

INTERACTION BETWEEN PICTURE AND SOUND ON THE PERCEPTION OF AN OBSERVER - A VIDEO INSTALLATION

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ABSTRACT

A simple video installation shows two different scenes typical in urban daily life (here referred to as „noise“ and „silence“). By deconstructing sound and image, it can be demonstrated in which way sound has an effect on the perception of the observer.

At first the two scenes (I “noise”, picture: street traffic, sound: street traffic; II “silence”, picture: park, sound: birds) were presented with the “original” sound. After that the scenes were mixed with the sound of the other picture (picture: street traffic, sound: birds etc. and picture: park, sound: street traffic).

INTRODUCTION

Visual und auditory information is perceived in a complex way and influenced by each other. Especially the auditory information has a great influence on the impression of the whole scene. Thinking about a demonstration for the “Noise Awareness Day”, I had the idea of a video installation that could work without any words and would need no introduction. So any observer that spends a few minutes can perceive how noise “works”. The concept was to take two different scenes, typical in urban life and of contrasting quality, e.g. “noisy - quite”, “pleasant - unpleasant” etc. For the “noise” situation I chose street traffic noise and for the “silent” situation a park.

The idea was to show these two scenes first with its typical sound and then mixed with the other’s. The scene with the traffic picture mixed with the sound of birds, for example. By comparing the two scenes with the typical and the “opposite” soundscape the observer is able to perceive the different images. It can be observed that the auditory environment is much more important for the pleasant quality in the whole scene, than the visual picture.

This video installation was presented at two museums on the 24th of April (Tag gegen Lärm - Noise Awareness Day). (In Berlin at the “Deutsches Technikmuseum” and in Munich at the “Deutsches Museum”).

BACKGROUND

One result of the work from Maffiolo et al. [1], which deals with the influence of the visual and auditory modality on the recreation value of public gardens, was obtained by asking people the question "What do you appreciate in public gardens?". About 50% mentioned the visual modality. Only 20% (when asked ON the garden site) and/or 35% (when asked OFF site) mentioned the auditory modality. Viollon et al. [2,3] investigated the influence of the audiovisual interactions on the perception of urban sound environments. They chose eight different auditory stimuli and five visual conditions. The most pleasant/relaxing case in the ratings was for the visual condition of "a bench in a wood" [3] and the auditory stimuli of birds chirping. The most unpleasant/stressful case was the visual condition with small apartment blocks without trees and the auditory stimuli of highway traffic. The second most unpleasant/stressful case was also the visual condition with the small apartments with auditory stimuli of urban traffic.

METHOD

Searching for an extreme pair of two different environments, a typical urban traffic scene and a scene in a park was chosen, because the environment of a park seems to be more typical for a recreational situation in a city than that of a forest. This choice is also in good agreement with the investigations in [2,3]. Most of the compositions from the pictures correspond with known codes in the art of painting and especially film [4]. Some of it will be explained in the following. Fig. 1 and 2 show frame shots from the video of the two different scenes.

Creation Of The Scenes

By testing different visual perspectives, I found that the best perspective for the video installation is when the axis of the observer's view and the flow of the traffic and the pathway of the passengers are perpendicular. This corresponds with the organisation of the street and the bench in the park. For identical visual conditions in both scenes, no sky is visible. Both pictures are horizontal/vertical and there are no diagonals. This avoids any added dynamic or dramatic factor and makes the scene more neutral. This is also the natural view of an observer on the pavement looking at a street. This perspective was taken for both pictures in order that there is no change in perspective when the scenes change from one to the other, to avoid any distracting effects on the observer. There are no symmetrical axis in either picture.

Both scenes are open forms. That means that the observer is aware that the scene opens up to all sides (the cars and the passengers are leaving the pictures at the sides, the houses and the branches of the trees are cut off). In both scenes nearly the same focal distance was used and the distance and the proportion of the cars and the bench and also of the passengers was about the same in both scenes. Only the visual and auditory "quality" shall be different in the two scenes.

The scenes should be as pure forms as possible. For the traffic scene, a picture with four lanes and no middle lane (with grass) and nearly grey houses were chosen so that the whole scene looks very grey. The sound was originally recorded with a DAT recorder with two microphones and synchronized with the pictures so that it is possible to hear the traffic passing by in order to make the scene more realistic. The cars/lorries and the two passengers are passing from both sides.

On the park scene one can see a bench and some trees. The whole picture is almost green. The leaves are moved by the wind. Some passengers are passing in the background from the right to the left. In a city it is not possible to use the original sound in a park without any background noise (from traffic or industry). For this reason the audio signal was taken from a CD with the original sound from of a pine forest in Poland. The chosen track for the scene included mostly birds chirping.



Fig. 1: Frame shot from the street scene



Fig. 2: Frame shot from the park scene

Time Line

Both scenes are about 3/4 minute long in order to establish the scene long enough and allow a non-distracting perception of the whole environment. On the other hand this length is not too long to avoid monotony. To get a non-distracting transition from one scene to another a cross-fade with a transition time of 6 seconds was used. The complete length of one scene was 47 seconds, with the overlap of 6 seconds from the cross-fade. The four scenes took about 2 1/2 minutes. First the two “normal” scenes (with “original” sound) and then the changed scenes can be seen.

There are four possibilities of transition from the original to the changed scene. A loop with four sets of four scenes was created to allow all possible changes. Table 1 shows the sequence of the scenes. This complete sequence took about 11 minutes. So the observer has to spend at least 2 1/2 minutes to get almost all of the information, but also has the possibility to spend more time and is then able to see all the different transitions and can compare the effects in perception.

scene nr.	1	2	3	4	5	6	7	8
picture	traffic	park	traffic	park	traffic	park	park	traffic
sound	traffic	birds	birds	traffic	traffic	birds	traffic	birds

scene nr.	9	10	11	12	13	14	15	16
picture	park	traffic	park	traffic	park	traffic	traffic	park
sound	birds	traffic	traffic	birds	birds	traffic	birds	traffic

Table 1: Sequence of the loop with sixteen scenes

RESULTS

The matching cases with the “original” sounds are really different in its pleasant/relaxing or unpleasant/stressful qualities. The mixed scenes are in-between. The street scene becomes much more relaxing without the traffic noise and the birds chirping. This makes clear to the observer that the auditory component has an important role for the stressful effect of the scene. The park scene with the traffic noise can get very stressful and can be perceived not only as a green recreation area, but as more “grey”.

Between the two mixed scenes there is also a great difference. The park scene with the traffic noise doesn't feel so odd to an urban citizen. In a way it is perceived more realistic than the birds chirping. On the other hand, the mixed scene with the traffic and birds song feels strange and surreal. In real-life this scenery is not possible.

SUMMARY

The video installation shows the influence of the visual and auditory information on the perception of an observer. By looking and listening to the video it can be observed that the auditory environment is an important factor for the judgement of an environment as pleasant/relaxing or unpleasant/stressful.

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