

It's official: Science confirms that pop music is getting louder and blander



Scientists have found that pop music has become louder and blander. Picture: TSPL

By HELEN BRIDLE

Published on Thursday 2 August 2012 16:29

For those who suspect that a decline in the enjoyment of pop music is a sign of advancing age there is now scientific evidence to explain why.

After analysing half a million pop songs, from 1955 to 2010, Spanish scientists have found that pop music really is getting louder and blander.

The Spanish study found that the loudness of recorded music is increasing by one decibel every eight years.

Dr Joan Serrà and his team also reported that modern tunes display less variation in the pitch, which "roughly corresponds to the harmonic content of the piece, including its chords, melody, and tonal arrangements".

The loudness finding tallies with work by researchers at the University of Bristol last year.

Dr Tijl de Bie and colleagues have developed a "hit potential equation", capable of predicting whether a song will reach top five in the UK charts based on a total of 23 features, including tempo, duration and loudness.

Loudness was one important factor in determining if a song would be a hit, although over the past four decades, songs of all quality have got louder.

The equation was developed using an artificial intelligence technique called machine learning. This type of computer program improves through experience.

While studying numerous songs from the UK chart, the computer learnt which musical features correlate with popularity.

This study was the first to be able to accurately predict hits. The researchers suggest this is because it is the first to take into account changing musical tastes over time.

The time dimension was accounted for by adjusting the “memory” of the program so that it could adapt to new trends.

For those who haven’t adapted to the new trend for loudness, it may be some consolation that the computer found loudness peaked in 2010 and is now in decline.

Fife and Stirling only places in Scotland to achieve recycling target as Glasgow falls well short



Glasgow recycles less than a quarter of household waste. Picture: TSPL

By HELEN BRIDLE

Published on Wednesday 8 August 2012 14:23

NEW recycling figures released by SEPA show that Glasgow is certainly not living up to its Gaelic name of the Dear Green Place.

Less than a quarter of household waste is recycled, earning Glasgow a place 4th from bottom in comparison with other Scottish regions.

This shows there is a long way to go for the city to meet the EU target of 50 per cent of all waste being recycled by 2020.

Fife and Stirling are the only places in Scotland which achieve this.

Jim Coleman, spokesman for the council's land and environmental services, said: "Recycling has always been a challenge for Glasgow, largely due to the nature of its housing stock."

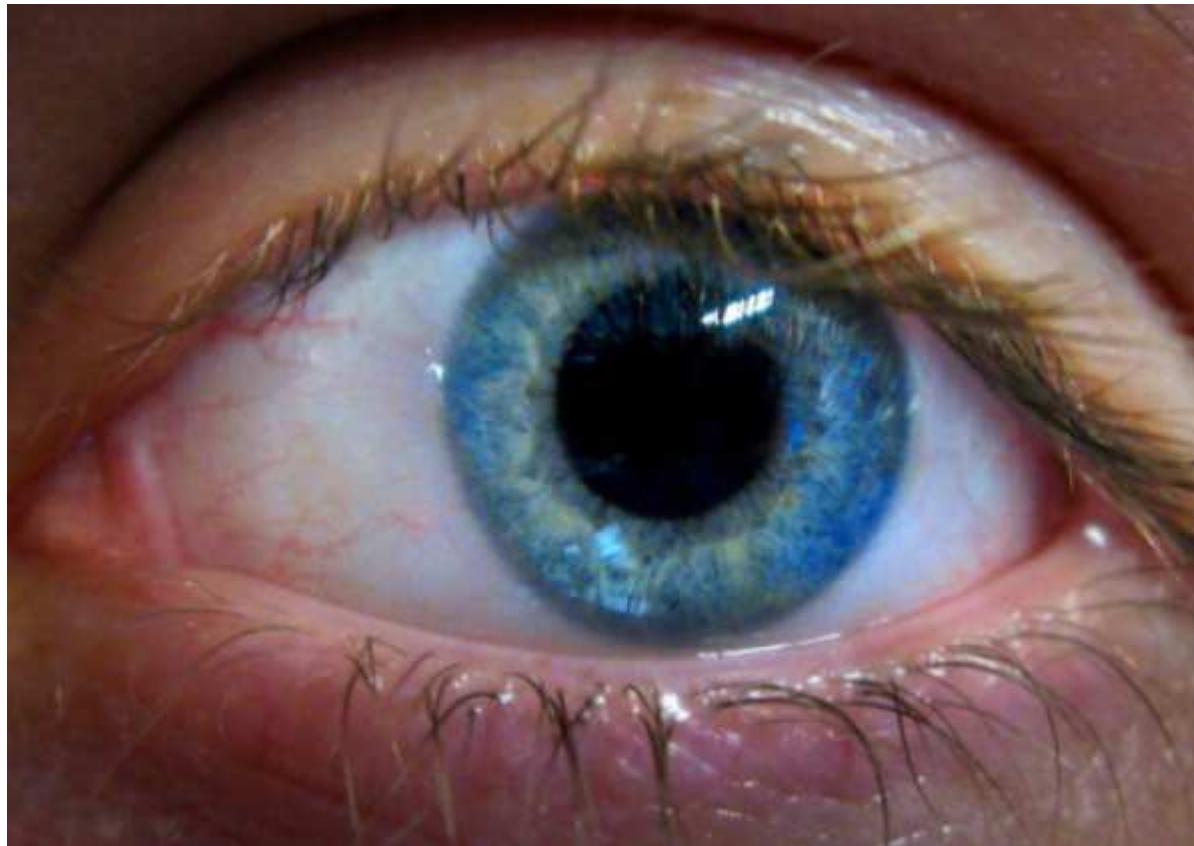
However, other major Scottish cities recycle far more, with Edinburgh, Dundee and Aberdeen all achieving around a 30 per cent rate.

Council chiefs in Glasgow said they expect improvements in the next few years as they introduce new bin collecting measures and a controversial £154m waste management plant.

Despite opposition from the SNP and the Green Party, the city council gave the go-ahead to he Viridor Recycling and Renewable Energy Centre, which will be built in Polmadie, in Glasgow's south side.

Due to open in 2015, the facility will process 200,000 tonnes of domestic rubbish a year and the council hope it will boost recycling as well as save £254m a year and power the equivalent of 20,000 homes with renewable energy.

Artificial retina could help blind people see after successful trials on mice



An artificial retina could be used to treat human blindness within a decade

By HELEN BRIDLE

Published on Tuesday 14 August 2012 13:58

SIGHT has been restored to blind mice with a newly developed artificial retina which scientists believe could be adapted for human use within a decade.

The device, which could help millions of people with incurable eye disease, has been developed by neuroscientists at Cornell University in New York.

The retina is the light-sensitive tissue in the eye which captures and processes images of the world around us and transmits them to the [brain](#) as electrical impulses.

The implant mimics the behaviour of the retina and enabled the previously blind mice to discern facial features, including a baby's face, and visually track an image.

Lead author of the study, Professor Sheila Nirenberg said: "The approach is to bypass the damaged tissue and provide direct stimulation to the surviving cells, driving them to send visual information to the brain."

Better understanding of the way visual signals are encoded into electrical impulses allowed Prof Nirenberg and her team to produce a system which delivered higher resolution images than previous devices.

Scottish scientists are also playing an important role in the effort to develop retinal [implants](#) to restore sight.

Dr Keith Mathieson of Strathclyde University is working with colleagues at Stanford University and the University of California Santa Cruz, designing and manufacturing simple, easy to implant devices.

Singing apes on helium teach evolution of human voice



The helium-enhanced calls of the white-handed gibbon have taught scientists much about the evolution of the human voice

By HELEN BRIDLE

Published on Friday 24 August 2012 05:08

STUDIES of soprano singing apes on helium has given fresh insights into the human voice.

- Scientists use helium gas to improve frequency of primate's song
- Gibbon's calls shatter beliefs of how human voice evolved

A singing gibbon employs the same vocal techniques as professional soprano singers, which shows that gibbons use the same process for producing speech as humans.

The discovery shocked scientists as was previously thought that human speech had evolved through changes in the voice box which were specific to humans.

- [Listen to a gibbon's normal call](#)
- [Listen to a gibbon on helium](#)

However, according to the researchers the new study shows the singing gibbons always, and with minimal effort, adopt the complex vocal techniques which are only mastered in humans by professional soprano singers.

This discovery suggests the development of vocal abilities in humans was not due to unique evolutionary modifications.

Dr Takeshi Nishimura from Kyoto University who lead the study said: "The complexity of human speech is unique among primates as it requires varied soft sounds made by the rapid movements of vocal tracts."

"Our speech was thought to have evolved through specific modifications in our vocal anatomy. However, we've shown how the gibbons' distinctive song uses the same vocal mechanics as soprano singers, revealing a fundamental similarity with humans."

The Japanese researchers studied the singing of a white-handed gibbon, which boasts a loud melody which can be heard over two miles away.

To explore the human-gibbon vocal similarities the team conducted the first acoustic investigation on non-human primates using helium gas.

The gas is well-known for making human voices appear high pitched, and is useful for studying animal vocal mechanisms as it increases sound velocity and resonance frequencies.

The research reveals that humans share the biological fundamentals of vocalisation with other primates, but in speech have simply acquired another of its most sophisticated forms.

Dr Nishimura added: "This is the first evidence that gibbons always sing using soprano techniques, a difficult vocalisation ability for humans which is only mastered by professional opera singers.

"This gives us a new appreciation of the evolution of speech in gibbons while revealing that the physiological foundation in human speech is not so unique."

The team recorded 20 gibbon calls in normal air atmosphere, before recording 37 calls in a helium-enriched atmosphere. The resulting sounds reveal how gibbons can consciously manipulate their vocal cords and tract to make their distinctive sound.

Forgetting keys 'normal' as study reveals secret of memorable events



If you can't lay your hands on your keys, it's because they're dull

By HELEN BRIDLE

Published on Thursday 23 August 2012 12:23

Forgetting everyday things like where you left your keys may be normal as the brain is wired to recall the most emotionally charged events most vividly, research shows.

- Emotional power of memory helps [brain](#) store thoughts
- Dull items not stored so well

Within a 5th of a second of seeing an image the brain indexes it by the emotional power of the image which then effects subsequent recall.

Lead author of the study Dr Rebecca Todd from the University of Toronto said: "We call this 'emotionally enhanced vividness' and it is like the flash of a flashbulb that illuminates an event as it's captured for memory."

She hopes that the new understanding of why people perceive and remember emotional events so vividly could help in treating people who are suffering intrusive memories as a part of post-traumatic stress disorder.

Participants in the study were shown various images and their ability to remember them was tested immediately afterwards as well as a week later. Some images were emotionally arousing and negative, like

mutilation or sharks baring their [teeth](#) whereas others were arousing and positive, such as mild erotica. The final class of images were neutral which included for example people on an escalator.

In both cases the emotionally arousing images were recalled more vividly with no difference between the positive and negative images.

Dr Todd said: We've discovered that we see and remember things that are emotionally arousing with greater clarity than those that are more mundane.

"Whether they're positive - for example, a first kiss, the birth of a child, winning an award - or negative, such as traumatic events, break-ups, or a painful and humiliating childhood moment that we all carry with us, the effect is the same."

[Brain](#) scans were used to measure the timing of the activity in the visual cortex area of the brain to see when the brain is sensitive to vividness.

Dr Todd explained: "We found that the brain indexes vividness pretty quickly - about a 5th of a second after seeing a picture, which suggests it's about seeing and not just thinking. Emotion alters activity in the visual cortex, which in turn influences how we see."

The vividness effect also works when looking at images for the first time. It seems that our brain rates the emotional importance of a picture depending upon past experiences which in turn influences how vividly the image is seen.

The participants were shown similar images to the memory study but in this case overlaid with 'visual noise' similar to interference on an old TV screen.

They were asked to rate how noisy the pictures were and the scientists found that while people were good at rating how much noise was on the picture relative to a standard, they consistently rated pictures that were emotionally arousing as less noisy than neutral pictures regardless of the actual level of noise.

Dr Todd said: "When a picture was rated as less noisy, then they actually saw the picture underneath more clearly, as if there is more signal relative to noise in the emotionally arousing picture. The subjective meaning of a picture actually influenced how clearly the participants saw it."

Scientists aim to improve education of autistic children with board games

By HELEN BRIDLE

Published on Friday 24 August 2012 11:32

SCIENTISTS have used traditional games such as Guess Who and 20 Questions in the hope of improving the education of children with autism.

A team at Edinburgh University found that those with autism struggled to use simple categories to effectively play the games.

Ben Alderson-Day, who led the study, said: "The thing that's good about Guess Who and other tasks like Twenty Questions is that kids have to come up with their own questions to play the game - and quite often we find that children with autism find that hard, even when they seem to know all the relevant words or categories that they would need."

As children with autism often find it difficult to process human faces, the researchers adapted the Guess Who format to use either robots or everyday objects. They compared the performance of children with autism and Aspergers with deaf children and a control group without a diagnosis.

The researchers explained: "People expect that those with autism will have systematic problem solving strategies but we've shown this is not the case."

The problems sorting information into appropriately sized categories in this way is similar to that seen in deaf children whereas the Aspergers participants performed better. The researchers think it is linked to delays in early language development.

Mr Alderson-Day added: "This sort of thing is useful for education, as it gives us clues as to how to help people with autism apply the knowledge that they have in effective ways."

Revealed: tricks of the food industry



Meals from round plates taste better, according to scientists

By HELEN BRIDLE

Published on Friday 7 September 2012 12:51

FOOD scientists have revealed some simple tricks to help impress your dinner guests or to improve the taste of airline meals.

Professor Barry Smith from the University of London explained that research has shown that food tastes better when eaten off round plates compared to square plates with heavy cutlery.

With aeroplane dinners his tip was to wear headphones to block out the background white noise which interferes with our taste discrimination.

He explained that taste is not just something that comes from our tongues - it is actually a multi-sensory experience.

Stale Pringles can be made to taste fresh if people are played crunching noises while eating them.

The smell of vanilla also makes food taste sweeter. The vanilla effect is cultural learned association, working in the UK but not in Japan where vanilla is not normally included in sweet tasting items.

People are also more likely to pay more for heavier bottles of wine.

Prof Smith said the research could also be useful in helping elderly people to eat properly. He explained that a decline in our sense of smell as we get older means food tends to taste less good. Aiming to enhance the smell could improve the taste.

