The implications of non-acoustic factors for airport communication and engagement

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The Problem

• Health implications of noise exposure are now well documented.
  • Sleep disturbance
  • Cardiovascular diseases
  • Cognitive impairment
  • Hearing impairment & tinnitus
  • Annoyance – *recognised by WHO as a critical health issue.*
    • Psychological response to stress.
    • Occurs when one no longer has capacity to cope with an unwanted noise.

• Noise level accounts for only ~1/3 the noise response.
• The rest accounted by ‘other’ and NAF.
Comprehensive approach to noise management should....

• Continue to drive down noise exposure by all means reasonable (ICAO Balanced Approach)

• Address non-acoustic factors (NAFs) directly. Raises questions:
  • What are the most significant NAFs and which are potentially modifiable?
  • How might NAFs be influenced positively?
  • What is the nature of interventions designed to address NAFs?
  • How might their effectiveness be evaluated? => enhanced practice over time.
Non-Acoustic Factors

- A Vader (2007) identified 31 NAFs able to influence noise impact, categorised by their strength as an indicator and the extent to which they could be modified by an airport.
- 7 NAFs identified as *modifiable* and playing a *strong role* in the response to noise.

<table>
<thead>
<tr>
<th>Non Acoustical Factors</th>
<th>Strong</th>
<th>Intermediate</th>
<th>Weak</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Modifyable</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Attitude towards the source</td>
<td>•</td>
<td>• Avoidability</td>
<td>• Media coverage and heightened awareness to noise</td>
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<td>Choice in insulation</td>
<td>•</td>
<td>• Choice in compensation (societal)</td>
<td>• Social Status</td>
</tr>
<tr>
<td>Choice in compensation (personal)</td>
<td>•</td>
<td>• Expectations regarding future of source</td>
<td></td>
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<tr>
<td>Influence, voice (the opportunity to exert influence on behaviour of source)</td>
<td>•</td>
<td>• Information (accessibility and transparency).</td>
<td></td>
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<tr>
<td>Perceived control</td>
<td>•</td>
<td>• Predictability of noise situation</td>
<td></td>
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<tr>
<td>Recognition of concern</td>
<td>•</td>
<td>• Procedural fairness</td>
<td></td>
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<tr>
<td>Trust</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Not modifyable</strong></td>
<td>• Age (under 55)</td>
<td>• Duration of residency near airport</td>
<td>• Age (above 55)</td>
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<tr>
<td>Income</td>
<td>• Fear related to source of noise</td>
<td>• Awareness of negative consequences (health, learning)</td>
<td></td>
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<tr>
<td>Individual sensitivity to noise</td>
<td>• Home ownership (fear of devaluation)</td>
<td>• Children</td>
<td></td>
</tr>
<tr>
<td>Past experience with source</td>
<td>• Use of airport services</td>
<td>• Education</td>
<td></td>
</tr>
<tr>
<td><strong>Unsure/ need to be examined</strong></td>
<td>• Conviction that noise could be reduced or avoided by others</td>
<td>• Benefits from airport (personal, societal)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Cross cultural differences</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Country of origin</td>
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Non-Acoustic Factors

• Strong and modifiable NAFs can be influenced by through airport-community dialogues

• Airports (and other aviation authorities) are essentially in a **negotiation** with communities for a ‘license to operate’.

• As well as annoyance, NAFs can influence the ‘acceptability’ of noise – perhaps more relevant to airport policy?

• All this implies a key role for communication and engagement (acknowledged by all aviation actors).

What does the theory say?
What we did

• A thorough review of the literature surrounding effective communication, engagement.
  • Leading to concepts such as:
    • Public participation.
    • Social Learning
    • Ideal Speech

• Added to learnings from a science and communication summer school, and discussions on the subject with experts who specialise in the field.
THE key current trend in good communication (and research) is co-creation.

This implies industry stakeholders working together and with their communities to develop a mutual understanding of local needs, experiences, expertise.

This means, co-creating outcomes, methods and results.

Citizen Power
- Citizen Control
- Delegated Power
- Partnership

Tokenism
- Consulting
- Informing
- Placation

Non-participation
- Therapy
- Manipulation

Citizen Control is desirable.

But airports remain profit making firms, with strict legislative controls.

How high is it feasible to go?
Conditions for ‘Ideal Speech’

• Communication and engagement is more effective when:
  • Led by an independent voice
  • Where hierarchies are levelled.
  • Underpinned by a ‘common language’ that is comprehensible to all.

<table>
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<tr>
<th>Fairness</th>
<th>Competence</th>
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<tr>
<td>Anyone may participate</td>
<td>Minimal standards for cognitive and lingual competence</td>
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<tr>
<td>Assert validity claims</td>
<td>Access the knowledge</td>
</tr>
<tr>
<td>Challenge validity claims</td>
<td>Consensually-approved translation scheme</td>
</tr>
<tr>
<td>Influence final determinations of validity</td>
<td>Most reliable methodological techniques available</td>
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</table>
For this to happen we need to move from the traditional...
The Public Understanding of Science

‘The Deficit Model’

Narrow scope | One Way | Scientists as expert | Scientists owning data
To....
Public Engagement with Science and Technology

Wide Scope
Qualitative non-expert can inform and deliver on outputs.

Two Way
Discussions take place with empathy and based on mutually agreed objectives.

Levelled Hierarchies
Stakeholders have valid expertise to be shared. Consensus can be reached.

Data owned by society
Available to all and fully transparent.
Wheel of Participation

as amended by Asensio et al. (2017)
Conditions to foster ‘fair conditions’ for dialogue include:

- opportunities to participate in the decision-making process
- taking into account the opinions of all parties
- absence of bias in authorities (motivations trusted)
- treating people with dignity and respect
- access to relevant and accurate information
- clear and appropriate information about the process and decision-making
- consistent application of procedures across people and time
Not easy an easy task!

• Many airports are making valiant efforts to engage with their communities – if these are to be built on then there is need for _systematic evaluation_ of these experiences such that practice can be enhanced over time
Assessing impact

• Communication and engagement practitioners emphasise the importance of evaluation highlighting that as a minimum this should include:
  • Pre-Evaluation: to establish a baseline, and to inform on the intervention.
  • Post-Evaluation: to determine success and provide an evidence base for future interventions.

• Evaluation should be informed by stakeholders:
  • What is important to them?
  • What do they want to know?
  • What outcomes do they desire and how might these be tracked?

• This may mean extending the vision beyond traditional noise management agendas (contributions to QoL)
On-going challenges/Issues

- Who should be the focus of communication and engagement efforts (the motivated few, the ‘silent majority’, community representatives, etc.)?
- What issues need to be covered and how might they be presented in a form that is comprehensible to the target audience (noise presents particular challenges here!)
- How do we engage with communities on an on-going basis when enthusiasm for engagement may be low
- How might the ‘benefits’ of communication and engagement be disseminated beyond those immediately involved in the process
- Developing a consensus view on what ‘success looks like’ may require collecting new data, using different techniques to those traditionally employed in noise management interventions
Questions?

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• ANIMA website can be found at http://anima-project.eu/