

## THE TOYNBEE SCHOOL SOUND POST SCULPTURE

### Introduction:

During 2006 I accepted a commission from Hampshire County Council with additional funding support from Arts Council England for an interactive sound sculpture to be located at Toynbee School, Eastleigh, near Southampton. I was drawn to this project because it offered a number of exciting challenges regarding creating sculpture for people with disabilities. Since my stroke during 1996 all of my artwork has been related to various forms of disability in some way. Stroke is a neurological condition and in my case it badly affected both my physical and cognitive abilities. And so, I'm 'multi-disabled'. Although I don't welcome my disability, I value the impact it has had on my art and the insight it offers me into other conditions, including visual impairment. I perceive the world in a different way because of my disability, therefore it's inevitable that my artwork reflects that fact.

### The Toynbee School commission:

The commission offered a specific challenge: To create a sculpture for visually impaired and sighted students at Toynbee School.



The sculpture was to be set within an outdoor newly landscaped communal area with sensory planting.



*Original proposed site design for the sculpture. Copyright Hampshire County Council*

Initially it was suggested to me that I might want to consider a sculpture that would make sounds in the wind – in other words, a giant ‘wind-chime’ – or that would have textured surfaces for visually impaired students to touch. But I wanted to avoid work that would have a short life-span in terms of interest for the students.

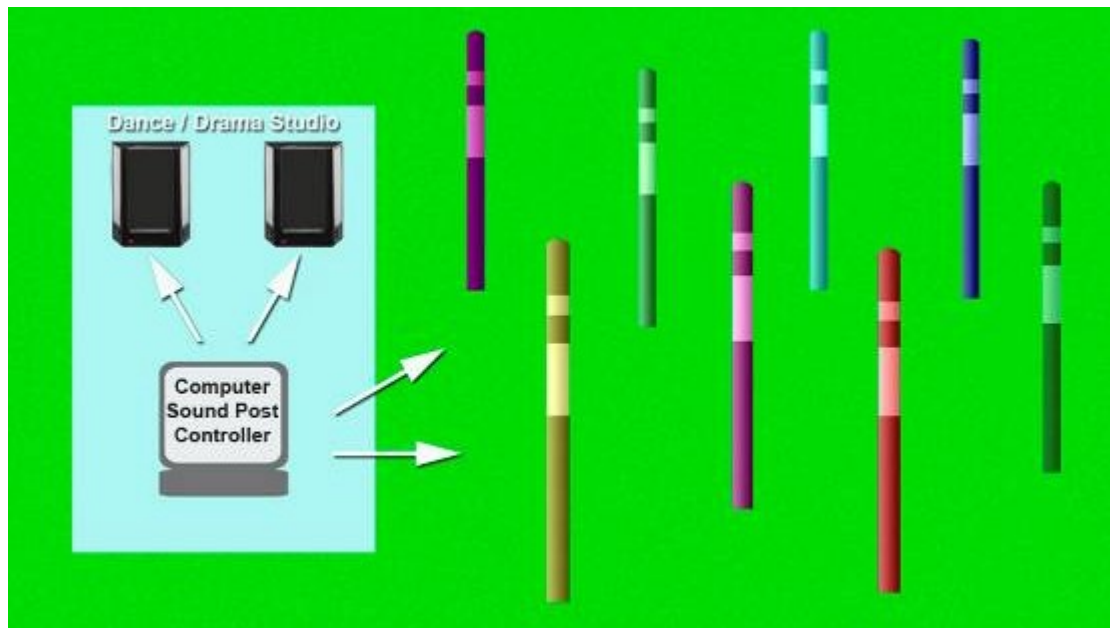


*Two day workshop at Toynbee School*



*Two day workshop at Toynbee School*

During a two day workshop at Toynbee School I soon became aware that the area for the sculpture is used daily during breaks for students to congregate. Bearing this in mind I decided to create an interactive sculpture that could change and evolve over time depending on student needs.



*Early visualisation of the Sound post concept*

The starting concept involved eight 'sound posts' to be located throughout the landscaped area with each post containing a speaker through which sounds could be played back using a computer housed within an adjacent classroom.

The sound theory for the sound posts was suggested by Ian Edwards, owner of Red Squirrel video productions in Watford, England. Ian told me about a fashion for DIY loudspeaker design that began in the 1960s that used drainpipes to amplify the sounds of speakers:



*Drainpipe Speaker*

I decided to employ this principal for the Toynbee School project, using steel tubing instead of drainpipes.

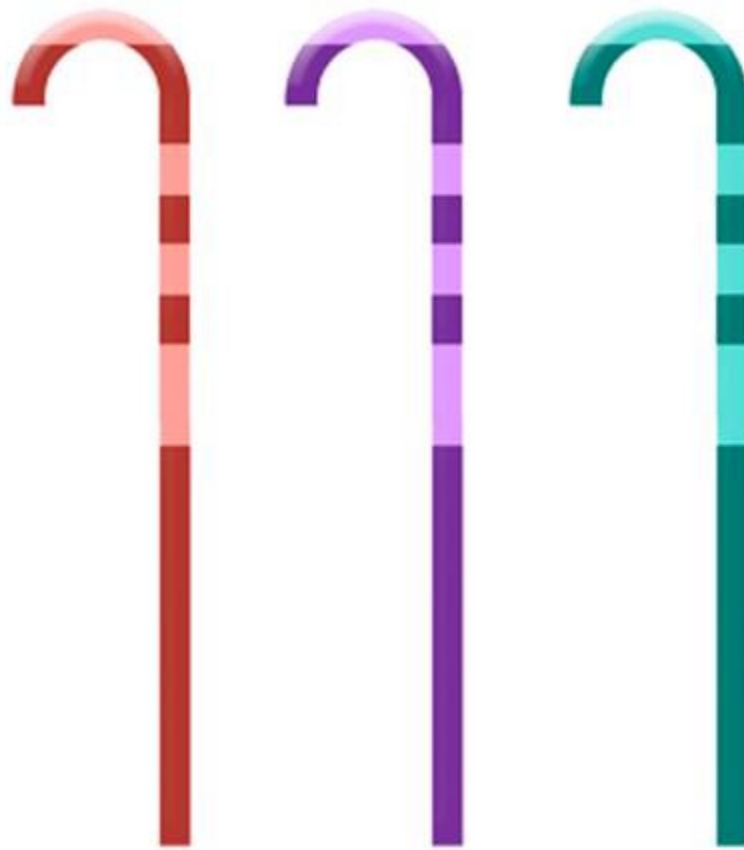
Initially, I wanted the sound posts to be minimal as far as design was concerned with horizontal striping:



*Early visualisation of the Sound Post designs*

Visual impairment takes many forms and I decided that the striping should be visible for people who experience colour blindness.

During the workshops the students made me aware that they wanted a 'fun' element in the sculpture. They weren't interested in *minimalism* or *conceptualism* or anything to do with 'serious' artistic concerns. They simply wanted something that would embrace the way they used the communal space. With this in mind I changed the design of the sound posts to produce something that was more fun: I based the design of the sound posts on the shape of the walking stick I use:



*Walking stick shape*

This revised shape also took into account key practical considerations:

*Sound amplification.* This new shape allowed me to fix the speakers to the downward section of the walking stick, focusing sound primarily immediately below and surrounding the posts and protecting the speakers from rain.

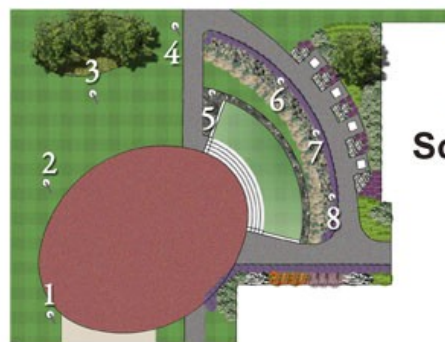
*Health & Safety:* Although I would have liked to have been more adventurous with the shapes of the Sound Posts, it was essential to ensure their design didn't encourage climbing. The addition of the 'walking stick curve' didn't undermine this objective.

*Vandalism:*

Although vandalism isn't a daily problem for Toynbee, the school does suffer from occasional vandalism after school hours. Like many schools Toynbee is easily

accessible from surrounding areas and therefore vandalism is almost impossible to prevent. It's extremely difficult to create outdoor sculpture that is vandal-proof. But it *is* possible to minimise risk. The proposed material for the posts (steel) makes significant structural damage unlikely. Also, I planned from an early stage to use vandal resistant protection on each post to protect the painted surfaces.

As the sculpture evolved, its potential uses for education and 'fun' became clear. The illustration below shows the final layout for the design:



**Outdoor  
Sound Posts**



**Cloud CX-A850  
8 channel amplifier**



**8 monitor speakers**



**Desktop PC with SCS Pro Plus**

The eight external Sound Posts are controlled by a computer located within an adjacent classroom with views over the landscaped area. Sounds can be sent to each post individually or in any combination using Sound Cue System software ([www.soundcuesystem.com](http://www.soundcuesystem.com)). SCS was recommended by Steve Brown.

Steve Brown is Head of Sound at Manchester Royal Exchange Theatre and has an international reputation for creative sound design. Details about his fantastic work can be found at [www.listenhear.co.uk](http://www.listenhear.co.uk)

What I wanted from the software was multi-channel cuing capability (in this case 8 channels of audio) that would enable users to play back audio in a wide variety of combinations through the Sound Posts. Sound Cue System is ideal for this purpose.



Screen capture from the Sound Cue System software (copyright Show Cue Systems)

I received a great amount of support from Mike Daniell at Show Cue Systems (who wrote SCS) during the research stage regarding software/hardware compatibility. Prior to my stroke I worked commercially in film and video production where pressure

is often high and schedules for production extremely tight. Therefore it was essential to work with people and organisations that responded positively to these demands. As important to me as the quality and reliability of SCS was the prompt and professional pre and after sales support provided by Mike Daniell which he freely offered over a Christmas break period.

Next to the computer loaded with SCS software are eight small monitor speakers, one for each external Sound Post, to allow students to preview projects without having to go outside to listen to the posts.

This setup also allows students to create indoor work for theatre or the music and drama studios. Sound Cue System is used by professional theatres, so any students wishing to work in theatre sound design will benefit from using this software.



*Steel Sound Post at Eurofinish Ltd being prepared for painting*

The Sound Posts are made of 5mm gauge stainless steel tubing with an outside diameter measuring 139.7mm, fabricated by Prefab Steel Ltd, Brighton.



*Sound Posts at Eurofinish Ltd after painting*

The stripes on each post were painted using enamel and powder coating processes by Eurofinish Ltd, Littlehampton. Eurofinish specialise in decorative coatings for many industries and products. However, this is the first time the company's skills have been employed for sculptural artwork.



*Speakers and speaker grilles for Sound Posts*

I designed the speaker grilles to minimise potential for vandalism. The speakers chosen are weatherproof 4" speakers normally used on yachts to account for varying severe outdoor conditions.

Whilst the Sound posts were being painted, computer software and hardware testing took place at BAV Boath Audio Visual, Brighton, England by John Boath.



*John Boath testing computer software and hardware*

John Boath identified audio equipment necessary for the project, tested all equipment and carried out the installation of the computer and audio hardware at Toynbee School.

The steel posts were installed during January 2008 in particularly bad weather conditions.



*Wrapped Sound Posts ready for installation*



*Sound Post installation*



*Fixing speakers to the Sound Posts*



*John Boath installing speakers*

Following the installation of the Sound Posts and speakers, the computer and audio hardware were installed in the classroom.



*John Boath and Matt Ware working on the classroom installation*



*John Boath installing the monitor speakers in the classroom*



*Steve Smith testing the Sound Post equipment after installation*

Steve Smith, Toynbee School's Network Manager is involved with theatre production and is familiar with the Sound Cue System software. As a result, he fully appreciates the creative potential behind the Sound Post project and has volunteered to teach staff and students how to use the system. Steve's passion, enthusiasm and technical expertise will help ensure the successful use of the interactive sculpture.

Sounds played through the Sound Posts create a magical space far more effectively than I'd originally imagined. Sound location perception is less accurate than sight location perception and often requires a *combination* of perceptual information

including visual clues. For example, if you hear the sound of a dog barking in the distance, *seeing* the dog may be needed to confirm its sound location. The Sound Posts don't offer visual clues. The speakers face down which further disguises sound location. Because of this, when you stand within the area surrounded by the Sound Posts, the sounds played back appear to 'float' around you. The following two photos show the Sound Posts after installation. The sensory landscaping is far from complete and so the area will look much better in a few months when planting is established.







*Steve Smith using the Sound Post computer*

This is just a brief summary. But the Sound Post sculpture will allow students to create a wide variety of creative sound projects, from simply playing back music during breaks to much more ambitious things like sound design for outdoor theatre performances.

The benefits behind using SCS software for students is that it allows for varying levels of creativity, from simple playback of audio to much more complex combinations. During testing and evaluation I noted that it took a very little amount of time to understand and use the SCS software – an essential feature when it comes to teaching schoolchildren.

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