On-site and laboratory evaluations of soundscape quality in recreational urban spaces

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Regulations for quiet urban areas are typically based on sound level limits alone. However, the nonacoustic context may be crucial for subjective soundscape quality. Aims: This study aimed at comparing the role of sound level and nonacoustic context for subjective urban soundscape assessment in the presence of the full on-site context, the visual context only, and without context. Materials and Methods: Soundscape quality was evaluated for three recreational urban spaces by using four subjective attributes: loudness, acceptance, stressfulness, and comfort. The sound level was measured at each site and simultaneous sound recordings were obtained. Participants answered questionnaires either on site or during laboratory listening tests, in which the sound recordings were presented with or without each site’s visual context consisting of two pictures. They rated the four subjective attributes along with their preference toward eight sound sources. Results: The sound level was found to be a good predictor of all subjective parameters in the laboratory, but not on site. Although all attributes were significantly correlated in the laboratory setting, they did not necessarily covary on site. Moreover, the availability of the visual context in the listening experiment had no significant effect on the ratings. The participants were overall more positive toward natural sound sources on site. Conclusion: The full immersion in the on-site nonacoustic context may be important when evaluating overall soundscape quality in urban recreational areas. Laboratory evaluations may not fully reflect how subjective loudness, acceptance, stressfulness, and comfort are affected by sound level.

General information
State: Published
Organisations: Department of Electrical Engineering, Hearing Systems, Acoustic Technology, Technical University of Denmark
Contributors: Bjerre, L. C., Larsen, T. M., Sørensen, A. J., Santurette, S., Jeong, C.
Pages: 183-192
Publication date: 2017
Peer-reviewed: Yes

Publication information
Journal: Noise & Health
Volume: 19
Issue number: 89
ISSN (Print): 1463-1741
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): CiteScore 2.15
Web of Science (2017): Impact factor 1.842
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.03
Web of Science (2016): Impact factor 1.798
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 1.98
Web of Science (2015): Impact factor 1.826
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 2.02
Web of Science (2014): Impact factor 1.477
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 1.77
Web of Science (2013): Impact factor 1.43
BFI (2012): BFI-level 1
Scopus rating (2012): CiteScore 1.71
Web of Science (2012): Impact factor 1.648
BFI (2011): BFI-level 1
Scopus rating (2011): CiteScore 1.37
Web of Science (2011): Impact factor 1.254
BFI (2010): BFI-level 1
Web of Science (2010): Impact factor 0.739
BFI (2009): BFI-level 1
BFI (2008): BFI-level 1
Original language: English
Electronic versions:
On_site_and_laboratory_evaluations_of_soundscape_quality_in_recreational_urban_spaces_Bjerre_LC_Larsen_TM_S_rensen_A_J_Santurette_S_Jeong_CH_Noise_Health.pdf

Bibliographical note
The article is available open-access online in its HTML version: http://www.noiseandhealth.org/article.asp?issn=1463-1741;year=2017;volume=19;issue=89;spage=183;epage=192;aulast=Bjerre
Source: PublicationPreSubmission
Source-ID: 134613381
Research output: Research - peer-review › Journal article – Annual report year: 2017