

Because they feel what they hear

HOW CHILDREN DEAL WITH DIFFERENT MUSICAL SETTINGS

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In a series of studies by the IZI brief stories were set to different kinds of music and international children's reception of these clips was observed. The result clearly shows the importance of sound in reception.

An animation clip: Elephant and Bunny are playing hide-and-seek. A documentary: a young bear is romping around. An art project: a chocolate bunny is melted by a hairdryer. They all have a suitable original sound created by the editors. But what happens if they are set to different music? How do children react when they see the same images with different musical settings? In a series of studies by the IZI¹ we tested precisely this: we showed the different variants to children across the world and observed their reception with the camera.²

The importance of sound for children has been proved repeatedly in reception studies. Children use sounds as indications as to when it is worth looking at the screen (Valkenburg, 2004). Selectively placed acoustic indications support attention and can promote learning (Calvert, 2001; Calvert et al., 1985; 1987). But what happens when the same scene is set to different music?

STUDY 1: AN ANIMATION CLIP WITH DIFFERENT MUSICAL SETTINGS

Music interprets a story that is created in the mind

Bunny is playing hide-and-seek with Elephant around a large, green bush. Bunny repeatedly disorients Elephant with the tinkling sound she can make with her little tail. After several failed attempts Elephant turns the tables and jumps through the bush. Bunny is frightened a little at first, but then both of them laugh. Bunny's intention, and therefore the purpose of her actions, cannot be seen directly in the image, rather it only becomes clear as the plot unfolds (cf. Ill. 1).

Positive Dixie music = cheerful atmosphere

In the original the 1-minute clip is set to positive Dixie music in the major key which is played on banjo, marimba and leisurely drums. Humorous and typical cartoon sounds are added as stresses to the movement.

167 children (3 to 11 years) from 11 countries watched these variants in 30 groups. A positive mood is observed throughout: they rock in rhythm with the music, smile and laugh a lot, or imitate the tinkling with the stubby tail. The children interpret the clip in the intended sense: Bunny and Elephant tease each other playfully. Already at 3 or 4 years children recognise the basic emotions in music (Cunningham & Sterling, 1988). Happy and sad music in particular are simple to interpret and to differentiate (e.g. Hevner, 1935; Gre-

gory et al., 1996). The style of the music shapes the emotional interpretation of the characters, even if it is only heard for a few seconds or is time-delayed in relation to the images (Tan et al., 2007).

Suspenseful music = tension and expectation of evil

110 children from 9 countries watched a different variant in 24 small groups: the same images, but this time with a dramatic, almost suspenseful music in the minor key. Played by a large symphony orchestra, the music builds insistently as if announcing an approaching disaster. The large crescendo ending comes abruptly. In addition, the comic sounds and Bunny's laughing were intensified with an echo.

The tension can be seen from the first sound in the 3- to 11-year-old children, particularly in the younger children. A girl from Colombia, for example, plays nervously with her hands and occasionally shuts her eyes. A 5-year-old boy from Chile watches it full of tension, wincing severely as Elephant suddenly hops out of the bush to booming music.

The older children who have more media experience show less tension, but they apparently re-interpret the story. For some Canadian girls, the game that is meant to be playful becomes an aggressive aggravation, and Elephant is the victim: "That's not nice. He is scared." And after the clip: "I still feel sorry for the little elephant." A group of Canadian boys wondered at the end: "Why was there scary music?"

Sound here clearly shapes the way the story is understood and interpreted. While the positive sound suggests a light, cheerful reading, the suspenseful,

darker musical setting fills the younger viewers with suspense, causing them, in their reception of the clip, to expect a disaster, and pushing the older children towards a specific interpretation. They seek the meaning of the musical setting.

The music primes the meaning

Gunter Kreutz, professor of music studies, links this to the processing speeds of the brain. Because the processing of images takes much longer than the processing of sound, the sound “primes” the image in its meaning. The brain activates certain known networks of interpretation, thereby contextualising the image (cf. Kreutz in this issue). Juslin and Västfjäll (2008) make the connection with the “Brain Stem Reflex.” An emotion is induced by music because one or more fundamental acoustic characteristics are coded and signalled by the brain stem as an important and urgent event. Music correspondingly influences the presupposition of how the plot will unfold (Vitouch, 2001). In this case it is the presupposition that something terrible is about to happen.

There are virtually no culture-specific differences in this. In research on music reception by adults this is well known. Harmonious sounds are experienced as pleasant across different cultures (Fritz et al., 2009; Balkwill & Thompson, 1999), and the emotions of joy and sadness, in particular, are securely recognised.

STUDY 2: DOCUMENTARY RECORDINGS WITH DIFFERENT MUSICAL SETTINGS

Music for activation

In another series of studies we used documentary recordings of a young bear (RTV Slovenia). The images have emotional power. The bear is trying to climb a tree, and he falls off. He romps around frenziedly, suddenly smells something in the grass, digs and wallows in the smell. In the original a Slovenian voice-over explains what the bear is doing. For the international study we provided a background to this clip in 3 ways: with activating/aggressive, neutral/banal and sad music. For the activating, aggressive variant we used heavy rock music. 93 children from 5 countries watched this variant. 106 children from 5 countries watched the variant set to banal, neutral music. In a third variant we set the clip to sad music, and 205 girls and boys from 6 countries watched it.

The result: all variants provoked similar reactions. The children laugh, smile or laugh and comment when the young bear surprisingly falls from the tree, romps around or wallows in the grass. Slight gender tendencies are apparent across all 3 variants. The girls more frequently express rapture; the boys are more likely to comment. As in most of the other studies, too, the reactions

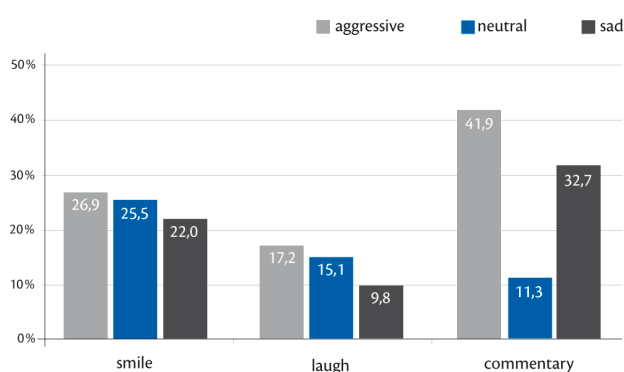
of the older children (7 to 11 years) are more frequent, clearer and more obvious than those of the younger children (up to 6 years). On the whole, we observed similar reactions with all 3 very different musical

settings, in contrast to the results for Bunny and Elephant (study 1). There is, however, a clear general tendency: in the variant with the loud, activating and aggressive music there is more commenting, smiling and laughing at all the appropriate times (cf. Ill. 2). The fast music is accompanied by an activation of the young viewers. There are therefore forms of musical setting which activate more than others. One explanation could be the one offered by Juslin et al.: it could be an activity in the central nervous system that is particularly heightened by the music criteria “fast and loud” (Juslin et al., 2008). If image and sound drift apart, though, the result can also be an expressive boredom. The children turn away, yawning loudly. This does not just happen with the aggressive music, however, but also with a banal, neutral musical setting. It is only in the sad variant, with its therefore unambiguous interpretation of the content, that there is no sign of boredom.

STUDY 3: A CHILDREN’S ART PROJECT WITH DIFFERENT MUSICAL SETTINGS

Music captivating or opening up space for development

A hairdryer is directed at a chocolate bunny. In close-up the bunny’s nose and head melt, the soft mass of chocolate swells in waves to the powerful lamentations of a woman’s voice (cf. Ill. 3) which is accompanied by the three-four time of a sad piano melody. She stops as a hole in the bunny’s neck tears open and the hairdryer’s airstream causes its head to break off backwards (cf. Ill. 4). Then she continues her melancholic vocalise. The 40-second clip is part of the Dutch art project *Big Art for Little People*, which was produced in cooperation with Dutch Culture Fund (Stifo) for the public service broadcaster KRO Youth. The project produces artistic short films for preschool and school children which show unusual things and aim to



Ill. 2: Reactions of children to the different musical setting variants of “The Little Bear”

sound that points in the same interpretative direction: this is a tragic event. In at least some children it provokes a similarly visible reaction: suffering with the bunny. What happens if the musical setting is not further dramatised but is instead kept neutral?

Music that does not further dramatises = children consider and comment

In a second variant we used a relatively calm but emotionally light melody, played on the xylophone, as a background to the same images. The music provides an acoustic background to the images without additionally dramatising them. 36 children from 5 countries aged 6 to 12 years were filmed in their reception of this variant. Half of the observed children show no reaction. Some children smile; at the climax of the clip the children laugh more often in comparison with the original version. Mainly, though, there is more commentary from the children with this variant; 2 out of 3 children say something during reception. Boys from the USA (7 to 12 years) comment: "Urgh! What's happening to the cute bunny?" A group of girls from Canada (7 to 11 years, cf. Ill. 5) articulate their thoughts and feelings: "How scary," "Urgh, that's so scary!," "That's creepy."

The accompanying music, which does not further dramatises, clearly prompts commentary on what is being shown.

Amusing music = activating and setting a positive mood

In a further variant we set the clip to music that is contrary to the original. The melody of the *SpongeBob SquarePants* outro, with the sounds of a ukulele, sounds amusing, and children probably associate it with positive emotions because of the *SpongeBob*

SquarePants programme (Götz, 2014). 64 children aged 6 to 13 years from 8 countries watched this variant. In their reception of the clip none of the children seem sad or worried, in fact almost every second child smiles or laughs. The dramatic climax provokes the most laughter: the head of the chocolate bunny breaking off. Instead of sympathy we see various humorous behaviours: "Nooooo!," cries a group of girls from Canada; 3 of the girls reach out towards the television screen (cf. Ill. 6). Amid much laughter they say: "Let me eat it!"

The musical setting that contrasts the original sound provokes in comparison the most reactions: there is, however, no dismay anymore. The conclusion: the amusing musical setting leads to increased activation and a humorous interpretation of what is seen.

provoke, for example, by overstepping the boundaries and staging the melting of a chocolate bunny. How do children deal with such a clip?

Mournful, dramatic music = spell-bound children

We showed the clip to 84 children (7 to 11 years) from 11 countries. The observation: 2 out of 3 children show no reaction in their reception of the clip. They watch with interest throughout, but there are barely any visible emotions or reactions. As the bunny melts, every tenth child shows a concerned or sad facial expression, double as many girls as boys. The events are barely commented on. As the chocolate bunny's head breaks off, approximately every twelfth child is seen to be laughing in some way or another, although this often seems to be nervous laughter that is probably for the purpose of emotional release. The conclusion: the children follow the intended reading. Something that is meaningful to them (a chocolate bunny) is destroyed by a profane event that does not usually happen in everyday life. The unusual images are accompanied by a clearly interpreting

STUDY 4: AN ANIMATION CLIP WITHOUT MUSIC OR SOUND

Irritation, imitation and "technical errors"

In the study series with the cartoon clip with Bunny and Elephant we also



Ill. 5: A non-dramatising musical setting prompts the children to comment on what is happening



Ill. 6: An amusing musical setting activates the children and provokes a humorous interpretation

observed what happens if the sound is left out. 84 children from 7 countries in 17 groups watched the clip without sound. They were obviously irritated. Some assume there is a technical error and call for help: "Daddy, louder!" (boy, Germany) After watching the clip the groups are visibly disappointed. "Why is it not working? Stupid film." In other groups the children assume the sound is just too quiet, and they exhort each other to be quiet. Another mode of reaction is shown, for example, by the girls from Qatar. They use the free space that opens up, imitating the animation characters' gestures. Other children turn away, bored. A lack of sound therefore potentially leads to disengagement from the involved reception situation.

SUMMARY

The sound carries the meaning and emotionality of the clip

These quasi-experimental studies are certainly only initial experiments with different musical settings, and are only transferable to natural reception situations to a limited extent. The studies did at least, however, show the high level of significance that can be attached to a different musical setting. Hypotheses that can be formulated on the relationship between image and sound:

- If the images leave particular interpretations of their narrative connections open, the sound can shape the meaning significantly.
- If the images and actions have a strong meaning in themselves, the sound can activate, but it only shapes reception to a limited extent.
- If the image carries meaning but is odd, a dramatising musical setting can significantly shape the interpretation and reception attitude.
- An accompanying musical setting allows more scope for development and can prompt the children, for

example, to articulate their physical feelings and thoughts. Overdramatisation, on the other hand, causes them to fall silent.

- If the sound is omitted altogether, they tend to disengage from the involved attitude.

The sound shapes the contextualisation of the meaning. The musical setting "primes" the processing of the images and the interpretation in a particular direction.

In order to promote quality, the results of this study series again emphasise the necessity of dealing carefully with the musical setting as regards tonality but also intensity. Children use and need the sound in order to interpret what they see. The musical setting can activate, and it can create an attitude of expectation. Yet a musical setting that employs too much dramatisation leaves the children too little room to perceive themselves or to behave in a self-determined way. From a pedagogical point of view, the chance to reflect and position oneself within a programme is particularly important. It is not about "impressing" a feeling or an interpretation on children, but rather about prompting them to notice effects and to put themselves in the situation. Accompanying musical settings that do not over-dramatise, or which might even use light irony, seem – at least in these examples – to be more effective than when the sound additionally intensifies the effect of the images. ■

NOTES

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² The study was carried out in the context of the Guessing Games 2008, 2010 and 2012. Children in a variety of countries were filmed watching a DVD with approx. 15 different clips. In this series of studies we varied the musical setting within each wave. The number of children and countries for each sub-group therefore varies. The age and gender distribution was kept constant.

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