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Happy Atmospheres

Metro Stations as Sound Places of Happiness

Nicolas REMY^{1,2}, Evangelia PAXINO²

Abstract. Taking up the slogan of the teams of architects “for happy architecture” for the design of the new E line of the metro in the Lyon area (France), this paper defends the idea of a happy atmosphere as a design tool. The research presented here focuses on the sound dimensions of the architectural project. Principles of a sound charter are discussed and ambiance creation is thought through the design of tensions between the material, sensitive and symbolic conditions of the experience of a back plan and the conditions of appearance of sound events. Ambiance design is a means of liberating the perception and representation of metro’s users and a method to design sensitive worlds for the public, participating in this way in the renewing the ordinary experience of the metro.

Keywords. 1 Metro, Ambiances, Events, Sounds, Acoustics, Charter, Happy Places

Introduction

In the frame of a project management assistance mission for the definition architectural identity of the future E metro line in Lyon agglomeration (France), the architects and landscape designers Gautier and Conquets, with Paul Vincent architect, helped by several technical studies offices (sustainable design, lightning design, acoustic design, engineering) worked in 2019 in the redaction of the an architectural charter in order to renew the metro’s stations design. The metro stations, designed today to be delivered in 10 years, are designed in a way that let the architects to set a simple question for the future of the metro line: how we can renew the canons of architecture in order to offer to the future user an “happy experience” when they will practice these spaces?

The Sytral³ mixed transport union designs, builds and maintains the main metro lines in the Lyon metropolitan area. It therefore also carries development projects and had therefore initiated an in-depth reflection on this type of transport in 2019. The future line E would be a line with little traffic and would link the municipality of Alaï to the Place Bellecour in the historic center of Lyon - it even in connection with the other metro lines of the city. It is therefore a question of rethinking for Sytral 4 metro stations so that they are the expression of an architectural renewal of these services spaces.

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3. Sytral is Mixed transport union for the Rhône and the Lyon metropolitan area, see <http://www.sytral.fr>

Gautier and Conquet architects⁴ with Paul Vincent architects⁵ had an original proposal based on the following principles. Experiencing metro station need to be renewed mainly because of the several crises that our societies cross. Obviously, the global environmental crisis and the injunctions of the different European governments regarding the energy transition push all the actors of the construction to rethink the different modes of transport in our contemporary cities. If we are to build the transports of tomorrow, these transports, through their technical progress, must offer future users a different experience of these places. The originality of the architectural team is to propose an architectural charter which gives the contours of a conception of a happy architecture. Designed as a guide of good practices that articulates architectural principles and a technical and sensitive guide, this charter is an opportunity to go beyond energetic performance labels for buildings (certification LEED, HQE⁶, WELL⁷) and aims to offer criteria of comfort or even criteria of well-being.

The architectural charter as formulated by the architects clearly aims to offer future metro station users an “happy architecture.” We take this slogan to the letter and try to show how the charter can promote the appearance of a happy experience in terms of building acoustics and in the set of sounds that users can hear during the practice of these future spaces.

Happy Architecture for Happy Atmospheres

We base our reflection on the notion of ambiance as proposed by several authors from CRESSON⁸ research team at the Grenoble School of Architecture, Alpes University. (UMR CNRS Ambiances, Architectures, Urbanités). An atmosphere takes on meaning in our perception when, through our actions and our perception, we perceive a certain number of events (sound, visual, tactile, olfactory, etc.) which emerge from the background. For example, the highly reverberated sound of a woman’s heels in a subway gallery can potentially trigger feelings of worry and fear. On the other hand, the same space, if it offers many footsteps for listening, coupled with that of conversations, will thus be perceived in a more positive way and can participate, in the same way as the other sensitive dimensions of architecture, to establish a public, lively, comfortable and cheerful atmosphere. We thus use the works of Bohme and Thibaud (Bohme and Thibaud, 2018) which show that an atmosphere is composed of different sensory solicitations (sound, sight, touch, movement) which participate in creating in the ordinary perception of the passer-by a back plan from which events emerge. These events give the general meaning to the atmosphere and thus give it a tone. Our work therefore aims to design the architectural spaces of metro stations in order to give them a happy tone by the sounds. Evangélia Paxinou sees this dialogue between the back plan and the events as a dynamic tension (Paxinou, 2017a) and shows how many public places in Europe have been designed and built according to this principle. This tension oscillates between three states - conflict, negotiation and sympathy - and then becomes for the end user and for the architect designer a game from which a remarkable atmosphere emerges (Paxinou, 2017b). In other words, it is possible to design the ambiance of a place by considering the sensory solicitations which will participate in

4. *Gautier and Conquet architects*, <http://www.gautierconquet.fr/fr/>

5. *Paul Vincent Architect*, <http://paul-vincent-architecte.com/index.php>

6. HQE for “Haute Qualité Environnementale,” LEED for Leadership in Energy and Environmental Design.

7. Certification WELL is a certification tool for advancing health and well-being in buildings globally, <https://www.wellcertified.com>

8. CRESSON Team, laboratory “Ambiances, Architecture, Urbanités”, CNRS, School of Architecture of Grenoble, Alpes University.

establishing a back plan and those which will participate in the creation of events. With regard to acoustics, we can therefore “assess” today the main principles of the architectural charter to try to “pre-hear” the sounds that will participate in the creation of the soundscapes of the sites.

It is very difficult to predict people’s happiness, especially in a busy public space with significant climatic variations (summer/winter, day/night) and with variations of uses. The metro station must be able to offer happy moments to everyone, at every moment of the day and year through its atmospheres. We interpret this ambition of “happy architecture” as a desire to offer spaces with an assertive, differentiated identity for which the acoustic comfort of these spaces is comfort that goes beyond the regulations. In other words, we believe that the architectural charter should push future project management teams not to offer neutral spaces “which do not please and which displease anyone” but rather to offer spaces and a “unique” experience for each.

Games and Pathways for a Happy Sound Ambiance

Designing an atmosphere therefore means thinking about the tensions between the sensory (sound for us) solicitations of the events and those which participate in the back plan. We hypothesize that the games and the pathways are the potential sound responses to the charter’s injunction to offer happy architecture. It is therefore possible to think of a series of sound events (affordances) within the architectural charter, which will have every chance of being perceived and activated by future users.

For us, the joy of walking through spaces is precisely this joy of becoming aware of a series of (sensitive) events that reveal the (public and happy) back plan of these places. It is becoming aware of where I am, it is participating in the creation of the atmosphere; It is becoming aware of your own feelings and it is also understanding that my actions, along with those of others, contribute to the construction of one or more remarkable atmospheres.

Work on human voices (their intensity, their intelligibility) can promote the appearance of a playful and happy atmosphere at the level of the platforms and this regardless of the use of spaces (with or without public). The idea is to present what future users of the metro line might hear coming from the public space to the metro train, distinguishing what would fall to the acoustics of the places crossed (passive acoustics: insulation, reverberation) and what would be linked with the presence of sound sources and events produced: the noisy and sonic technical objects met during the pathway, the sound sources produced by users in place - sound design of the sound sources, noise reduction, “musical” composition of sound paths (Rémy, 2001).

The ambition is to offer a sonic pathway (sounds) that is constantly renewed (which does not fall into the routine), comfortable (which is not aggressive as regards sound levels, sufficiently clear as regards intelligibility sources), which would be recomposed on each journey according to the sound qualities of the spaces crossed and the possible presence of sound sources.

In this sense, from an acoustic point of view, spaces crossed are relatively differentiated (change in volume, sound color) and thresholds between these spaces are also designed from the sound point of view (Rémy, 2001) - sound help users to perceive they change spaces during their pathway. Visual communication is also available in sound communication (choice of appropriate jingle, variation of the acoustic qualities of spaces according to their depth - surface, basement, underground spaces, galleries and metro platform).

Material and geometry of the spaces are also set in order to minimize reverberation and increase speech intelligibility. The sound and the acoustics of the places promote in the perception an image of a domestic space in which users recognize themselves and enjoy finding their visual and sound reference points associated to their travel. Spaces welcome artists and activities from the neighborhood and thus participate in a sound composition that is constantly renewed. The materials are not reflective, they offer matt acoustics and interactive sound games between the surface and the underground revitalize sometimes difficult spaces such as underground galleries.

It also seems important that sounds fully participate in the (universal) accessibility of places. Regulatory constraints related to fire safety and the diffusion of announcements are obviously participating in the series of recommendations but we believe that the charter is an opportunity to go beyond these recommendations by offering in each place a peaceful and clear listening and clear of messages broadcast but also of the sound atmosphere of the site.

Sounds of nature are also present and change the image of these technologic places. Machines and trains are chosen to reduce as the maximum noise emitted and the whole space is sounds familiar because of the presence of the human voices. Sound is by definition a dynamic phenomenon, architectural space is also dynamic, but surely the atmospheres created are therefore the response to a happy architecture. Let's compose the soundtrack for future users, this is to give the architectural charter a tone of happiness atmospheres to share

Discussion

The ethical dimension of the design of environments therefore becomes very important to discuss. The technical and architectural solutions proposed in this charter obviously raise the question of capacity, but we would say of the right of the designer, to offer happy spaces. The client of the architects is obliged to apply the regulations to ensure the smooth running of his services and of course to ensure the safety of goods and people. These constraints are very important and often appear in contradiction with the proposals of the charter. For example, the maintenance constraints of surfaces (floors and walls) of underground spaces are difficult and require the use of hard, reflective and washable materials. The consequence of this is to create spaces that are often too much reverberating that scramble the speech intelligibility and thus make the acoustics uncomfortable.

Our proposal also implies the active participation of users in the co-construction of spaces but also of future atmospheres of these spaces. This thus poses problems of security and respect for private life for spaces which are not legally completely public spaces. The degradation of the equipment of this typology of space often forces the addition of architectural prostheses which aim to exclude a part of the population and which obviously go against a sharing of the atmospheres of a happy architecture.

Finally, as a designer, what to think of a proposal aimed at the happiness of users? There is here a semantic trap for which the architectural design but in general, the production of architectural spaces must be ethically positioned. It is obvious that it is unacceptable to think of the happiness of people without their consent. In the same way, to think of the design as a sum of small pleasures while thinking these proposals are a happy way of practicing the spaces of the metro, it is a way to say that creators can foresee the feelings of the future users. This idea is also completely unacceptable. There is every chance that these proposals are valid only for a small majority of people and that this soft design that is to say a design that does not displease anyone but

which no one likes either.

The atmosphere therefore becomes a notion that allows the designer to escape these determinist traps. The atmosphere is a tone, it is partly designed by the architects but it is indeed the future users who, through their practices, create it through their co-presence and their co-practices in the space. The architect is perhaps at the origin of a mold which perhaps defines the contours of an experiment. By giving users the freedom to perceive and practice a space, that is to say by giving them the possibility of composing their soundtrack of their way, we give back the capacity, through the atmosphere, to the users to feel and build freely the atmosphere of the place. To think of a happy architecture is therefore to think of a differentiated, clear, articulate sound experience of places where sound events give a different tone, we hope happy, to a more uniform background linked to the practice of metro spaces.

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