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Soundscapes - types and impacts of music imparted in public places

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Abstract

Research issue: Public places - such as markets, pubs and restaurants, music venues, cinemas, theatres, teaching venues, shopping centres, sport venues, transportation facilities - have a particular 'soundscape' which affects visitors' perceptions and behaviors. For example, people in a restaurant encounter three kinds of soundscapes: the sounds created by other customers, the sounds from outside (the street), and the sounds provided by the music systems which are run in most public places; none of these soundscapes are under the control of the visitors. Thus the question arises, what do they actually desire, and do they like what they experience in this kind of environment?

People-environment context: Almost all people going to a restaurant or shop or gym do so for a practical reason, e.g., eating or buying something or exercising; hearing music is not their primary aim. The music imparted there may entertain or disturb. So far, pertinent research mainly looked at two issues: impacts on the venue's function, and noise effects. Quietness as an environmental feature has obtained less attention.

Empirical investigation: In socio-psychological field studies, demands and appraisals of supplied music were explored, surveying what sound levels do occur inside venues, whether customers want music to be present or absent; the desired content and level of music; their perceptions and evaluations of the actual music situation, and how the existing soundscapes relate to the purpose of their visit. In the first study, "*Influence of music in cafes & restaurants*" <MCR>, 6 cafes and restaurants were looked at, and data collected through personal interviews of customers (N=72). The study "*Sound levels and social interactions in music venues*" <SIM>, dealt with 3 types of venues: pubs, restaurants and gyms (3 each); N=32 qualitative interviews were conducted, plus enquiries with staff and management. A further study, "*Music levels in Melbourne University eateries*" <MLU>, is underway. In all studies sound measurements were carried out, recording both peak and average sound levels.

Findings and interpretation: The results from study <MCR> indicate that customers have specific preferences, and that their overall satisfaction with a restaurant visit is influenced by their evaluation of the music soundscape they encounter. Although the measured sound levels were substantial (L_{eq} 's up to 85 dB[A], with peaks well above 100), most customers accept these levels. In study <SIM>, the sound exposure was similar; the interview data suggest that communication behavior changes in loud environments, for example, the use of words decreases while facial expressions become more essential. Yet the tolerance for 'noisy' settings appeared to be considerable - they are liked or at least tolerated, and quiet situations not much searched for. Study <MLU> confirms the current trend of rather loud soundscapes in public environments.

Practical implications: These findings can be interpreted as part of a wider context: Quiet localities have become rare, and a need for music in about every kind of public place seems to be postulated. Yet there is a price: It seems that the quality of human interactive communication in music-dominated environments is impaired. Also, the needs and preferences of customers versus venue staff is likely to differ. Further research needs to explicate these facets and then develop socio-psychological propositions for those who manage public places.

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<1> Introduction: Soundscapes in public places

People spent a considerable amount of their time in public places - such as markets, pubs and restaurants, music venues, cinemas, theatres, teaching venues, shopping centres, sport venues, transportation facilities ... All have a particular 'soundscape' which affects visitors' perceptions -- how they see and interpret the environment -- and behaviors, that is, how they spent time there, how they communicate with others, how they realize their intentions.

Taking restaurants as an example - guests encounter three kinds of soundscapes there: the sounds created by other customers and the venue's staff; the sounds from outside (the street), including noise from car traffic; and the sounds of music, either records played via loudspeakers (as done in most public places) or occasionally live performances. People in bistros or cafes with an outdoor area may also experience natural sounds, such as wind, rain, birds. None of these soundscapes are under the control of the visitors.

Thus the question arises, what do they actually desire, and do they like what they experience in this kind of environment?

<2> Project SPP: Sounds and behaviors in bistros, pubs, gyms

2.1 Research issues

The author's project "Soundscapes in Public Places" [SPP] deals with the following research questions:

- o What sound levels do occur in eating places, pubs and sport venues?
- o Do customers in principal want music to be present or absent?
- o *If music wanted:* Desired content and level of music presentations?
- o How are soundscapes in public venues perceived and evaluated?
- o Is exposure music to music interfering with human interactions ?

The findings will be utilized to understand the acceptance of music exposure and its role within the current social culture.

2.2 Sub-studies

The project is exploratory in nature. In order to clarify the raised questions, several sub-studies were designed and conducted (cf. box 1 below); some are still underway.

2.3 Methodology

Research plan:

In these studies, usually five steps were carried out:

- (1) Choice of venues in which customers are exposed to music
- (2) Measurement of sound levels
- (3) Quasi-experimental surveys with venue customers
- (4) Interviews of venue managers & staff
- (5) Exploration of conversation behaviour in loud venues

Box 1 Sub-studies of the Project SPP

"Influence of music in cafes & restaurants" <MCR>

Part I: Rohrmann & Burrows (1999); *Part II:* Rohrmann & Oggier (2006)

"Sound levels in common-place situations" <SLC>

Pretest: Pedell & Rohrmann (2001)

"Sound levels and social interactions in music-presenting venues" <SIM>

Part I: Rohrmann, Jansen & Makin (2005); *Part II (European extension):* in prep

"Music levels in Melbourne University eateries" <MLU>

Underway - Rohrmann, Oggier & Makin (2005/2006).

"Impacts of music exposure and the intervening influence of cultural factors" <IMC>

Underway - Blanch & Rohrmann (2006)

Data collection: Venues & samples

The types of venues looked at are as follows:

- o Study MCR m=6 'eateries' N=86 respondents (74 customers, 12 staff)
- o Study SIM m=9 venues (3 types) N=32 respondents
- o Study MLU m=16 'eateries' {N~16 - survey still underway}
- o Study IMC m=4 venues (2 types) N=48 respondents

Some of the samples of venue customers interviewed so far are small; however, studies SIM and MLU will be extended.

Sound measurements

In each venue, a set of L-eq and peak levels (1 or 3 min's) was recorded, using a hand-held sound level meter (either a *Bruel&Kjaer* or a *MetraVib* instrument).

Surveys: Type of questionnaires & observations

For personal interviews, several instruments were developed and employed:

- o standardized questionnaires with quantitative rating scales; *or*
- o interview guideline based on a qualitative questionnaire.

Furthermore, observations were conducted in all venues. This included to take notes about relevant features of a venue, and to observe how people talk to each other under conditions of loud music.

2.4 Selected results

Sound levels:

The following two boxes present the sound levels observed in Study SIM (Sound levels and social interactions in music-presenting venues) and Study MLU (Music levels in Melbourne University eateries).

Box 2 Sound levels in a set of public places Study SIM (Melbourne)

	Mean L-eq	Typical peak levels	Evaluation
50			Sound levels marked in yellow are considered as low to medium noise
51			
↓			
63			
64			
65			
66	Gym		
67			
68	Gym		
69			
70			
71			
72			
73			
74	Pub Bistro		
75	Bistro Gym		
76			
77			
78			
79	Pub	Bistro	
80		Bistro	
81			
82		Pub	
83	Pub	Gym	
84	Bistro		
85			
86			
87		Pub	
88		Gym	
89			
90			
91			
92		Gym	
93			
94		Pub Bistro	
95			

These data (even though they are mostly casual recordings and not representative professional measurements) clearly indicate that the sound levels in the visited pubs, bistros and gyms are quite substantial: L_{eq}'s up to 85 dB[A], with peaks well above 100. In comparison - L_{eq} sound levels in a quiet residential area are 50-55 dB[A]; 65-75 will be experienced on busy roads or highways; a heavy truck may create about 90 when passing by; 100-110 is a typical level for a jackhammer and 110-120 for a disco. Noise regulations contain limits between 50 and 70, depending on the environment. For example, the "Australian Standards for Ambient Sound Levels" (1987) suggests that sound levels in restaurants and cafeterias should be below 55. Noise researchers would consider most of the observed soundscapes

as unhealthy environments because sentence intelligibility falls under 100% and raised voice is increasingly necessary.

Box 3 Distribution of sound levels in 'eateries' at Melbourne University Study MLU

	L-eq	L-peak		L-eq	L-peak
	◆ = inside ◇ = outside	◆ = inside ◇ = outside		◆ = inside ◇ = outside	◆ = inside ◇ = outside
50			80		◆
51			81		◆ ◆ ◆
52			82		
53			83		
54	◆		84		◆ ◆
55			85		◆
56			86		
57	◆		87		◆
58	◆		88		◆
59			89		
60			90		
61		◇	91		◆ ◆ ◇
62	◆	◇ ◇	92		◆ ◆ ◆
63		◇ ◇	93		
64		◇ ◇	94		
65		◇	95		
66		◇ ◇	96		◆
67		◇	97		
68	◆ ◆ ◆	◇	98		◇
69	◆ ◆ ◆	◇	99		
70	◆ ◆ ◆ ◆	◇	100		
71	◆ ◆ ◆	◇	101		◆
72	◆ ◆ ◆	◆ ◆ ◇ ◇ ◇	102		
73	◆		103		◆
74	◆ ◆ ◆ ◆	◇ ◇	104		
75		◆ ◇	105		◆
76	◆	◇	106		
77		◆ ◆ ◆ ◇ ◇	107		
78		◆			
79		◆ ◆ ◇			

All principal sources - behaviour of customers and staff, street noise, and the music played (record replay, no live bands) - contributed to the observed sound levels. Examples for high peaks in a restaurant include: coffee machine, pulling table over stone floor, 'sharp' music from speakers, very loud customer, open kitchen with clattering pans and pots.

Appraisal of customers

In all studies conducted so far, a high percentage of customers want music to be played in a venue; in gyms, this is close to 100%. Box 4 shows results from Study SIM.

Most are tolerant regarding the type and style of the presented music. Their preferences regarding sound intensity vary, but three quarters of the customers accepted the venue's actual sound levels.

Box 4 Customer evaluation of experienced soundscapes [Study SIM]	
Wanting music in pubs or bistros/restaurants or gyms	~ 80-90 %
Expecting/preferring particular music type/style	~ 10-30 %
Actual sound levels accepted	~ 70-80 %

Impact on human communication

Most visitors of a pub, café, bistro, restaurant and the like go there together with others, and consequently they have in mind to talk with them. Box 5 shows pertinent data from Study MCR; only 2% said they don't intent to communicate.

Box 5 Company and conversation in café/restaurant visits [Study MCR]			
	%		%
<i>Being with company</i> (none: 3%)		<i>Conversation intentions</i> (none: 2%)	
with friends	50	Chatting, light conversation	57
with family	18	Discuss issues, resolve a problem	30
with partner or date	29	Get to know someone	11

Of those interviewed in pubs, the majority stated that the existing sound level inhibited communication with others. This was also reported for restaurants, but less frequently. People use different means for dealing with communication difficulties; this refers to both the communication style and physical attempts to reduce the problem. In Box 6, a set of responses of those who indicated communication trouble is recapitulated. About half of these people decided to talk louder, and about 10% stopped talking.

Box 6 Behaviours to deal with communication difficulties [Study SIM]			
<i># of cases (out of 24 customers in restaurants or pubs)</i>			
Talking louder	10	Talking less often	4
Talking about less intense subjects	2	Talking not at all	2
Make use of body language	3		
Approach the other person more closely	2		

Those in gyms gave different responses - communication with others is less often intended there, and most customers want intensive music during their exercises. Thus they don't worry that much about communicating getting difficult.

Finally, it was explored, through observations and informal interviews, who determines the soundscape in public venues; a brief summary is given in Box 7. It appears that staff dominates which kind of music is played via the venue's sound system, and how loud, and that customers have only limited influence.

Box 7 Responses of managers & staff [Study MCR]

- o Management makes general decisions about the intended soundscape in the venue
- o Staff decides on a daily basis
- o Content & level of the music played based on staff rather than customer preferences

In sum, it seems that the culture of restaurant environments has changed - rather loud soundscapes are liked or at least tolerated, and quiet situations not much searched for.

2.5 Validity considerations

The findings have to be taken with care - the sample sizes (for venues, customers, staff) are small, and fully representative sound measurements were not feasible.

However, the surveys have been well accepted by the participants, and they were quite open-minded when responding to the researchers' questions.

2.6 Interpretation of findings

The results reveal that both live and recorded music is frequently played at sound levels well above levels recommended by health authorities. Yet people's tolerance for 'noisy' soundscapes appeared to be considerable - most customers have no problems with high sound/noise exposure.

There is a price though: It seems that the quality of human interactive communication in music-dominated environments is impaired. Also, the needs and preferences of customers versus venue staff are likely to differ.

These findings can be interpreted as part of a wider context: Quiet localities have become rare, and a need for music in about every kind of public place seems to be postulated ... is this a principal feature of the contemporary culture? This thought leads to further questions - Do people who live in large-scale urban environments know and need 'quiet' soundscapes at all? What kind of soundscapes to humans 'really' desire? Obviously further research needs to explicate these facets

<3> Outlook: Issues for further research

In order to widen and deepen our understanding of how music influences "soundscapes in public places", potent *research design* are needed. This should comprise: Experimental variation of sound exposure, longer sound measurements, wider samples re types and sizes of restaurants, and surveys with customers *and* staff & management.

Relevant *socio-psychological questions* include:

- o How do acoustic and social factors interact when people attend venues?
- o Do people talk faster or shorter or 'harsher' in loud pubs or bistros?
- o Can music compensate for shortcomings in a restaurant or gym?
- o How do cultural & ethnic background influence the acceptance of loudness?
- o What is people's knowledge of and experience with "quietness"?
- o How is the response to and acceptance of *no*-music conditions in public places?

Such research could provide two valuable outcomes -- enhancing our understanding of people's dealing with music-based soundscapes, and then enabling us to develop socio-psychological propositions for those who manage public places.

Relevant literature

This report does not quote references within the text. However, a selection of the main literature utilized in the research project is listed below.

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