ACOUSTIC AMBASSADORS – Geeks with cred?

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1. WHY BOTHER?

As a professional acoustician, do you want to work with committed, enthusiastic, competent professionals? Alternatively, do you want to work with overworked 'amateurs' who are either stressed because they are working outside their competence (which raises other issues as well), or ignorant of the fact and reliant on you to pick up their mistakes?

It is often reported in the press that pupils are not attracted to science and there is a shortage of qualified science teachers which makes it even more difficult to interest the next generation in science. This is already resulting in a shortage of scientists and it is clear that it must similarly affect the number of acousticians. In addition to this, the need for acousticians is increasing due to other factors such as increased environmental awareness. As if to prove this point, every edition of 'Acoustics Bulletin' carries recruitment advertisements for several different organisations.

If there are not sufficient competent acousticians we will end up with people working outside their competence. If they know that they don't know, they will inevitably be stressed simply because of the situation they are in. If they don't know that they don't know, ignorance may be bliss for them, but it can be hell for their colleagues.

As professional acousticians we should be working within and expanding our own competence, whilst helping others to do the same. A skills shortage is in no-one's interest. From what I can see it doesn't even seem to have resulted in the grossly inflated salaries that could perhaps be expected, in comparison with other, more 'popular', professions.

2. WHAT ARE ACOUSTIC AMBASSADORS?

Should we do something about it and, if so, what should we do? How about becoming inspiring Science Teachers? Personally, the idea of spending my career trying to persuade a group of reluctant young teenagers who want to become sports or pop stars that science is interesting, challenging, rewarding and fun fills me with dread! I have picked the 'soft option' of trying to interest pupils in science whilst retaining my sanity.

SETPOINT is promoting the 'Science and Engineering Ambassadors' scheme to show the next generation that this can be a great career choice. Science and Engineering can be 'cool', fun, challenging, interesting and financially rewarding (this last one may perhaps be more difficult to prove because the field remains relatively under-valued in this country). The Institute of Acoustics is working with SETPOINT by encouraging members to become Acoustic Ambassadors, focussing specifically on Acoustics as a career choice within Science and Engineering. Acoustic Ambassadors are therefore part of the national team of Science and Engineering Ambassadors, all of whom are promoting their passion for Science and Engineering.

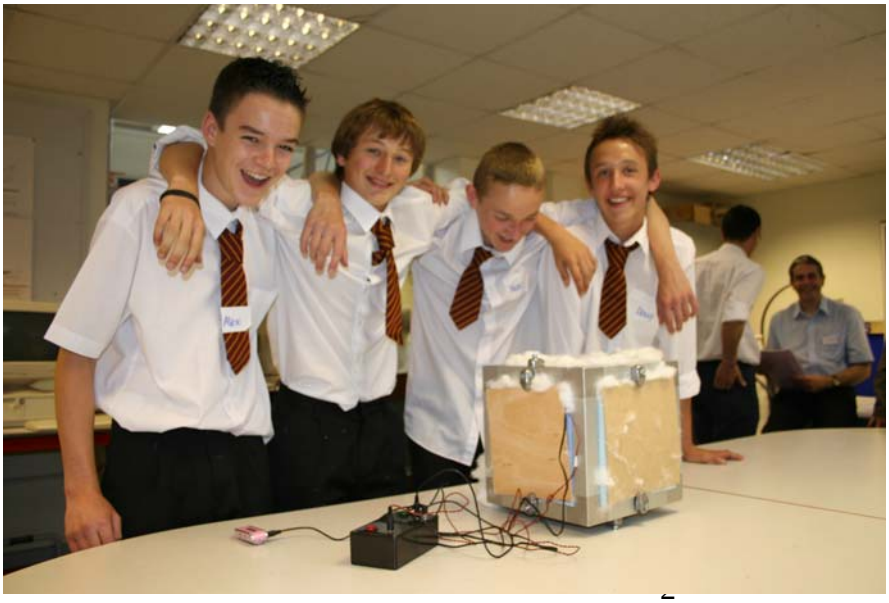
We need to show people how important Science and Engineering is for every day living and the enormous range of activities that are dependent upon it. In reality everyone relies upon technology all of the time, but takes it for granted. Without previous scientific and engineering developments what would life be like now? It is interesting to compare what we take for granted now with the way life was even only a few decades ago. What benefits will future developments bring?

In the same way that science and engineering impinge on almost every aspect of life, a career in this field provides enormous choice of areas to work in. Acoustics is a specialisation of physics, which is itself a specialisation of 'science'. Despite this apparent specialisation, acoustics remains an incredibly broad field offering a great range of careers in many different areas of life.

Intellectually, acoustics varies from highly theoretical research such as wave propagation in the sun, to practical matters such as the best way to stop noise from the house next door. Like other aspects of science and engineering, acoustics impinges on daily life almost continuously. We expect reasonable acoustic conditions for sleeping, working, relaxing and communicating. We do not expect to suffer hearing loss due to our work; we expect not to be disturbed by noise from other people or activities, yet we also expect to be able to produce 'reasonable' levels of noise as part of our activities. Amongst other criteria, we judge the quality of many products from the way they sound. We want the benefits of technology but we don't want to have to hear it. We rely on ultra sound medical scanners, seismic monitoring (even in Lincolnshire), audible alarms, and audible communication systems. A career in acoustics may be in the entertainment industry, military, local government, engineering, purely theoretical research (and possibly development), academia, legal & planning system, architecture, medicine, or many other areas. In reality the list is only limited by one's imagination.

3. HOW CAN WE SHOW PUPILS THAT SCEINCE IS FUN?

How do we persuade the next generation that acoustics (or even science and engineering) is a great career choice? We need to go to schools and prove it! Acoustic Ambassadors are in the enviable position of being able to go to a school, meet a group of (generally) enthusiastic pupils show them that acoustics (science) can be all of the good things already mentioned, and then leave without the far more difficult and demanding task of making actually 'learning' science fun.



We have developed an exercise for the pupils to do. They are in a band but need somewhere to practice. They have been told that they can use a room at home, but must make sure that they do not disturb everyone else. There is a grant of £4,500 available from the Institute of Acoustics for the most effective scheme that the different bands can come up with – subject to some minor constraints such as not suffocating the band.

Each band is give a test rig consisting of a drum & bass simulator (airborne bass guitar and structure borne impulsive 'drum' beats), together with a framework into which they can fit a range of materials of differing density and absorptive characteristics such as foam, sheet steel, plywood, hardboard, plastic and wadding. The test rig enables them to test partitions of single or composite construction and to see how well the different constructions cope with airborne and structure borne sound. A floating floor is also available as part of the test assembly.

Usually one of the first challenges the pupils face is what to call the band. They also need to come up with imaginative 'reasons' for somewhat unorthodox approaches to noise control – such as tipping the drum kit on its side, filling the room with wadding (which would tend to suffocate the band), or covering the floor with a thick layer of foam – *it's a deep pile carpet!*

We are developing this kit so that it will be available for schools to borrow with sufficient information to enable the science teachers to use it, so that it remains a 'fun', 'real world' exercise but without the constraint of needing one or more Acoustic Ambassadors for the visit. However, the pupils (hopefully) get more out of it when Acoustic Ambassadors also attend because of their specialist knowledge, the opportunity to see that 'normal people'(?) can have a career in science/engineering, the information about their different/varied careers and their obvious enjoyment of and enthusiasm for their work.

4. WHAT CAN YOU DO

The exercise has been developed over time using ideas from the Acoustic Ambassadors' team but we are keen to improve it further and would welcome any suggestions for how it could be improved. We would also welcome any suggestions for alternative exercises that could be developed. Any such exercises should lend themselves to team work, taking about 1 to 1½ hours, be relatively low cost to develop (ideally coming with some form of sponsorship), be easy to transport to different schools, and most important they must be fun.

Rather than ideas, the most important thing that we need is to get the message, that science and engineering is a great career, to all pupils across the country. To do this we need more volunteers. It doesn't take a vast amount of time (between one and three days per year – the amount of time is up to you) and in addition to the satisfaction derived from knowing that you are doing something important, you will also find it enjoyable. If you would like any further information or, even better, wish to help, please email me: RichardAC@acoustical.co.uk