

# Interactive Sound

By Phillip Shakesby Interactive Multimedia Level 2

---

---

## Research

---

What is an interactive sound installation? This was the first question that came to mind after we had been given the brief for this assignment. I started looking for interactive sound installations and the first one that caught my eye was the Soni Column by multimedia artist Jin-You Mok, the SoniColumn itself works through an array of touch-sensitive LEDs that each emit a unique tone when touched.



I also found a stair case that was turned into a piano using pressure mats

<http://www.youtube.com/watch?v=2lXh2n0aPyw>

This was an effective use of the space it was in an area where it was going to get good usage and the visual look helped enhance the effect.

## Conclusions of Research

---

A sound installation is an expansion of an art installation in the sense that it includes the sound element.

There are a number of things to consider when creating a sound installation, some sound installations occupy three dimensional spaces this causes specific problems and creates a wide range of possibilities, the physics of sound tells us that sound is the vibration of a substance, these vibrations are gathered and gathered by our ears and interoperated by our brains. Nowadays this process can also be performed by electronic equipment.

Whilst interpreting the sounds we try and locate the source of the sounds in different areas sounds may sound different due to echoes or reverberation, the position of the person or piece of equipments receiving the sounds can also change the perception of a sound as much as changing the position of the source of the sound could.

There are also other factors to take into account background noise can take away from an experience by distracting the attention of the person listening to the installation.

To get the desired effect for a sound installation of any kind you need to consider the location in which it is going to be displayed, you may not have control over certain factors but you should seek to minimise any potential problems wherever possible.

A sound installation needs to make a dialog with the surrounding space.

Context is fundamental to determine how a sound installation will be aesthetically perceived by listeners. It would be inappropriate to create a soundscape using sounds of horses for example in a room that is dressed to look like the moon.

Making a sound installation interactive simply involves creating an simple variable if factor A and B interact this causes a variance of at least one of the original factors or it creates a third factor. In simpler terms when two effects meet soothing happens.

The interactivity in a sound installation may come in many different ways it may involve a user making a sound or a sound that affects a user or even a sound that controls an electrical device; there are a large number of possibilities using a varied range of equipment computers, sensors, musical, mechanical and kinetic devices, etc.

One thing that is important in interactivity is if a user needs to make an action to gain a reaction is making it easy for the user to understand what it is they need to do this is called usability.

“ Usability really just means making sure that something works well: that a person of average (or even below average) ability and experience can use the thing whether it’s a website, fighter jet or a revolving door for its intended purpose without getting hopelessly frustrated.”

[Don't Make Me Think By Steve Krug](#)

Basically we need to consider the effects needed and plan to make it as easy as possible and consider possible errors you must presume that errors will occur and design to reduce the chance of an error in the first place.

With a good idea and good planning the chances of creating an effective installation are greatly increased.

## Ideas and Development

---

Whilst discussing new ideas we stumbled up the idea of trying to enhance the effects of any sounds we use by taking away the sense of sight by creating our sound installation in a dark room.

Scary music plays a key role in ramping up the fear factor in movies it seems to play a part in the way we perceive danger.

The power of the imagination is well-known: it's no surprise that scary music is scarier with your eyes closed.

Neuroscientist and psychiatrist Prof. Talma Hendler of Tel Aviv University's Functional Brain Centre has been conducting research into the effect of listening to audio with your eyes closed, her work is aimed at finding a new way treating people with to try Alzheimer's, Parkinson's and other neurological diseases.



Prof. Hendler's research suggests that, when our eyes are closed, a region in our brain called the amygdala is fired up. That's the region of our brains that processes emotions.

The experience of scary music becomes more emotionally and physically intense. And the converse of the scary music effect may be true: happy music could produce a joyous effect when our eyes are shut as well.

In effect shutting our eyes might synch up different brain activities, allowing our brains to "better integrate the highs and lows of the emotional experience.

We also looked at the use of sounds within horror films used to enhance the fear facto to create an experience in visual and audible terms. The musical cues within films such as *Jaws* and *Psycho* help to build up tension before an event this would not be appropriate as we are hoping to create an experience in which a scary mood is set but an audible surprise occurs to create fear or fright.

Setting the mood for a scary environment with sound involves providing sounds that leave the listener with unanswered questions they should be open to interpretation making the listener start to wonder what the sound is why it is there and what could be making the sound, in ghost films disembodied voices and noises are scary as there is no logical reason for them to be there so in effect if it is not a sound from a normal source it becomes a sound from a paranormal source.

Other sound that are often considered scary are sounds like children singing i.e. in the nightmare on elm street films children sing the rhyme that begins with

“One Two Freddy’s Coming For You”

Monks singing is often considered to be scary and scratching and hissing noises are often disliked by a lot of people but it is not necessarily the sound itself that is disliked but the context in which a sound is heard if you heard children or monks sing whilst watching a singing performance it would not be scary but in a dark room whilst suffering from sensory deprivation sounds that have no logical reason for being there often create an emotional response from people in most cases fear.

The background noise within the environment are important to set the scene and the darkness within our room creates sensory deprivation but to add to this we thought it would be a good idea if the source of the sounds seemed to come from different locations making it harder for the user to establish a bearing helping to create the sense of disorientation and fear we were looking for we researched the use of surround sound and decided to create our baking sound effects using this technology.

Alongside the background noise we also wanted an interaction between the listener and the sound installation, during our research we came across a piece of equipment that when stood upon could send an electrical signal to trigger a piece of audio.



Pressure mats connected to a computer can play sounds when triggered in our case when somebody stands upon one a sound effect is activated.

We wanted the sound effect to be a surprise rather than a coincided action by the user so with the dark surroundings and a floor cover the user should have no indication that they are triggering this would not normally be a good interaction design but for this purpose it is appropriate as surprise, shock or fear are the desired outcomes rather than repeat actions.

## Evaluation

---

This has been an interesting project for me, I have done a lot of research on interaction design during this course it was interesting to create an environment in which we needed to ignore a lot of common interaction values and models to gain the desired effect we wanted to provide the user with the desired experience.

Although we are not using common interaction techniques it shows that the user does not always have to be aware of what's going on when designing something that they will use.