within a classroom **reduces the sound levels more than would be expected from calculations alone.**

(this occurred without staff being aware of the acoustic performance of the rooms at the various stages of the trial).

Findings

- Overall impression from the data is overwhelming positive improvement in working conditions for both staff and pupils.
- Even the most experienced of teachers found the changes a big improvement.
- Less experienced staff felt big reduction in stress levels.
- Behaviour improvements (noted by teachers):
 - Better at following class directions
 - More on task behaviour
 - Less repair behaviour (asking for clarification or repetition).



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Findings

Before:

“You feel really left out and you feel like you’re sitting in a corner in a lonely classroom so it hurts your feelings quite a bit”

After:

“If everyone was being noisy I couldn’t concentrate. In this new classroom I find it a lot better, a lot less noisy and it gives me a lot of confidence to work as a group”

deaf pupil

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Case study visits

ECOPHON CORDIALLY INVITES YOU TO
A CASE STUDY VISIT



Friday 27th May

Arrive: Montpelier Primary School at 12:15pm for lunch in school canteen at 12:30pm. Depart 2:00pm

Address:
North Down Road, Plymouth, PL2 3HN

(Please state if you would like transport to Tor Bridge from Montpelier and back)

Arrive: Tor Bridge High at 2:30pm, intro by architect Colin Cobb, Feilden Clegg Bradley. Depart 4:00pm

Address:
Miller Way, Estover, Plymouth, PL6 8UN

To confirm your place
e-mail: shane.cryer@ecophon.co.uk or Tel: 07771 565370



Jordanstown SEN school
12:00 THURSDAY 8th SEPTEMBER

Join us for lunch with the students, followed by a brief presentation and tour.

Jordanstown School
Jordanstown Road
Newtonabbey
Co. Antrim
BT37 0QE

To confirm your place e-mail:
shane.cryer@ecophon.co.uk or Tel: 07771 565370



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