Bernd ROHRMANN   *<University of Melbourne, Australia>*

Soundscapes in Restaurants

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Abstract

People who visit restaurants (cafeterias, pubs, cafes) to have a meal there 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 want, and do they like what they experience in this kind of environment?

In an exploratory socio-psychological field study, the following issues were investigated: what sound levels do occur in eating places; whether customers in principal want music to be present or absent; the desired content and level of music if they prefer to have music; their perceptions and evaluations of the actual music situation they face when frequenting a restaurant; and how the existing soundscapes relate to the purpose of their restaurant visit. The study design considered different types of restaurants, and data were collected through personal interviews of customers in these places; altogether 72 people participated. The views of management and staff were also explored.

Furthermore, several series of sound measurements were conducted, recording both peak and average sound levels (i.e., 3-minute L_{eq} scores).

The results 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 in most restaurants were considerable (L_{eq}'s up to 85 dB[A], with frequent peaks well above 100), most customers accept these levels. 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. These findings can be interpreted as part of a wider context: quietness has become rare, and a need for music in about every kind of public place may become dominant.

Contact Address:

Associate Professor B. ROHRMANN
                University of Melbourne, Dept. of Psychology, Vic 3010, AUSTRALIA
E-Mail rohrmann@unimelb.edu.au
                WebSite: www.psych.unimelb.edu.au/staff/rohrmann.html

1 Introduction: Soundscapes in public places

What sounds do people encounter in public places, such as roads, market places, train stations, banks, waiting rooms, pubs and restaurants, stadiums, parks, river banks, picnic areas and so on? Basically there are three types of sounds to be heard in these places: Noise, mostly induced by technologies (e.g., noise from car traffic, aircrafts, railways, industry, construction sites, office machinery, air conditioning installations etc); natural sounds, such as wind, rain, birds; and music, either from live performers or records played via loudspeakers.

Do people want these sounds? Surely they don't want noise - but they may need to use the sources of noise, such as a bus or a printer. A less trivial question is, do they want quietness? If so, why would they go for a coffee in a shopping arcade where background music is played continuously, or have dinner in a noisy restaurant?

Music is the crucial case: it is not noise (well, not usually - yet some music for some people at some occasions indeed is...), and it is more or less everywhere - in almost all shopping facilities; most restaurants and all pubs; very many offices, waiting areas in administration buildings, banks; in planes, ships and trains; at the dentist, and so on. Furthermore, most companies and other institutions present customers with music over the telephone while they are on hold during calls; and internet users are likely to get music when logging into websites. All this is occurring but not chosen music exposure - however, many people put themselves in a personal music environment by listening to music via earphones from players they carry with them.

So, not only is noise omni-present - certainly in societies which are organized around car use - music is as well, as soon as sound systems are commonly available. While the noise pollution has met some opposition, and a well-developed multi-farious business of noise measurement, noise regulation and noise mitigation exists, the omnipresence of music sound appears to be widely accepted - at least there is not much resistance. This is true even though both live and recorded music are often played at sound levels way above the levels recommended by health authorities. But then, maybe this is just what people want?

The changes of 'soundscapes in public places' are quite amazing, and research in fields such as environmental psychology, social psychology and music psychology (cf. e.g. Deutsch 1999, Duffy 2000, Gifford 1997, Hargreaves & North 1997) has begun to look at the impacts on human perceptions, attitudes and behaviours.

2   A study on sounds and behaviour in restaurants

2.1   Research issue

The focus of the present study is a small facet of the picture outlined above, soundscapes in places to eat. People who visit restaurants (cafeterias, pubs, cafes) to have a meal there encounter three kinds of soundscapes: the sounds created by restaurant staff and other customers, the sounds from outside (the street), and the sounds provided by the music systems which are run in almost all restaurants; none of these soundscapes are under the control of the visitors. Thus the question arises, what do they actually want, and do they like what they experience in this kind of environment?

These issues have been investigated in a series of psychological studies by Caldwell & Hibbert 2002, Herrington 1996, North & Hargreaves 1996, 1998, 2000, Robally et al. 1985; however, acoustic measurements were often lacking.

In the study reported here, the following issues were investigated: what sound levels do occur in eating places; whether customers in principal want music to be present or absent; the desired content and level of music if they prefer to have music; their perceptions and evaluations of the actual music situation they face when frequenting a restaurant; and how the existing soundscapes relate to the purpose of their restaurant visit.

2.2   Methodology

The study reported here is part of a larger socio-psychological project, "Soundscapes in Public Places", which aims at investigating which sound types and levels occur in public venues and how they impact on human interactions. The restaurant study has three stages:

(1) Measurement of sound levels in restaurants;

(2) Quasi-experimental survey about restaurant experiences;

(3) Exploration of conversation behaviour in loud restaurants.

Stage (1):

Sound measurements were collected in a convenience sample of about 15 restaurants, using a hand-held sound level meter, in order to get an indication of typical levels. Mean sound levels (measured as 1-minute or 3-minute L-eq) ranged from 56 to 85 dB[A]; short-term peak levels reached 110 dB[A] (all measurements were taken with the 'fast' setting).

Stage (2):

Restaurant customers were interviewed in a set of six cafes/restaurants. These were chosen as typical Melbourne 'eateries', including 'ethnic' restaurants (Italian, Chinese); in

terms of price level and formality, they were all in the middle range. Regarding music sound levels, three each were pre-classified as above or below average.

A standardised questionnaire was constructed to measure customer perceptions and evaluations. The sample design considered level of music, with matching numbers in age groups and gender in each sub-group; a small sample of staff members and managers were also included to explore their influence on the music situation. Data were collected through a personal interview in the restaurant; altogether N=84 people participated. (This part was conducted by C. Burrows; cf. references). Their mean age was 37 years.

Stage (3):

This part is currently in preparation; so far, only informal observations of how people talk to each other under conditions of loud music have been conducted.

2.3   Selected results

The outcome of our sound level measurements is summarized in *Box 1.* Locations A1 to A6 were used for the survey of customers in stage 2, locations B1 to B6 resulted from 24-hour diaries of sound experiences kept by two students.

Box 1:

Range of sound levels in various cafes and restaurants

Location	Type: café or restaurant	Loudness Pre-classification	Range of L-eq's	Highest Peaks
A1	R	high	75-77	94-98
A2	C	high	75-85	97-99
A3	R	low	73-76	108
A4	R	high	77-84	103-109
A5	C	low	75-85	96-105
A6	R	low	56-60	94-96
B1	C	-/-	75-78	90
B2	C	-/-	76-78	94-101
B3	C	-/-	75-78	95
B4	R	-/-	71-72	91-101
B5	R	-/-	70-70	103
B6	C	-/-	57-59	89-93

Notes:
All measures in dB[A], measured at the customer's table, taken during 1 to 3 visits; days: Tuesday to Friday; times: between 7 and 10 p.m. L-eq scores are for 1-min or 3-min periods. Note that these were not *professional measurements. The instrument was either a Bruel & Kjaer 2225 or a 2237. Some of the restaurants changed their set-up during the study, or gained/lost in popularity.*

These data (even though they are casual recordings and not representative professional measurements) clearly indicate that the sound levels in 10 of the 12 visited cafes & restaurants are quite substantial. 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 or a nightclub; and aircrafts at take-off induce 120-130. Noise regulations contain limits between 50 and 70, depending on the environment; the critical limit for hearing loss in case of long-term exposure is 85 or 90; the pain threshold for humans is 130-140.

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

In this context it is interesting to identify the expectations and motivations of customers - beyond having a meal - when visiting a cafe or restaurant. As the data in *Box 2* show, the vast majority of people come in company and do wish to talk with each other -- which seems to mean that the rather high sound levels may be problematic or even a barrier.

Box 2:

Company and conversation in café/restaurant visits

	%		%
Being with company (none: 3%)		*Conversation intentions* (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

Almost all customers want music in restaurants though, and most prefer music styles in the pop/rock/jazz range (cf. *Box 3*). While many people generally prefer music to be louder than the background (non-music) sound level, they don't want restaurant music to be intense. Interestingly, both the desire for stimulation (mean: 2.6 on a 5-point scale from not-at-all to very-much) and for acoustic privacy (mean: 2.7, same scale) were medium

Box 3:

Music preferences of customers in cafes & restaurants

	Mean / %	sd
Café/restaurant *with* music preferred	97%	---
Preference of pop, rock, jazz (versus classical, musicals, ambience)	72%	---
Preferred music level (1=just audible to 5=much louder than background sound level)	2.4	0.8
Usual personal level (1=just audible to 5=much louder than background sound level)	3.8	0.9

Somewhat surprisingly, most of the interviewed customers found neither the background sounds nor the music too loud, rated the actual music level as "okay" and were mildly satisfied with the music environment; see details in *Box 4.*. Multiple correlation analyses (not presented here) revealed that the content of the music was slightly more important for the overall music appraisal than its level.

Box 4:

Customer responses to the music played in cafes & restaurants

	Mean	*sd*
Perceived music level (1=just audible to 5=much louder than background sound level)	2.6	0.8
Perceived background sound level *(i.e., not music)* (very low to very high, 1..5)	2.7	0.9
Music rated "much too quiet, a bit too quiet, okay, a bit too loud, much too loud" (1..5)	3.0	0.7
Annoyed by music level ("not" to very", 1..5)	1.9	1.1
Satisfaction with the type of music (very dissatisfied to very satisfied, 1..5)	3.7	1.0
Satisfaction with the music level (very dissatisfied to very satisfied, 1..5)	3.6	1.0
Overall satisfaction with the music	3.7	1.0

Finally, correlations with the overall satisfaction with the cafe/restaurant visit were as follows: 0.50 for satisfaction with the food, 0.47 for satisfaction with the place's atmosphere, 0.53 for satisfaction with staff, and 0.34 for satisfaction with the music. This means that the music ambience) is not essential for most customers.

During this project, the customer's study was complemented by interviews with restaurant managers and staff (cf. Burrows 1999). The decision-making about a place's music ambience was the main topic of interest. The responses indicate that the management usually makes general decisions about the intended soundscape in the cafe or restaurant, but actually do not execute them on a daily basis. It seems that both content and level of the music played is often based on staff rather than customer preferences. This is not surprising, given that staff and customers have rather different aims and motivations.

In sum, the sound levels in the cafes & restaurants looked at in this study are not in line with regulations and recommendations. For example, the Australian Standards for Ambient Sound Levels (1987) suggests that sound levels in restaurants and cafeterias should be below 55. Noise researchers (cf. e.g. Berglund & Lindvall 1995, Guski 2001, Job & Hatfield 2001, Schulte-Fortkamp 2002, Skanberg & Ohrstrom 2002) would consider most of the

observed soundscapes as unhealthy environments because sentence intelligibility falls under 100% and raised voice is increasingly necessary. Yet most customers assessed the sound/noise situation in these places as acceptable. Thus 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. These findings can be interpreted as part of a wider context: quietness has become rare. As significant music levels occur in many other types of venues as well, a need for music in about every kind of public place may become a principal feature of contemporary culture.

2.4   Validity constraints

This exploratory study contributes to our understanding of the actual soundscapes in cafes & restaurants and people's perceptions and evaluations of such acoustic environments.

However, the validity of the findings is obviously restricted: The sample size (for both restaurants and customers) is very small, and only medium-sized and informal places were targeted. Also, fully representative sound measurements were not feasible. Furthermore, the participation rate was restricted, as people involved in personal discussions or celebrating an event were usually not ready to be interviewed.

On the other hand, the topics of the questions were well accepted, and the participants were happy to talk about these matters. Finally, no effects of gender or age were found (ages ranged from 18 to 71 years), nor differences between Anglo/Australian and other participants, so the results are not confined to particular social groups.

3   Outlook: Issues for further research

In order to further enhance our understanding of the impacts of music in restaurants, further studies with wider samples regarding categories and sizes of restaurants as well as types of customers and especially staff features seem very desirable. Furthermore, the different sources of sound levels (i.e., music versus other sounds/noises), need to be identified in detail, and music exposure needs to be tested experimentally.

From a socio-psychological perspective, many questions warrant in-depth field research, such as:

> How do acoustic and social factors interact when people attend restaurants?

> Do people talk faster or shorter or 'harsher' in loud restaurants, i.e., how does the tone/ mood/ atmosphere of conversations change? Both verbal and non-verbal interactions are of interest here.

> Do customers stay longer or shorter if music levels are high (cf. Caldwell & Hibbert 2002, McElrea & Standing 1992, Milliman 1986)?

> Can music levels and/or content compensate for shortcomings in a restaurant, e.g., lack of space, unsatisfactory service (cf. Cameron 1996) or poor food?

Of course restaurants are only one type of public places with music exposure. While soundscapes such as shopping malls or offices are well researched (e.g., Areni & Kim 1993, Blood & Ferriss 1993, Bruner 1990, Fox 1983, McDermott 1990, North & Heargraves 1997, Sterne 1997,), music in other environments like waiting areas, planes/ships/trains and so on has not attracted much research attention.

A further rather complex issue is that many music venues, such as music cafes or pubs, have live music *and* play taped music in the breaks - how do customers deal with that?

Finally, the principal question behind all this remains: What kind of soundscapes do humans 'really' desire? And do people who live in large-scale urban environments - as about 90% of all residents in this country - know and need 'quiet' soundscapes at all?

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