Proceedings of the Institute of Acoustics

LISTENING HABITS

George Dodd University of Auckland, New Zealand

ABSTRACT

A 10-year longitudinal survey of patterns and preferences in music listening has revealed that a large majority of people would prefer to listen to music performed live but that only a small percentage of their exposure to music actually occurs at live performances. An initial analysis of the first few years of the survey suggests that choices concerning music can be influenced by cultural background and that changes occur, as new technology becomes available.
One of the reasons given for preferring to attend a live performance rather than listen to a recording or a live broadcast suggests that hall designers should try to maximise the sense of two-way communication between performers and listeners. This implies that active acoustics systems of the 'non-in-line' type are more appropriate for application in 'active' auditoria than the 'in-line' variety.

1. INTRODUCTION

The prompting for this survey came from an interest in active variable acoustics systems and sound system design. As we move towards an era of active halls we should question whether or not new technology is influencing the habits and preferences of listeners and, even, whether public performance spaces are what the music consumer really wants.

The survey began informally in 1989 and is based on a questionnaire about respondents' recall of their patterns and preferences when listening to music. Novel data was elicited by including as a central part of the survey a "thought experiment" in which the respondents are asked to make choices and then give the reasons to explain their choices.

Since one of the hypotheses being investigated is that listener habits and preferences are evolving with time, the survey needed to be longitudinal and an arbitrary period of a decade was selected for its duration. No special plan was decided upon for selecting respondents apart from attempting to include a representative cross section of the population (young, old, concert-goers, non concert-goers etc) and to have some matched groups that were nominally similar each year. In practice the questionnaires were handed out to students at the beginning of courses each year, to visitors on open days, at concerts and on other occasions as opportunities presented.

2. BACKGROUND TO THE QUESTIONNAIRE

The questionnaire was intended to find to answer some of the following questions –

1. Is listening to music important in people's lives
2. Are listening habits evolving/changing under the influence of technological developments and modern types of music
3. Is there evidence of changing attitudes towards electro-acoustical systems or instruments
4. Do people prefer listening to live performances rather than recordings and, if so, why

5. How many discernibly different sub-groups/types of listener can we identify in our societies?

The design of the questionnaire (See Appendix) involved no special questionnaire techniques but aimed to make it possible to conduct the survey without an accompanying oral explanation. The title makes the focus of the questionnaire quite obvious but there is a degree of coyness about the purpose behind questions 9, 10 and 11 where, arguably, the major interest lies. These questions take the form of what might be termed "thought experiments" and as such are totally subjective. Answers to the other questions are completely dependent on personal recollection and so some bias can be expected compared with results of objective monitoring of what participants actually do.

3. PRELIMINARY ANALYSIS OF RESPONSES

3.1.1 Q1. Do you think your hearing is normal?

This question allows us to screen for normal hearing. The results in Figure 1 show an expected – at least for Westernised countries – loss of hearing with age. It is salutary to note that by age 40 a significant percentage of the population is experiencing a noticeable hearing loss. One is tempted to wonder if this should be a particular concern for designers of halls for traditional symphony concerts. It is likely that Concert Hall attenders* will on average be from a mature age group hence suffering a reduced acuity and – most likely – some recruitment (the audiological term for a compressed dynamic range of hearing).

Fig 1. Normality of Hearing

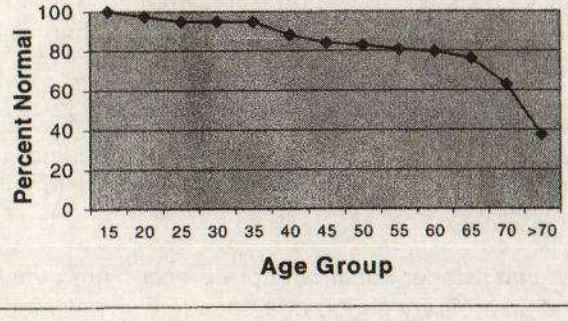
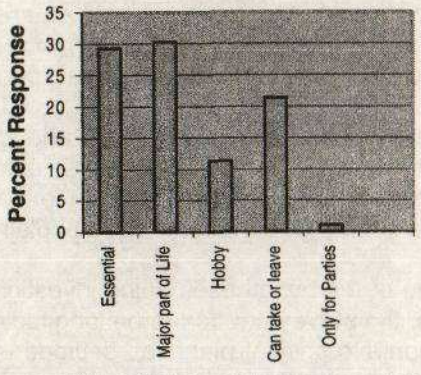


Fig 2a. Importance of Music



3.1.2. Q2. How important is music to you?

The responses to this question provide reassurance for the music producing industry and show that – however individual interpretations may vary – approximately 30% of people regard music as being essential for their lives (see Figure 2). This increases to between 60% and 75% when we include those who – whilst not judging it as essential – feel it to be a major factor of life.
Differences between men and women are small but the differences between nations appear to be significant.

* Note the need for this term 'Concert Hall attender'. The term Concert-goer is no longer specific to those who frequent Concert Halls as the term 'concert' is now more widely used than meaning a classical music performance in a concert hall.

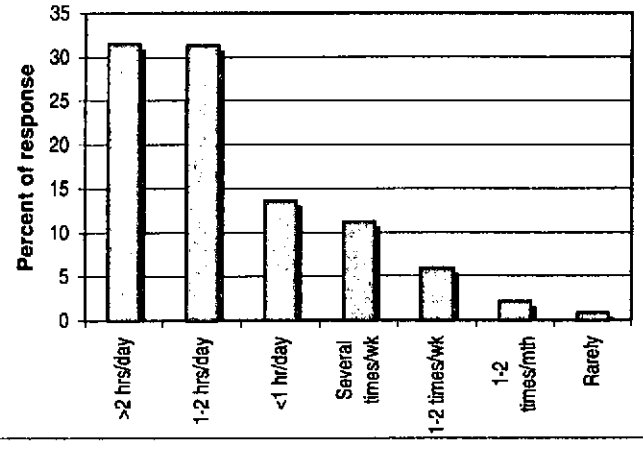
3.1.3. Q3. Have you had musical training?

The aim in this question was to investigate whether any trends were dependent on (a) formal training in music or (b) experience as an active music maker. The results suggest there is a marked reduction in the percentage of the population receiving formal training in our musical traditions.
This is not necessarily something to be regretted (that will depend on how one regards the purpose of music for humankind) but at least draws attention to the fact that societal changes are occurring which must link directly with the demand for particular types of music and music making.

3.1.4. Q4. How often do you listen to music?

From this we get a direct indication of the amount of time people are exposed to music. The question asks about the time "listening" to music.

Fig 3. Time spent Listening to Music



Subsequent to setting the question it became of interest to make a clear distinction between, on the one hand, the action of *listening to* music (a listener being one who attends to the sound and takes something from it) and, on the other hand, the lesser action of *merely hearing* the music. When we use the term background sound or background noise we are - by-and-large - meaning sound which is merely heard. Many people will use music from radios and hi-fi's in the manner of background sound (i.e. they create a form of acoustical wallpaper).

Hence it is not possible to determine the time respondents listened to music (as opposed to using it as background) and all we can conclude from the analysis is (see Figure 3) -

1. nearly 33% of people are *exposed* to music for at least 2 hours per day, and
2. nearly 66% are *exposed* for at least 1 hour per day.

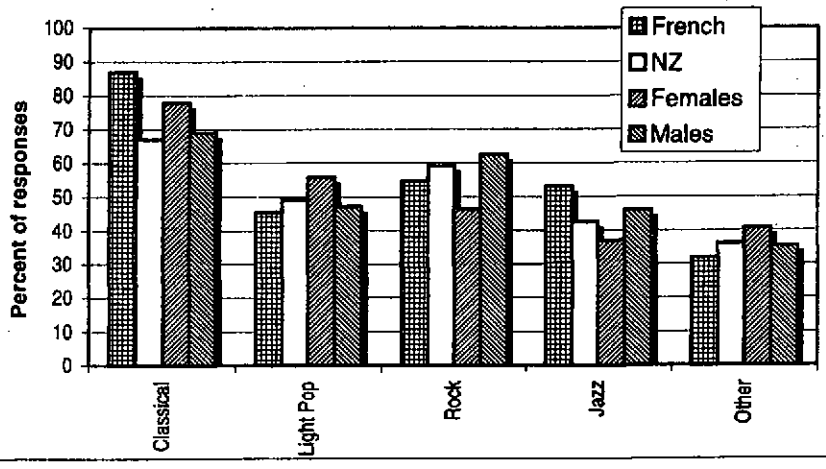
If we assume that a day comprises 16 waking hours these figures translate into 12% and 6% respectively of their time awake.

3.1.5. Q5. What is your taste in music?

The answers to this question give an indication of the relative appeal of different musical styles. When the analysis is complete, it will show whether this picture changes with age, time and cultural context.
Because of the coarse categorisations in the question we cannot treat the "Other" category as a distinct category. Some respondents were happy to put the more recently emerged styles (e.g. Hip-Hop, Rap, Jungle, Electronic) in the "Rock" category whilst others clearly placed them in the "Other" category. However, the most frequent use of "Other" was for "Ethnic" music. The results have been analysed simply as they have been entered and an extract is presented in Figure 4.

Responses to the later Q8 allow us to be quantitative about how listeners distribute their listening time but this may not correlate well with how they would *prefer* to listen. Hence, the information given here in Q5 allows a more certain indication of preference or taste. On the basis of frequency of selection of each category we can draw some conclusions about the overall popularity of different music types and, hence, we see that "Classical" music (however that is to be interpreted) has the widest appeal of any type.

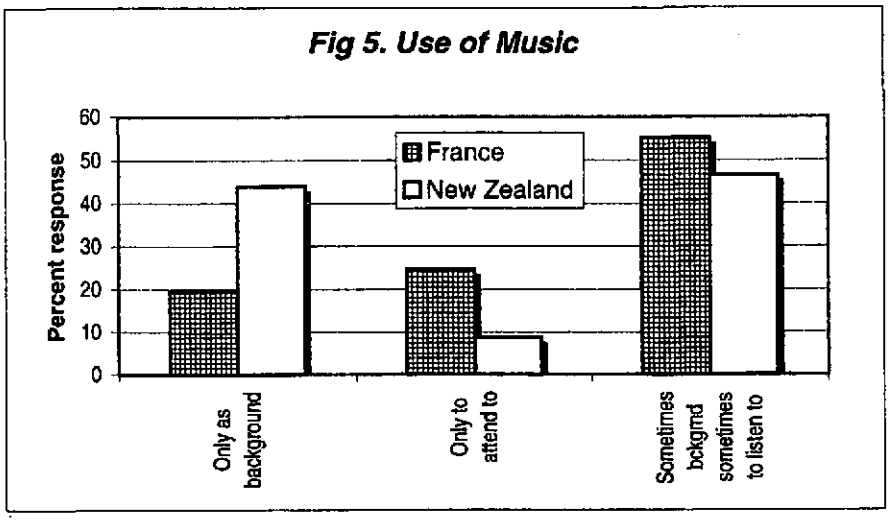
Fig 4. Taste In Music



3.1.6. Q6. What do you use music for?

This prefigures a concern about the difference between ACROMA and NOISE [Ref. 1.] i.e. between listening to something and merely hearing it. Positive responses to 6(a) indicate that the music is being heard but probably not being attended to, whereas a positive response to 6(b) shows that the music is fully attended to. In the construction of the questionnaire the issue of music which accompanies films or TV programmes was not considered.

Fig 5. Use of Music



The analysis of responses so far (presented in Figure 5) indicates that there are differences between different cultures. New Zealanders appear less attracted to listening to music as a sole occupation than are the French, and in consequence are more likely to use music as a background sound. About 50% of both populations are happy to do either (presumably on different occasions!). When analysed by age group the data indicates a tendency towards more attentive listening with increasing age.

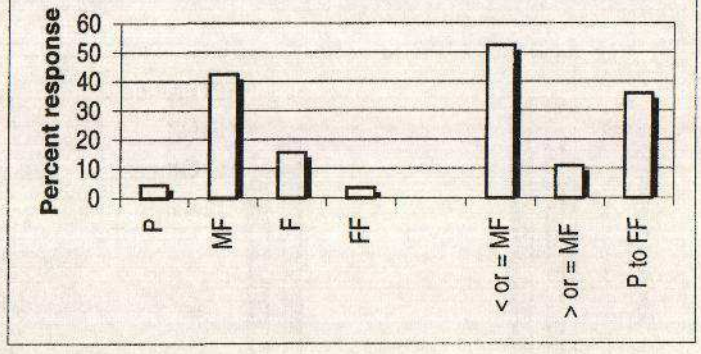
3.1.7 Q7. How loud do you like your music to be?

Respondents are likely to differ in their judgements of absolute loudness but they seemed to have

few qualms about giving replies to this question. A substantial number gave a range of loudnesses when they felt this to be demanded by differing circumstances.

The percentages shown in Figure 6 are for 2 groups. The first correspond to those who replied with a single loudness preference and the second for those who replied with a range of loudness. Majority preference seems to be for a medium to soft loudness, but it will be no surprise that the data shows that younger listeners tend to elect for higher levels.

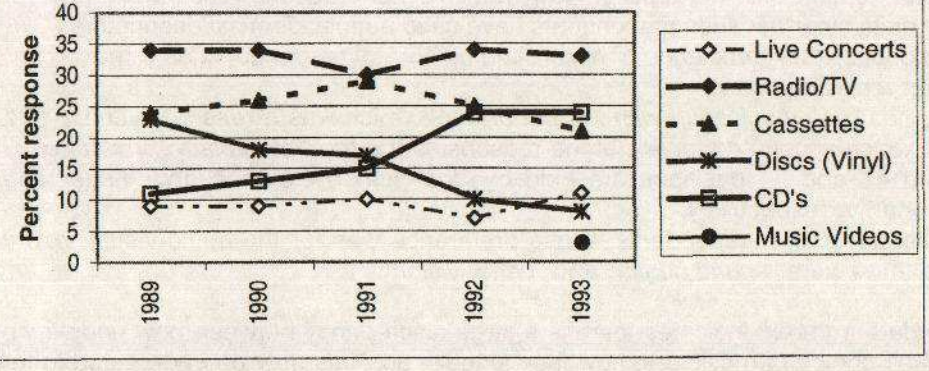
Fig 6. Preferred Loudness



3.1.8. Q8. What is the source of your music?

The purpose here is to collect the information which will allow us to rank the different music providers in order of their significance as sources for our listening public. We might view the results here as providing some small degree of validation of this method of gathering data from self-recall. Figure 7 clearly shows that as the decade has progressed the role played by vinyl disc recordings has been taken over by compact discs. This is a trend we would expect. The plot of the growth of CD usage with time is an almost perfect inverse of the plot for vinyl records.

Fig 7. The sources of Music



Of more interest to Concert Hall researchers and designers is the fact that demand for live performance seems to have remained steady and – at least according to self-recall – accounts for approximately 8% of people's listening time. Public broadcasting is clearly the major source for music consumption but a breakdown into more detailed results (e.g. how various sub-groups differ) awaits the fuller analysis.

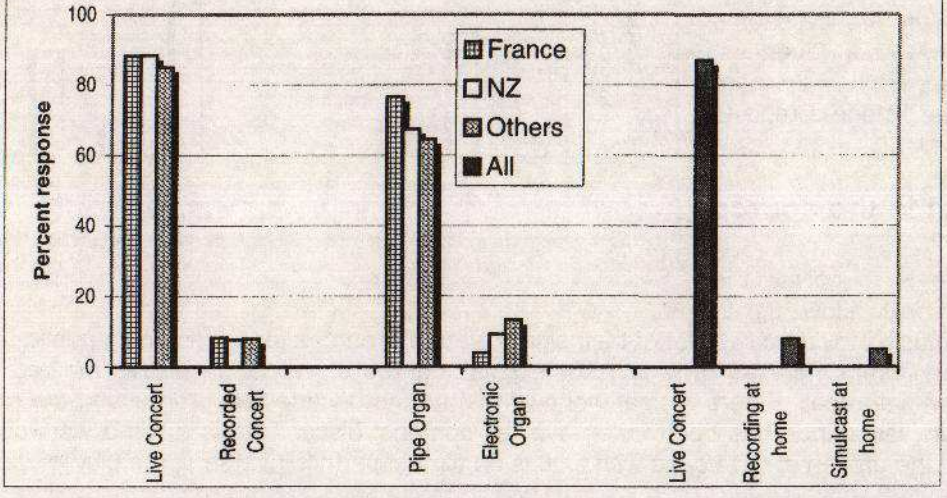
3.1.9 Q's 9,10 & 11. Live or recorded? Traditional or simulated?

The motivation for questions 9, 10 and 11 came from concerns in the area of variable acoustics systems for auditoria and speech sound systems. There seemed to be little to provide answers about how these should optimally be designed and applied. Also, although it appears likely that many people like to attend live concerts are we secure about what proportion would, in fact, choose to go out to listen and forsake the convenience of being able to listen at home to a recordings or a broadcast? Hence the following were questions to be answered –

1. Do people really want to go to live performances and, if so, why
2. What distinguishes the experience of a live performance from that of listening to a recording
3. Has the opposition that existed in the early days of Assisted Resonance to the use of loudspeakers in concert halls become muted, - and what were the reasons for this opposition

4. Can people's preferences direct us in how we should try to optimise variable acoustics systems?
5. Are there any signs that listener preferences do change under the influence of new technologies?

Fig 8. Live v Recording; Traditional v Simulation



The responses (see Figure 8) show unequivocally that, other things being equal, a large majority – around 90% - of people would choose a live performance over a recording.

By constraining the thought experiment in question 9 to be one where the experience of both the live and the recorded performance would happen in exactly the same venue it was hoped to focus respondents on those features which differentiate the live from the recording. In analysing the reasons given for choosing a live performance, 37 different categories (so far) have been required to cover the range of subtleties of the replies. However, the main reasons (accounting for around 80% of replies) are quite clear because respondents have used almost identical descriptors.

In first place is "*atmosphere*" or "*ambience*". This is cited by 45% of respondents as a reason for the attraction of live over recorded music.

In second place comes "*communication with the performers*" which was a reason given by 15% of persons. The third, which accounted for 9% of the reasons, is the trio "*immediacy, spontaneity* and *unpredictability*" and 4th and 5th positions are held by "*the human element*" and "*better sound*" accounting for 8% and 7% respectively.

For those (approximately 10%) respondents whose preference was for the audio-visual recording the main reasons offered were "*sound quality*" and "*better vision*".

A comparison with data from Q8 indicates there is a large discrepancy between how people would prefer to listen to their choice of music and how they actually do. This may be understood in terms of reasons of opportunity, cost, and accessibility of performance venues. But the very similar figures from Q11 – where the influence of the convenience and comfort of listening at home was deliberately included in the thought experiment – confirm that there *is* an unsatisfied demand for live performance.

Question 10 was formulated to focus on the issue of the acceptability of loudspeakers as sound sources for live performance especially for those musical traditions based on purely mechanically-produced sound. This analysis shows a large majority of people choose a traditional organ over an "electronic" organ but the figures are less than for those who would choose a live performance over a recording. The data also indicates a stronger cultural influence on the responses to this issue.

One implication of the results concerns the design of concert venues for live performance. In such venues we should be conscious of optimising those features which attract listeners to live performances. Take as an example, the second most frequent reason given for the superiority of a

live performance - *communication with the performers*. We can see that we must maximise whatever differentiates the communication taking place when instruments are heard directly, from that when heard via a recording. Clearly, communication takes place in both cases but what respondents are signalling is that there is a *two-way* communication inherent in the live performance.

An optimised venue, therefore, is one which maximises this sense/feeling of two-way communication for the audience. For passive concert halls the acoustical principle which underpins this is that of Acoustical Reciprocity. Hence one of the indications for active acoustics designs is that if we wish to respect the preferences of our audience then we ought to retain reciprocity for the communication path between performers and listeners. This suggests that those systems which are described as *non-in-line* should be – where possible – selected in preference to an *in-line* system.

4. CONCLUSION

A longitudinal survey of patterns and preferences in music listening has revealed that a large majority of people prefer to listen to music performed live but that only a small percentage of their exposure to music actually occurs at live performances.
It appears that choices concerning music can be influenced by cultural background and that changes are taking place, as new technology becomes available.
One of the main reasons for preferring live performances suggests that future hall designers should try to maximise the sense of two-way communication between performers and listeners. This implies that active acoustics systems of the *non-in-line* type are more appropriate for application to 'active auditoria' than the *in-line* variety.

References

1. DODD G. "Acroma and Noise" Paper 295, Proc Inter-Noise, 98 Nov 1998

APPENDIX

The Questionnaire used in the survey.

WHAT ARE YOUR LISTENING HABITS?

Date: / /

Surname (optional): First name:

Cultural background:

Nationality: Profession:

Sex: M ☐ F ☐ Age: years

1) Do you think your hearing is normal?

Yes ☐ No ☐

If not, please give a brief explanation of your hearing difficulty:

2) How important is music to you?

☐ a) Essential

☐ b) A major part of life

☐ c) A hobby

☐ d) For occasional enjoyment

☐ e) I can take it or leave it

☐ f) Only for parties

3) Have you had any musical training?

Yes ☐ No ☐

If you have, ☐ a) do you play an instrument?

☐ b) do you sing with a group?

☐ c) other examples?

4) How often do you listen to music?

☐ a) Often ☐ More than 2 hours /day

☐ Between 1-2 hours/day

☐ Less than 1 hour/day

☐ b) Occasionally ☐ Several times/week

☐ Once or twice/week

☐ Once or twice/month

☐ c) Rarely - please estimate how often:

5) Please describe your musical taste:-

☐ a) Classical Examples:

☐ b) Light Popular Examples:

☐ c) Rock Examples:

☐ d) Jazz Examples:

☐ e) Other varieties Examples:

6)Do you like music for -

☐ a) background ☐ while working

☐ while entertaining

☐ b) listening to as your sole occupation

7) When listening to music, how loud do you like it to be?

☐ a) Soft

☐ b) Medium (i.e. at the level of ordinary speech)

☐ c) Loud

☐ d) Very loud

8) (a) For the type(s) of music you listen to, please estimate the amount (in %) heard in live concerts, on radio or TV, on records etc:-

	Classical	Light Pop	Rock	Jazz	Other
Live Concerts					
Radio/TV					
Cassettes					
Records					
CD's					
Music Videos					
Column Total	100%	100%	100%	100%	100%

(b) For the types of music you listen to, please estimate the amount (in %) of your listening time spent in the different categories

Classical	Light Pop	Rock	Jazz	Other	TOTAL
					100%

9) Please imagine that you were offered the opportunity to go to a musical concert of your preferred type of music (please specify the type:) and that for the same price you could choose between:-

a) a live performance.

b) a recorded performance which was played on the best possible audio system, and accompanied by the very highest quality large video screen.

Assuming that both options would contain the same pieces of music and that you would listen in the same concert hall, which would you choose?

☐ a)

☐ b)

Please give the reasons for your choice:

10) A number of churches are now using electronic (so-called 'digital computer') organs which are very good imitations of actual pipe organs. For an organ recital, which would you prefer to listen to:-

☐ a) a traditional pipe organ.

☐ b) an electronic organ?

Please give the reasons for your choice:

11) For the same concert performance that you chose for question (9) imagine that you were given the option of either: -

a) attending a live performance

b) listening to a simultaneous broadcast in your home through your choice of reproduction equipment, or

c) listening to a recording of the concert in your home (again, through the reproduction system of your choice).

Which of the alternatives would you choose?

☐ a) Live performance

☐ b) Simultaneous broadcast at home

☐ c) Recording at home.

Please give the reasons for your choice: