Evidence Based Library and Information Practice

Evidence Summary

Installing Noise Activated Warning Signs in Library Quiet Spaces Does Not Appear to Reduce Actual or Perceived Noise Levels

A Review of:
Lange, J., Miller-Nesbitt, A., & Severson, S. (2016). Reducing noise in the academic library: The effectiveness of installing noise meters. *Library Hi Tech, 34*(1), 45-63. https://doi.org/10.1108/LHT-04-2015-0034

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Abstract

Objective – To explore if installing noise activated warning signs (NoiseSigns) in library quiet spaces decreases perceived and actual noise levels.

Design – Noise monitoring and user surveys (print and online).

Setting – A large university in Canada.

Subjects – Users of library quiet spaces where NoiseSigns have, and have not, been installed.

Methods – NoiseSigns provide a visual cue informing those present when noise levels exceed a pre-determined level. In this study, researchers installed two NoiseSigns in quiet study spaces previously identified as having the "biggest noise issues" (p. 51), and set the devices to illuminate when noise levels exceeded 65 dB. User surveys investigated respondents' perceived and desired noise levels via Likert scales before and after NoiseSigns were installed. Actual noise level measurements (via an iPad app) and headcounts were taken manually twice daily for 60 seconds during the same study phases. Additionally, the NoiseSigns recorded noise

levels after they were installed. In order to account for variation in library usage over time, control data was also collected in other spaces, where NoiseSigns had not been installed.

Main results – A total of 96 surveys were completed and analyzed across all study locations and time periods. One-way ANOVA tests showed there to be no significant difference in perceived noise levels after installing NoiseSigns in any of the intervention areas, in neither the short- or long-term. Respondents' comments suggested much of the undesired noise originated from social areas adjacent to the quiet study zones or was of a type which would not set off the NoiseSigns (e.g., "people chew[ing] too loud[ly]" (p. 54)). One-way ANOVA tests also found there to be no significant difference in actual noise levels in any of the intervention areas after device installation. Data logging from the NoiseSigns themselves showed the "majority" (p. 56) of noise measurements were in the vicinity of 45-50 dB and "very rarely" (p. 56) did noise levels exceed the 65 dB threshold. Despite this, survey respondents appeared to be unhappy with noise, with mean desired noise levels being lower than those perceived.

Conclusion – As a result of the study, the library now strives to have greater delineation between quiet and social spaces. They also seek to ensure doors between these areas are kept closed where possible. Additionally, the authors suggest libraries install noise activated warning signs in social spaces adjacent to quiet study zones in order to keep these spaces from becoming noisy enough to affect nearby quiet zones. Future research could look at the effect of different monitoring options (e.g., security guards, student self-monitoring) and various furniture arrangements on noise levels in the library.

Commentary

Concern over noise in academic libraries is not new (e.g., Luyben *et al.*, 1981). Yet, new types of collaborative, technology-enhanced learning spaces can often make libraries seem noisier (McCaffrey & Breen, 2016; Yelinek & Bressler, 2013). Varied solutions have been attempted (McCaffrey & Breen, 2016; Yelinek & Bressler, 2013), but this study appears to be the first published investigation into using devices like NoiseSign to combat the issue.

The article was reviewed using a critical appraisal tool (Glynn, 2006) and both strengths and weaknesses were found.

The researchers outline the study methodology clearly and with enough detail to allow replication. The survey, appended by the authors, is simple and outlines the ways in which the information obtained may be used. The researchers acquired ethics approval.

Readers, however, do not know how representative survey respondents are of the entire user (and non-user) population. Respondents were self-selected with the resulting data subject to bias (Lavrakas, 2008). Demographic information (e.g., age, student type) was not collected. Further, readers do not know if the same people responded to the survey multiple times.

The use of control spaces was prudent. Nevertheless, the suitability of the chosen control spaces is unclear. Notably, for intervention, the researchers selected spaces which were previously subject to high levels of noise complaints. The authors do not disclose if control spaces were similarly affected.

Limited resources meant actual noise levels were only measured via the iPad app twice daily, Monday - Friday. It would be beneficial for authors of future studies to use automated noise measurement devices which are able to take frequent measurements any day of the week. Moreover, automated devices would remove any effect the staff member's presence may have on the results.

The authors present their results logically and provide insightful commentary around these. However, the researchers could have described the data logged from the NoiseSigns in greater depth. Results of each ANOVA pairwise comparison could have been more clearly conveyed in a table. Further, it is

unclear how, or if, headcounts were used as a confounding variable in the analysis.

The study provides an important first look at the usefulness of noise activated warning signs as a tool to reduce noise in libraries, and would have a wide audience. Further, the authors demonstrate the value of publishing seemingly unsuccessful results through their insightful discussion. Greater benefit, however, could be achieved through a more refined methodology. The study also highlights the subjective nature of noise. Noise can be an issue for people, even in environments objectively determined to be 'quiet.' Thus, libraries should consider defining and communicating noise expectations.

References

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