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# URBAN SOUNDSCAPES IN THE IMAGINARIES OF DIGITAL NATIVE USERS IN FRANCE AND KOREA

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## ABSTRACT

We present an experiment run in France and Korea along the lines of a pilot experiment run in China (Taupin, semiotica, <https://doi.org/10.1515/sem-2018-0005>). In order to find out what are soundscapes in the imaginaries of native digital users of the Z generation, participants had to realize collages in group of two to illustrate their experience when walking through urban sceneries. They were free to clip any image they wanted from a selection of magazines, the same for all groups within each country, and free to add any comment or drawing they wanted to on their collages. Then they had to present their collage to the other participants. The presentations were recorded, transcribed, and analysed in order to determine the imaginaries that underlie the usage and attitudes. Beyond the analysis, the presentation will explain the theoretical background and the results of the experiments.

## 1. INTRODUCTION

In recent years, Urban Soundscape research has been a very active area internationally. Numerous sessions have been organized in the major acoustical congresses (ASA Meetings, ICA, InterNoise conferences, Forum Acusticum, to name just a few). Basically, three areas of research are covered: sound in the city, sound technologies, and urban planning and design.

Beside its involvement in sound technology and quality assessment of soundscapes, our research consortium has deliberately taken a much less trod path: find out the imaginary soundscapes of the Z generation, as a tool to define the key features for soundscape design. For doing so, we resorted to marketing techniques such as projective research techniques, complemented by semiotic analysis. The key finding was a confirmation of the early implementation of the same technique with young Chinese customers when imaging driving through an imaginary city [1]: when describing their “experiential imaginary”, young people resort to fairy tales where natural elements play the role of helpers.

## 2. BACKGROUND

### 2.1 Projective techniques

When trying to develop new concepts or ideas, the traditional solution is the use of *brainstorming*. Introduced by Osborn in 1939, but first formalized in 1957 [2], brainstorming belongs to the freedom approach of idea generation [3], where participants are induced to

express all the ideas that come to their mind. Brainstorming consists in discussing freely all these ideas within a group of participants. Despite its popularity, brainstorming suffers from a number of blocking mechanisms that limit creativity, such as fear of negative evaluation by the other participants [1,3]. As a consequence, brainstorming is not adapted to disruptive innovative thinking, and other methods have to be preferred.

In the present research, following the example of Taupin [1], we opted for projective techniques, defined by Morrison et al. [4, p.63] as involving “*the use of stimuli that allow participants to project their subjective or deep-seated beliefs onto other people or objects*”. More specifically, we chose associative methods that connect the research object with words, images and thoughts, in our case mostly with images, although words and drawings were also called upon, the latter belonging to expressive methods. In this way, we hope to catch the *imaginaries* of the participants.

Imaginaries should not be confounded with imagination, of which they are products. According to Wunenburger [5], “*Imaginary is usually meant as a creation by a given individual of a whole world for itself. Imaginary designates a language made of narratives, mental images, symbols and metaphors, dynamic and consistent shapes that have a grammar and a structure. Body experiences, feelings, emotions are highly valued.*” As a consequence, imaginary generates meaning, and this meaning is analysed with the help of the second tools implemented in this research: semiotic analysis of narratives.

### 2.2 Semiotic analysis of narratives

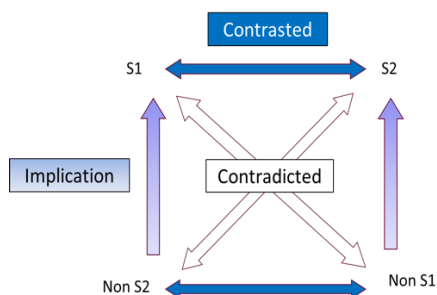
Taupin [1] obtained narratives from his subjects, and their analysis turned out to be a key feature of his experiment. To do so, he resorted to Greimas’s theory of narratives, more specifically to his semiotic analysis [6].

#### 2.2.1 Semiotic squares

The semiotic square, or elementary structure of meaning, is constructed upon an opposition (Fig. 1). The two signs  $S_1$  and  $S_2$ , on the top line, are completed by a secondary opposition between *Non  $S_1$*  and *Non  $S_2$*  on the bottom line. Further relationships include:

- *contradictions* between contradictory signs on diagonal lines
- *implications* between complementary signs, orientated from bottom to top on vertical lines.

$S_1$  is arbitrarily considered positive and  $S_2$  arbitrarily considered negative,  $S = (S_1 + S_2)$  is the complex axis, and  $Non S = (neither S_1 nor S_2)$  is the neutral axis. The construction of a semiotic square proceeds from the top opposition to the construction of  $Non S_1$ , then to the construction of  $Non S_2$ , in this order.



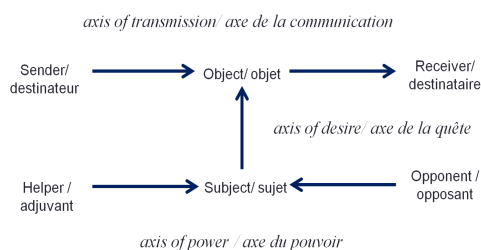
**Figure 1.** the semiotic square [1].

Floch [7] proposes a semiotic square dedicated to the valuation of objects. Analysing advertising materials, he identified a fundamental opposition between *practical* and *utopian* values. Their contradictions on a semiotic square are *ludic* and *critical* values respectively, with implications between critical and practical values on the one side, and ludic and utopian values on the other. Taupin [1] made use of this “valorisation” square to classify the narratives he obtained, adding that the first implication axis (critical => practical) is linked to usage, and the second (ludic => utopian) to affects and emotions.

### 2.2.2 Actantial model

The actantial model (Fig. 2) was developed by Greimas from Propp (1928)’s *Morphology of the tale*. Greimas found it possible to reduce Propp’s seven spheres of actions to three pairs of *actants* opposed on three axes:

- the *quest* (or *desire*) axis links the *subject* (or hero) to the *object* (of the quest);
- the *transmission* axis links, through the objects, the *sender* who initiated the quest to the *receiver* who benefits from it;
- the *power* axis opposes the *helper* to the *opponent* in their interaction with the subject.



**Figure 2:** the actantial model [1].

The sender is a superior authority that defines the value of the object. This value is transmitted to the hero, who becomes both receiver and subject, and goes on the quest. The last two actants either help the subject to, or

prevent the subject from, getting the object. During the quest, the subject must acquire competences and skills through the *qualifying* test, where he/she acquires the “knowing-how” and the “ability” to act. Then follows the *decisive* test, where the subject acquires the object, and the *glorifying* test, where the sender rewards or punishes the subject. The three tests are integral parts of the quest.

It should be noted that actants are not the characters of a story, but correspond to structural roles played in turn by the characters, or by objects. They can also remain outside the story, playing an implicit role, as is often the case with the sender.

## 3. METHODOLOGY

Taking into account the fact that sound is not fully conceptualized, at least in European languages [8], the corresponding representations cannot all be considered as collective, but many of them remain individual, in the sense of Durkheim [9]. As a consequence, soundscape representations are not easily communicated with words, but more easily with images and drawings, associations that also belong to the projective techniques (see Sect. 2.1). This led Taupin [1] to ask his test persons to realize group collages, then to verbalize them. Indeed, Greimas [10] has shown that descriptive texts are narratives with an actantial structure. Thus, we hoped to obtain narrative that could be analysed with Greimas’s semiotic and actantial models.

The present methodology is based on [1]. First of all, in order to introduce the small score of participants to urban soundscapes, each session began with half-an-hour of soundwalk, in both cases around the university campus where the experimentation was taking place. Through a mix of streets with traffic and more quiet parks, the participants were able to catch the diversity of urban soundscapes that does not reduce to traffic noise only. Then they met in a classroom and had to divide in groups of two, best one female and one male, and the experimentation started. In both case, one or two moderators, whose role was to explain to the test persons what was expected of them, led the discussions and steered the participants through the protocol, which had been handed out to them in written form.

After an initial greeting, the moderator explained the aim of the session: open the mind of the participants and have them talking freely about their feelings when walking in urban scenery. Participants were then asked to turn off their mobile phones and reminded that, because the discussion is a mind-opened discussion, every idea is valid and that they had to talk freely since we were looking for their real and diverse thoughts. They were also informed that the whole process would be recorded and that, in order to make the record clear, they should not interrupt others’ talk or speak at the same time.

After a short introduction where everyone introduced oneself in order to know each other better, the first exercise started. It was different in Seoul and Paris. In Seoul, mobility profiles were used as warm-up exercise, where each group built a characteristic persona of typical mobility profiles in the Korean city. They could illustrate the courses and activities of their persona with images

from the magazines, and should answer the question of how this persona characterizes the quality of his/her transport. Then they had to cite five words that come to their mind regarding the mobility environments they associated with the persona.

In Paris, the first exercise consisted in several games. In the first one, papers were handed out to everyone, three of them with questions. Whoever found a question has to write the answer on the paper, hide the answer from the other participants, and give it to the moderator. One of those who found a question has to tell it the others, who then ask him questions one by one: he/she can only answer yes or no. The others must guess the original answer as quickly as possible. The second game consisted in word associations: the moderator says a word; the next person says the first word that comes to his/her mind; and so on for several rounds. The last game played with associations induced by urban landscapes, in order to learn the true feelings and experiences of the participants when they travel around a city. Six pictures of unknown Asian cities were shown, and participants had to tell all the words that come to their mind at the sight of the urban landscapes.

The second exercise was the collage exercise, where participants had to use their creativity, to use vivid images to describe their experience when walking in urban scenery and to show their real thoughts as much as possible. Several magazines, sticky notes, pens and coloured papers were distributed to each group. The magazines were the same for each group. Participants were then asked to create the city soundscape where they would enjoy the best mobility. They had first to indicate if they were talking of walking, or driving, or whatever. Then started the *brainstorming* step: participants in each group sought in the magazines on the table for pictures which can describe the feelings corresponding to their answers to the last questions in the previous exercise. Standard of the content in the picture was not limited. Participants had to cut them off the magazine, and write some key words, sentences or simple figures on the sticky note to describe their feeling or thinking when facing the picture.

In the next step, participants had to create *image boards*: in each group, participants had to stick the cut-off pictures and sticky notes on a A1-size papers which was distributed by the staff. When the collages were finished, each group had then to show their thoughts to the other groups and explain why they chose the pictures, key words, sentences and simple figures to describe their feelings and thoughts. This part was recorded in order to transcript the *verbatim* later on. At the end, each group had to name its image board according to the keywords they wrote on their board.

This was followed by the *voting* step: after the presentations of each group, all participants had to use the coloured papers (2 for each participant) to vote for the key words, sentences and pictures which best matched the feeling of the group which had just presented.

After the presentation of each group, the staff took pictures of the boards as a record.

14 students, 7 females and 7 males, aged between 21 and 26, participated to the Seoul session in mixed groups

(1 female and 1 male). 18 students, 8 females and 10 males, aged between 17 and 22, participated to the Paris session in mixed groups but for one group of 2 males.

#### 4. RESULTS

As in [1], we did not obtain comments but narratives. Indeed, when describing their billboards, participants successively pointed at some specific pictures on them, tracing a virtual path on their collage. In Seoul, these virtual paths were often materialized by lines joining the pictures. However, they do not always match the narratives.

Common to both experiences was the relevance of the classification scheme proposed in [1], which relies on the presence of three features in the narrative: a complete actantial scheme involving all actants; a complete quest with its object and its three tests; and the presence of elements such as water, air, and nature as adjuvants. However, they do not reduce to the five elements of the Chinese cosmology (*wūxíng*: metal, wood, water, fire, earth), nor to the four elements of ancient Greek philosophy (air, water, fire, earth).

Fig. 3 present an example of the collages obtained in Seoul, together with the English translation of the corresponding narrative; and Fig. 4 an example of the collages obtained in Paris with its corresponding narratives. The similarity of structure with the Chinese collages and narratives led us to apply the same grid of analysis as in [1]. Tab. 1 presents the semantic analysis of Fig. 3.



Figure 3. Collage obtained in Seoul: *Pleasure in 'Repetition'*.



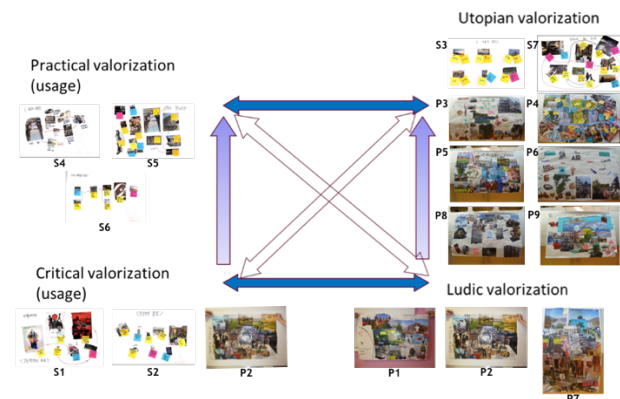
Figure 4. Collage obtained in Paris: *Super-Pose*.

Matrix for content analysis	Categories and invariants	S7: Pleasure in 'Repetition'
Actantial units	Functions ('do')	We think, use, gathering enjoying, spend time, find, go, enjoying food, walk quickly
Enunciations of 'do' and 'be'	Indices ('be') + atmospherics indices	Busy and busy, comes to mind, feel, there are, car noise, street trees, putting people's attention
Categories of actant agents	Subject/	Tired people
	Object	Pleasure (cf. title)
	Sender	I/we (the authors of the collage)
	Receiver	People in the city
	Helper	Other people, food, green
	Opponent	Cars, dust (=pollution), crowd at night = all what create "noise"
Initial lack		Tiredness, irritation and fatigue
Figures (sensory perception) & themes (concepts)	Characters	We, people, crowd, vendors,
	Mythical figures	
	Metaphors	Street trees = strong forest feel
	rhetorical figures hypotyposis	
	Philosophical figures (Taoist way of thinking)	
	Regrouping by themes and prototypical categories	Green, forest,
Recurrence of semes that can be identified in several signs of the same text	Isotopies (prototypical categories of words cf. annexe)	We, people, fatigue, repetitive everyday, high proportion, a lot of
	Here isotopies "form" of atmospherics components	Busy people, crowded crowd at night, subway, lot of restaurants, lot of cars, car noise much worse than in other cities, street trees rather than parks, lot of fine dust
Euphoria vs. Dysphoria (Positive-pleasure vs. negative-displeasure)	Feelings and emotions	Tiredness, interesting and fun, strong forest feel The city is loud and desolate, expressionless
Heterotopic space		Seoul
Paratopic space		Forest, other cities
Utopic space		Small green space in the middle
3 tests	Qualifying:	People together
	Principal:	Cafés
	Glorifying:	Small green space
Value objects of the experiential quest	modal elements (competences) (know-how, can-do)	Can find many good cars, can get into
	Value object of the quest	Finding the joy in life, have fun and rest, find green space
	Value object of transmission	fun

**Table 1.** Semantic analysis of narration of Fig. 3 (Seoul).

In Tab. 1, we recognise the presence of a complete actantial scheme and a complete quest, with natural

elements as adjuvants. This point out to an utopian valorisation of the narrative, according to Floch's valuation square. Complete analysis of all collages and narratives led to Fig. 5, where the letter S, resp. P, corresponds to Seoul, resp. Paris, and the numbers correspond to the arbitrary orders of presentation. Note that P2 appears twice, as its narrative corresponds to critical valorisation, but its collage to ludic valorisation as the bottom-left to top-right axis represents an implicit quest towards the setting sun, as explained in the narrative.



**Figure 5.** Classification of collages and narratives according to Floch's valuation square.

Tab. 2 presents example of the actantial structure for the 4 valorisations. Practical and critical valorisations are characterized by some missing actants as well as the absence of the object and the three tests of the quest. Utopian and ludic valorisation are characterized by a full actantial structure with a quest and the 3 tests, as well as reference to nature (greenery, mountain, sometime sky) and to mythical figures (dragons, monks, Venice, etc.).

Within the implication relationships of Fig. 5, that is to say between critical and practical valorisation on the one hand, and ludic and utopian valorisations on the other side, differences are subtler and essentially amounts to whether the narrative is descriptive or not, that is to say, to the presence or not of a story in which the subject is implicated. In other words, there are no real tests in critical and ludic valorisations, due to the absence of a proper quest toward an object of value.

## 5. DISCUSSION

As in [1], we observe a predominance of utopian valorizations. If we consider each city independently, this is mostly the case for Paris, with a more even distribution in Seoul where practical valorizations slightly dominate. This may be a side effect of the slightly younger age of the participants in Paris. We also recover the importance of natural elements as *helpers*: water, air, and nature (forest and mountain; but also animals). However, there is no evidence that they reduce to the five elements of the Chinese cosmogony, even in Seoul, even when assimilating the sun to fire. And questions from the moderators were often necessary in Paris to have participants citing nature, although it was present on their collages, as if it was evident.



Categories & invariants	S4 "Composition of school road"	S1 "High school student's day"	P1 "Diver City"	P4 "Gif upon Bures"	S7 "Pleasure in 'Repetition'"
<b>The actants in the actantial model</b>					
<i>Subject</i>	I	I/we, high school student	People, we, I	We, one, people we know	Tired people
<i>Object</i>	we		Living and very diverse landscape	Nature	Pleasure (cf. title)
<i>Sender</i>	Noise less audible	we	We, it, I	we	I/we (the authors of the collage)
<i>Receiver</i>	we		People, they, we	Our friends, them	People in the city
<i>Helper</i>	The Han river, earphones and music	Gathering with close friends, speech	Green spaces, the Calanques, hill, sea	Roads, railways, the ease of transportation	Other people, food, green (cf. images)
<i>Opponent</i>	Subway noise, tired road	Noise of the city, cold air,	Concrete jungle, concrete, traffic	The airplane	Cars, dust (=pollution), crowd at night (top left and right + bottom right corners of the collage) = all what create "noise"
<i>Initial lack</i>		Very tired every morning	Stimulating environment	Quick access to nature, no stop	Tiredness, irritation and fatigue
<b>The 3 TESTS of the actantial model</b>					
<i>Qualifying test :</i>			Very urban part	Park in the middle	People together (bottom left image)
<i>Decisive test :</i>			Very, very focused part on spirituality, religious	Activities around: bars, night outings	Cafés (top middle image)
<i>Glorifying test :</i>			Green spaces, quite varied landscapes	Access to nature	Small green space in the middle
<i>Modalities (skills) modality of knowing-how-to-do, modality of being-able-to-do</i>	Modelling, relaxed through earphones and music		We are null at drawing You can see, they can go, one cannot reach it, it can be said, it can replace, what one wants, one can project and see, it can represent	We can leave for where we want when we want, we can leave, one can go where one wants, looking around while moving, they can leave for where they want	Can find many good cars, can get into
<i>Object of value (quest)</i>				Leave the city, nature	Finding the joy in life, have fun and rest, find green space
<i>Object of value (transmission)</i>	Restoring fatigue, relax		We have a lot of things	Change air, what suits them ... in their life	fun
<b>Valorisation</b>	<b>practical</b>	<b>critical</b>	<b>ludic</b>	<b>utopian</b>	<b>utopian</b>

**Table 2.** Examples of actancial structures for the four valorisations.

In both cities, other people are also assimilated to *helpers* together with music and food. Restaurants and cafés are often cited, in connection with gathering with friends. "Green" mode of transportation, such as bikes and electric cars, are further considered as *helpers* in Paris. On the other hands, roads, cars and traffic, together with crowded subways, noise and pollution, are unanimously considered as *opponents*.

When comparing to previous studies, Jeon et al. [11] came to similar conclusion, using a very different methodology based on soundwalks. Participants were free to choose the stops points; but they had to fill in close questionnaires based on [12]. Analysis lead to classify urban soundscapes in four classes, two of which included natural features such as water and green areas, but also mountains, which enhanced *acoustic comfort*. But *overall impression* was not necessarily improved compared to

urban open spaced. On the other hand, noisy soundscapes achieved lower scores.

In their seminal study of soundscape perception, Axelsson et al. [12] used unidirectional semantic scales to evaluate 50 soundscapes in laboratory environment. Principal component analysis reduced the set to 2 dimensions, respectively corresponding to the attribute oppositions *Unpleasant-Pleasant* and *Uneventful-Eventful*, with additional semantic scales orientated at 45°: *Monotonous-Exciting* and *Calm-Chaotic*. *Pleasant* was positively correlated to *Calm* and *Exciting*; and *Eventful* to *Exciting* and *Chaotic*. This compares well with our finding that both nature, supposedly calm, and gathering of friends, such as eating-out, have the status of *helpers* in the narratives.

Axelsson et al.'s study [12] was later completed by an international comparison [13] that basically confirmed

the original findings, but with small variants. This later study is very relevant for the present one, as it includes France and Korea, the two countries of the present study. The major differences are that *Calm* is strongly correlated with *Pleasant* in France, and *Monotonous* to *Uneventful* in Korea. But the study mostly points out the problem of translation, as French and Swedish attributes are not always semantically nor grammatically equivalent (cf. [8]): thus *Ennuyeux* (boring) is not equivalent to *Enformig* (uniform), nor *Plaisant* (a gerund, equivalent to English “pleasing” but not to “pleasant”) grammatically equivalent to *Trivsamt* (which is passive and etymologically means “looking good”). This is why the narratives were collected in the mother tongue of the participants: ideally, they must be analysed by native speakers.

Guastavino [14] conducted a very similar study, as participants were asked to use their own words to describe the “ideal urban soundscape”. But similarity stops there, as she used open questionnaires, taking great care of the wordings in the wake of [8]: for example, she carefully avoided asking for a “description”, but asked instead what would be the ideal urban soundscape according to the participants. She found out the the ideal city would be warm-hearted, lively and peaceful, therefore noisy but enjoyable, adjectives that very well describe most of our narratives. She further found out that other people, nature and birds are pleasant; but cars, vehicles and mostly horns are unpleasant. This is in agreement with our finding, if one considers that pleasant features are *helpers*, and unpleasant ones are *opponents*. In fact, although Guastavino carefully avoid using the French gerunds “plaisant” (literally: pleasing) and “déplaisant” (literally: unpleasing), but used instead the qualifiers “agréable” (enjoyable) and “désagréable” (unenjoyable), her finding corresponds to the actancial structure of the power axis of Fig. 2. Further, what she calls “mental representations”, following Durkheim [9], is very similar to our concept of “imaginaries”.

## 6. CONCLUSION

The present study has applied an innovative methodology for observing the imaginaries, or mental representations, of young urban dwellers, based on collages and narratives. It is based on a rigorous semantic theory, that makes it possible to identify the *helpers* and *opponents* to soundscape quality in the city. Moreover, it makes it possible to identify the features of the ideal city, beyond its soundscape. Without surprise, the ideal city should be green, with a lot of nature, and promote soft means of transportation; but it should also promote cultural activities, such as eating out with friends, and the possibility to quickly escape to recreational areas (mountain, sea), both of which were not really expected. This proves the importance of reaching to the imaginaries, and the power of the present methodology.

## 7. ACKNOWLEDGEMENTS

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