

# The Importance of the Grounded Theory with Respect to Soundscape Evaluation

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## Introduction

There is common consent about the necessity to combine subjective and objective data for a sufficient understanding of human perception. However, qualitative material based on interviews was neglected in the discourse of human sensation and one searches in vain so far for a wide discussion about methodology and technique of analysis. This study examines the usefulness of a qualitative approach and the respective analysis in the field of soundscape evaluation. As a basis for the study extensive interviews were conducted, where housing situations, contentment with the environment, and living biographies were taken from the interviewees without emphasizing acoustical impact. The probands are residents of the same street, a street (Schlossstraße) in the urban center of Berlin with a distinct architectural atmosphere because of the peculiar combination of rural and urban aspects. It was expected to describe connections between the soundscape evaluation and the environmental make-up. The Grounded Theory allows to analyze the qualitative data systematically and traceably. The assumption was that the subjective evaluation by the individual of the soundscape and the living setting supplies decisive cues for the research of sound perception and noise assessment and enables the scientist to explore “common perceptive pattern” for the elaborately working analyst.

## The Interviewees

Before one can assess the explanatory power of the data and the potential validity and range of the developing theory, it is indispensable to discuss the nature of the interviewees and to describe individual specifications of the interviewed residents. The residents live in the southern part of the street, where cobblestones are a part of the road surface for approx. 150 meters besides the usual asphalt surface. The participants of the conversation were between forty and fifty years old and have a university education with an emphasis in education, i.e. the interviewees represent a certain clientele. Therefore, these restrictions have to be taken into account regarding the generalizability and range of the developing theory.

Most residents identify themselves with their neighborhood and build strong relationships based upon the local social background. The residents designate their local environment with the term “Kiez” (a collective identity of the social environment approx. = Engl. block, Fr.: quartier, Sp.: barrio), but that expression doesn't only mean the regional affiliation, but also refers to a set of expectations and non-codified but entire accepted standards in this place. This assumed store of pattern of behaviour and action determines the identification with the immediate environment and creates a collective identity.

## Method and Analysis

This study examines the sound perception and noise assessment of environmental impacts by means of non-standardized questionnaires. In addition, the acoustical setting was observed and analyzed tentatively. Furthermore this work scrutinizes the visual components and tries to explore the influence with respect to perception of environmental sounds. The transliterated interview material was analyzed elaborately with the help of a socioscientific method: the Grounded Theory. It should be mentioned that the process of hearing and perception and assessment is inevitably and inseparably linked to the subject. The individual subject is very limited in his separating the introspective phases with the determination of the level of annoyance and the “objective” reception of the acoustical stimulus. On the one hand the acoustical setting and on the other hand the process of acoustical socialization, the context and the specific disposition of the subject culminate in an auditory perception. Insofar the verbal remarks of the interviewees point out structures and modifiers in the process of auditory sensation.

For the sake of shortness of the article the following remarks on the Grounded Theory have to be rather summary. Nevertheless, it is necessary to describe the approach because it should show the specific systematic procedure which may prevent the user from analyzing arbitrarily and with a biased point of view (POV). [For a detailed explanation see Anselm L. Strauss (1990): *Qualitative Analysis for social Scientists*. Cambridge]. The Grounded Theory is a socioscientific analysis method with specific systematic procedures. Although its methodology is a text-analysis approach, the analytical study requires a traceable and revisable procedure. Therefore the analyst doesn't interpret the material, but only enhances the level of abstraction to improve its generalizability. The text has to be categorized and conceptualized in spite of needing to look for simple paraphrases because of their lack of analytical depth. Core categories have to be discovered, which then detect and explain ties and dependencies of different categories. The first step is the phase of open coding. After the initial coding a complex set of categories arise and first concepts and categories are stabilized. If it is possible to detect a finite number of categories, which prove to be important and relevant, the following data can be scrutinized faster and the theoretical sensitivity of the researcher increases. First tentative integrative diagrams have to be prepared to explore missing interfaces and inadequate knowledge about the links between the developed categories and concepts. After producing an unfinished diagram the data is conceptualized again under a different POV. This process of coding and developing diagrams is continued until the model is

saturated, i.e. new categories or concepts could not be detected in spite of coding new material.

## Results and Model of Perception

After analyzing the data while employing the Grounded Theory it was deduced that the psychological and physical condition, the socio-cultural background and the possibility to identify a stimulus besides the acoustical stimulus, have to be taken into account in the context of auditory sensation. Furthermore if options to react to acoustical impact are available (actions), then the stimulus loses a significant level of annoyance. This effect doesn't depend upon the application and success of the action, but merely on the opportunity to perform the action. And finally the emotional positioning of the subject in relation to the acoustical input constitutes the perception and modifies the sensation of new acoustical impacts. Furthermore perceptive variables like acceptance, expectation, fit, claim of recreation, knowledge, general contentment are relevant in the context of soundscape evaluation. These parameters don't influence through an individual discourse, but depend on the social and cultural environment of the evaluating subject. It could be deduced that the "Kiez" phenomenon changes these dimensions and thus influences the sound evaluation. Because of the strong ties to the neighborhood community with a specific set of role expectation identity supporting actions are assessed positive and not annoying, whereas "improper" behaviour, which doesn't fit into the ideal image of the "Kiez" member, would be perceived as disturbing. For this reason specific activities were entirely accepted like chatting people, the sound of nightly tavern talks or playing kids. These particular considerable sounds were continuously tolerated and sometimes even well-loved. These actions belong to the image of living together. In contrast, other actions and objects like helicopters, sightseeing-buses, tourists are disturbing because they contribute apparently nothing or minor to the local collective identity. Besides the social influence the possibility of associating a physical stimulus with an unequivocal source and reason modify the evaluation considerably as well. Especially mono-causal associations change the perception of an impact. Thus it can be expected that changing and combating these assumed sources diminishes the level of annoyance, although it doesn't matter, if there is a measurable success in reducing the sound pressure level or not. E.g. the residents blame the road surface for the increased sound pressure level and the unbearable noise. They demand an altered street surface payed for by the municipal council. But the denizens don't condemn the traffic or the road user generally, they don't demand a decreased traffic density. Therefore changing the road surface would be the most successful action because of prejudices that the road surface causes the high ambient noise level.

The model of perception (final integrative diagram) combines a multitude of results derived from the coding. The causal-linear structure and the simple subdivision (action, response, stimulus) are owed to the difficulty of depicting it graphically. It doesn't embody the reality of sensation

because of the more complex, multi-dimensional process of hearing or evaluating and furthermore it neglects the independence of different explored factors. Thus the model doesn't further comprehension in an unchanging (saturating) way, but in a more flexible and changeable manner. Despite of these simplifications with Fig. 1 it is possible to discuss the complex process of hearing and evaluating in more detail. Furthermore the set of categories indicates the importance of the concept of "soundscape" for the auditory sensation, since almost every inherent dimension of the soundscape approach can be found in the developed model.

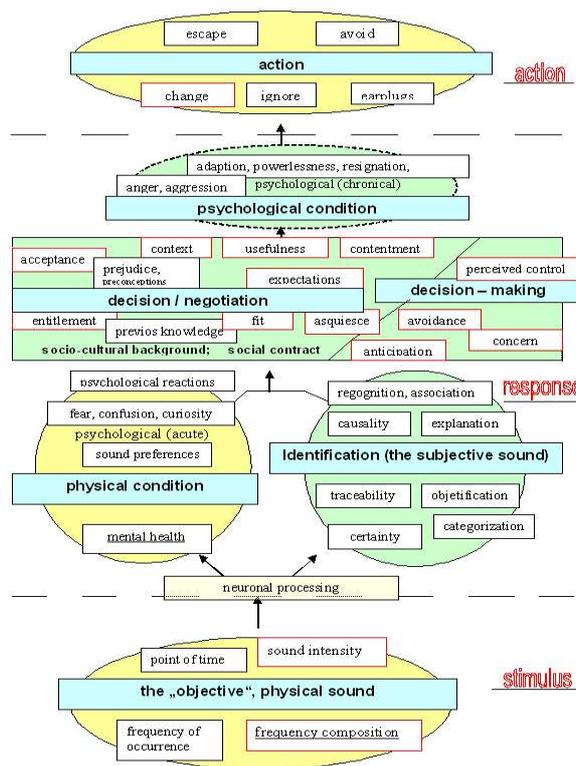


Figure 1: Model of Perception

## Discussion and Conclusions

This study didn't produce a theory with unlimited validity, generalizability and boundless applicability. The interviewees emanate from almost identical social strata; they are more or less politically active academics with a distinctive social affiliation to the local environment. Therefore they represent neither workers nor other differing social levels. Thus it is still open, how far the model at hand has to be revised to reflect other types of subjects. If it were possible to generate new results in interviews with respondents from other classes, the main conclusion of this survey would confirm the following: There is an influence on a listener subjective sensations and assessments through the socio-cultural background. This interpretation points out the importance of a qualitative approach used in this survey. The Grounded Theory as the technique of analysis proves to be helpful in validly analyzing the data with the help of its explicit systematic process. It appears more or less resistant against criticism from strict advocates of quantitative research.