

Music is inner movement

A CONVERSATION WITH GUNTER KREUTZ*

How does music affect people? How is it possible that music or a voice singing gives people the shivers?

Kreutz: First, the effect of music has more to do with the person experiencing it than with the musical structures which we call “music.” Each person experiences music a little differently. Music also affects us at very different levels, of which we are only partially conscious. Brain research shows us that listening to music activates areas of the brain which are not only related to the specific act of listening to music. This applies, for instance, to the older part of the brain where emotions are processed and the bodily functions are regulated, but also to the cortical regions, where movements are planned, implemented, and controlled. Even when someone is lying very still in a brain scanner, when music is played the regions of the brain which plan movement are often activated.

So music moves us internally?

Kreutz: Yes. This inner movement has many facets. The word “emotion” is derived from the Latin term “emovere” (“to move out”). Music moves us emotionally out of one mental state and into another. In addition, emotional experiences trigger bodily reactions and steer the way we tend to act. That does not mean that we will automatically do something good or bad, just because we hear specific music. However, our attitudes can change. After listening to sexist rap lyrics, listeners can become more tolerant in the short-term toward sexist comments. In these studies it is not completely clear if the lyrics alone are responsible for such attitude changes. At least it appears that words

have a stronger effect if they are sung. Other forms of inner movement are, for instance, the needs to sing along and to dance with music. Music is a social art. For this reason, music and rhythm can strongly stimulate people to join in musical patterns and abandon themselves to it.

What does that mean for the interaction between images and music on television?

Kreutz: The majority of the brain is occupied with seeing, that is, with processing visual stimuli. The processing of auditory input is important, but it requires fewer resources and is processed much more quickly. Latency time for processing music is a millisecond. In order to see, one uses at least one hundred times as many sensory cells to process the information if you include the receptors of the retina. By the time all this information has reached the occipital lobe and become processed, about 30 to 50 milliseconds have gone by.

Auditory input is processed much more quickly than visual stimuli

So music is processed much more quickly and directly than a visual image?

Kreutz: Exactly. Subconsciously music “emotionally primes” us, so to speak, for the images to be shown, because it is processed more quickly and especially because it is processed very close to the brain centres for feeling and movement. When I say “emotional priming” I am referring to a stimulus, which is emotionally coloured in a par-

ticular way and projects this emotional quality upon a second stimulus which follows it. It may be that this second stimulus is actually neutral, but due to this process it becomes associated with a particular emotion. We believe we are seeing images and hearing music at the same time, but in reality music and notes are processed much more quickly and can therefore “emotionally prime” or emotionally colour the images we think we are seeing at the same time. This may happen shortly before a scene or even at the end of it or shortly after it; the way we perceive the scene emotionally is influenced by the music.

Is the emotional colouring only a one-way process?

Kreutz: These days most music is listened to in the context of audio-visual media. Whether in YouTube-performances, on MTV, in a concert, or in the opera – the visual context is very present in the experience and perception of music. Research has confirmed what people have long suspected: music can be an emotional amplifier for images. However, it also works in the opposite direction: the emotionality of images can affect the experienced emotionality of music.

Can you give us a concrete example for this?

Kreutz: Think about the first scene in the children's programme *The Little Boy and the Beast*: a little boy plays with a dog, the shadow of a beast appears behind the boy, the dog flees (cf. Ill. 1). Then the boy takes the beast by the hand,¹ and one hears music which is actually rather light in tone. An artistic device was used here to play with these contrasts. The image is rather frightening, but the music is rather amusing, has a funny tonal range. The short moment of a horror drama in this animation film is resolved in a positive way due to the musical priming shortly after it. The music determines, so to speak, the direction in which the action and the viewers' expectations develop. In this case, this artistic manoeuvre was able to play with the audience's previous expectations. These expectations are then "betrayed," unsettling the audience a bit so that they then pay more attention to how the plot will develop.

Do you remember any other such artistic manoeuvres?

Kreutz: Later on in the same programme the beast growls at the nice salesperson in the supermarket (cf. Ill. 2). In this scene the effect of music is almost strongest when it stops. In

this one moment of silence, our attention, which had just been bound by other stimuli, is suddenly released. In this way, silence has an important function when the senses have been occupied before or are occupied immediately afterwards. This, too, is related to emotional colouring. The viewers, whose senses had just been occupied in a dependable way, are now being sent on an ambivalent journey: "What will happen next?" If used at the right moment, this can be a very effective tool to increase the feeling of suspense. And it can only work if it is not completely clear what will happen next.

Are there other reasons to leave out particular atmospheric devices, for instance in children's news broadcasts?

Kreutz: Sounds and music naturally have a strong emotional influence on a viewed situation; one could almost say that without music the viewer will be much less moved by a scene. The same applies to a horror movie, which is much easier to watch when the sound is off. Similarly, if images of a medical operation are accompanied by horror music, they are much more difficult to watch in a neutral way and to the purpose. The priming effect suggests that something dreadful is taking place.

Do children react just as sensitively to music as adults do?

Kreutz: In some ways children exceed adults in their sensory abilities to process music. There are experiments on habituation, or adaptation, which indicate for instance that a 9-month-old infant pays much more attention to the contours of a melody than an adult layperson does. This highly sensitive processing of auditory stimuli is of course necessary for language acquisition. At the same time, in the first year of life learning a language is mainly constituted by perceiving musical aspects of the language. Children have to learn to discern sounds, pitch, groups or phrases of sounds, volume and speed differences, and much more. People used to think that children need about 10 years in order to acquire a deep aesthetic appreciation of music. But research keeps discovering even more hearing competences in even younger children; I think that all the old concepts of child-appropriate music should be re-evaluated. ■

NOTE

¹ *The beast symbolises the boy's mother who turned into a beast after the divorce from his father. Yet, at this point this fact is still unknown to the audience. The Little Boy and the Beast (Studio Soi for ZDF, Germany) is a 6-minute animation programme. It was the winner of the Up to 6 Fiction category at the PRIX JEUNESSE INTERNATIONAL 2010 with the highest score a programme ever received.*

* Shortened version of a conversation with Prof. Dr. Gunter Kreutz, a professor of systematic music studies at the Carl von Ossietzky University in Oldenburg, Germany. His research focuses are (neuro)cognition and emotionality of music, (social)psychology of music, performance research, as well as music and health.

