White Paper:

Sound Advice

By Jessica Andrews

A consideration of the impacts of office noise and possible solutions.

Office noise can be worse than it sounds. From the piercing cry of a small baby to the distant rumble of thunder over the hills, sound is notorious in its ability to provoke a range of physical, physiological and psychological responses in humans. Whilst it's unlikely that your average office worker is going to be faced with the shrieks of a new born in the workplace, many other forms of noise are ever present in the modern day office and the problems associated with noise should not be ignored or underestimated. Troubles with noise are not new to our time; texts written around 3500-1750 BC preach of how the God, Enlil, angered by the noise of a crowded city, flooded the area to resolve the noise problem.[i] Fortunately for us, since the Industrial Revolution, empirical research has been conducted to identify more reasonable solutions to alleviate noise in the workplace. Despite this, noise still remains among the top causes for office dissatisfaction and loss of productivity at work. From paper shredding, pencil sharpening, printers operating and people talking by the water cooler, office noise can be persistent throughout the day and result in annoyance, heightened stress levels and reduced performance.[ii] The potential sources and impacts of noise should be considered when planning an office environment to create an employee-centric workspace which caters for the needs of staff and enhances their productivity.

Office Noise Hampers Productivity

Despite the fact that the modern office is a catalyst for noise generation, there has been relatively little research into the impact of noise on workers. Acoustician Julian Treasure reminds us that, "Despite huge advances in almost every area of architecture and interior design … sound and acoustics, for the most part, have remained secondary concerns".[iii] Additionally, other researchers have commented that, "The acoustic design of offices often does not receive the attention that most other architectural systems would. However, unwanted levels of ambient noise, often caused by an excessively reverberant environment, can cause difficulties with communication as well as with concentration at work".[iv]

So, why should an employer care - what impact does this have on the corporate bottom line? The studies that *have* been conducted are generally united in the consensus that office noise hampers productivity. One study concluded that noise, in addition to being a nuisance and disturbance in an office, is a primary cause of reduced productivity. The

baker stuart

research also uncovered that noise can contribute to stress and illness, which in turn can also contribute to absenteeism and turnover of staff.[v] These findings are supported by a 2005 study which evaluated 142 commercial buildings in the United States with 23,450 participants. The study found that half of the respondents reported that noise interfered with their daily work and the highest dissatisfaction in the workplace was reported to be noise across the board.[vi] It does not take much of a leap of faith to also believe that as well as contributing to reduced productivity it will also lower morale and impact on both absenteeism and staff attrition.

So, noise has been proven to cause distraction and reduce productivity but why is it increasing in prevalence in the modern office?

The Problem with Open Plan

A well designed office is of paramount importance in keeping employees happy. The modern office has made an almost universal move to more open plan environments, yet it has been argued by many that this design has been implemented so widely that its intended benefits have backfired. Originally conceived as a means to increased transparency and collaboration in the office, open plan may actually do the reverse if applied with broad brush strokes. As Gensler, the design firm, concluded from a survey of over 9,000 workers- when open plan sacrifices focus for collaborations, both suffer.[vii] When people are constantly distracted from their work, they can become deeply frustrated, making them less likely to collaborate and socialise with their co-workers.

One of the main reasons for the wide-spread implementation of open plan design is that it is relatively cheap. With desk space costing up to £14,500 p/a in central London,[viii] who can blame managers for trying to make savings? Yet many employees state that they'd prefer to work in a smaller, shared office rather than in an open plan one. The main reason reported for this desire is due to noise. Productivity suffers when staff struggle to get their heads down in noisy spaces with little privacy. One study found that nearly 50% of employees in open plan offices, and nearly 60% in workstations with partitions, cited that the lack of sound privacy was the most frustrating aspect of their work environment. So we must ask the question: is the open plan office worth the real estate savings? The study also found that employees are not only dissatisfied by their lack of privacy, but also by their lack of control for what they overhear from others. In contrast to this, those in enclosed offices reported the least amount of frustration with their office environment and were therefore the happiest employees.[ix] With the majority of offices today being an open-plan space designed to reduce costs and improve collaboration, companies may need to rethink the costs of staff retention and productivity and strike an appropriate balance between open plan and privacy.[x] Whilst there is nothing wrong in wanting to provide an office atmosphere that promotes collaboration and unity, whilst cutting costs, the unintended consequences must be considered.

Indeed, with the advent of agile working, noise levels are often increased in open plan environments. In traditional office spaces with a one-to-one desk allocation, noise is generally not too intense due to the fact that the average desk utilisation is at just 50%.

baker stuart

Flexible working, and desk sharing in particular, increases the level of occupation in the office, with a consequent increase in noise levels. This consequence of flexible working means that noise should be an ever more considered factor in both office design and office culture.

The Impacts of Noise

Studies have uncovered that noise impacts the bottom line by encumbering the productivity of staff and this suggests that the tendency to dismiss the negative effects of office noise to be short-sighted. But *why* does sound have the power to make us less productive? How does sound impact people in the workplace? These are both questions that need to be considered.

Noise can affect people in a number of ways – it has the power to influence our health, wellbeing, mental state and performance. Raised levels of sound can result in physiological changes including raised blood pressure, increased heart rate, hearing loss and stress. Action on Hearing Loss estimate that by 2032 some 14.5 million people across the UK will suffer from some sort of hearing loss. This should ring alarm bells for those workplaces that do not take into account occupant hearing conditions in their design. These physiological changes, however, are unlikely to arise due to normal sound levels in the office; it is much more likely that the impacts of office noise will be felt in a psychological sense. The psychological impact that noise can have on a person relates to mental changes due to exposure to sound that one considers to be unnecessary or disturbing. Such effects normally manifest as annoyance, heightened stress or reduced performance and these effects can occur at any sound level.[xi] There have even been reported cases of "office rage" in noisy open plan environments.

In addition to findings that point to low intensity office noise resulting in physiological and psychological changes, a study by Evans and Johnson, published in the Journal of Applied Psychology in 2000,[xii] found evidence of a potentially important and new health risk for health exposure. The study looked at 40 experienced clerical workers, who performed offices tasks under typical, low-level office noise. The noise sources reported to be most annoying were machines, conversation and ringing phones.[xiii] Over the course of the study it was found that being exposed to office noise resulted in the workers being substantially less likely (by 50%) to adjust their ergonomic work-stations. Neglecting to do this can contribute to musculoskeletal disorders in the worst instance and discomfort at best. One possible explanation presented for this seemingly baffling finding is that when under stress (in this instance due to noise) people focus on their main activity or task. Such focus leads to reduced flexibility in considering alternatives during decision making. Perhaps, when people are working on a task when under stress, they are more fixated on the task at hand, meaning they are less primed to change their posture or to take a break.[xiv] This study focused on a relatively small sample group and as such more research is needed in this area to confirm these findings and discover the true meaning behind them. However, it is worth noting that this study has been cited by numerous other studies and as supporting content in various research pieces looking into the effect of office noise on workers which gives the findings credibility.

baker stuart

Noise and Personality Types

Not all people are primed to react to noise in the same way. Whilst office-based noise will significantly affect some, for others, it may have no impact at all. There is plentiful evidence that the best teams are those with a diverse mix of personality types, yet workplace design is often more suited to extroverts.[xv] As a general rule, extroverts can cope better with noisy environments compared to introverts who perform better under quieter conditions. Weinstein developed a theory as to why this may be, stating that "noise frequently has interpersonal significance and is seen as an intrusion by those who are ill at ease in social settings and prize privacy".[xvi] Employers need to acknowledge the difference in personality types in the office and recognise that they have differing needs. This is the first step in designing an office that allows all individuals to work to the best of their ability.

Personality	Task	Quiet	Noisy
Introvert	Simple	🙂	😐
Introvert	Complicated	🙂	🙁
Extrovert	Simple	🙁	🙂
Extrovert	Complicated	😐	🙂

The table above demonstrates simply the difference between introverts and extroverts in their ability to cope with levels of noise whilst undergoing tasks.[xvii] Introverts and extroverts can actually be identifiable through the location they choose to place themselves in the office. Through our workplace studies, Baker Stuart have found that extroverts will tend to sit in the middle of the open plan layout, to be in the thick of the hustle and bustle with access to plenty of colleagues and opportunities for socialisation. On the other hand, introverts will tend to locate themselves towards the outskirts of the office, to distance themselves from the noisier environment. In this regard, open plan offices which implement agile working do tend to self-manage to a certain extent. Yet this behaviour by no means mitigates the impacts of noise on individuals, as the table above shows, even extroverts need a quieter space at points in the day.

Other Variables

The extent to which noise affects people is dependent on a number of variables, not solely on personality type. Perception of noise can be affected by context and attitude; if people feel that a noise is justified, for example an important announcement, or they are familiar with those making the sound, such as close co-workers, then they are likely to be more tolerant of the noise. One needs to consider attitudes towards those making

baker stuart

the noise, the perceived necessity of the noise and the meaning attached to the noise. Additionally, perceived control and predictability of noise can determine how tolerant people are of it. Having control over noise makes its presence more bearable and in the majority of cases predictable, steady noise is preferable to intermittent noise. The crux of the matter is that the term 'unwanted sound' is totally subjective, based on a number of factors. For example, a dripping tap at home may create annoyance at just 30 dB, yet 120 dB of noise generated by an ambulance may be tolerable. Attendees at a pop concert generating 120 dB will find the noise acceptable, yet neighbours of the venue may not. Response to sound level is entirely subjective and so the psychological effects of sound are the main concern in an office environment. [xviii]

Headphones in the Office

Since office-based noise has the ability to induce such a wide a range of problems, it is not surprising that many people have taken the cancelling out of unwanted noise into their own hands. More and more people are using headphones and personal music systems at work to reduce distraction. This presents a problem in itself; the extended use of personal stereos in the workplace may have a physiological effect. Indeed, one study reported that the equivalent 8-hour continuous noise exposure level for people using headphones was 80 dB.[xix] Surprisingly, as many as a quarter of the UK's workforce uses headphones at work, which studies by audio technology firms report, puts them in danger of hearing loss. In addition to this, Andrew Thompson, specialist inspector at the HSE, stated: "As well as potentially contributing to hearing damage, the uncontrolled wearing of personal headsets in the workplace may also have safety implications because of an impaired ability to communicate or hear warnings, alarms, moving vehicles, etc. Employers allowing staff to use their own headphones or earphones must ensure that they're adhering to regulations."[xx] Further to this, the use of headphones in offices acts as a deterrent to collaboration and interaction among staff, possibly defeating the aim of an open plan office.[xxi] So staff using headphones at work is a problem, and until the root cause of this behaviour is addressed it is unlikely that staff will kick the habit on their own. Noise in the office needs to be addressed to alleviate the knock-on effects that it causes.

It's evident that noise in the office is an ever present problem and is one that needs addressing. So what are the solutions available?

Possible Solutions

Employees need the ability to speak in private and to make phone calls without the whole office hearing. They also need 'distraction-free' areas to get their heads down and focus on complex tasks. Even if a company can only provide a couple of small spaces with four walls and a door (or just a quiet corner), it is essential that some space of this kind is provided. Increased spending on space to create an environment that is more functional for staff's needs can lead to greater workplace satisfaction, which in turn can increase productivity and reduce attrition (which -as discussed in a previous Baker Stuart White Paper- can be a costly phenomenon. *Click here to read more*).

baker stuart

One possible way of mitigating the impacts of a noisy office is to displace the noise. This can take a number of forms, including providing informal meeting areas, breakout rooms and quiet zones. At Baker Stuart we have found time and time again through consultancy work, that one of the biggest gripes many employees have about their office is the noise. As such, we have seen first-hand how providing quiet areas such as quiet booths, phone-free desk areas or library-type spaces, can have a huge impact on staff morale and productivity. Additionally, providing workers with the ability to work from home occasionally allows them to get their heads down, undisturbed on an important task as well as showing a level of trust between employer and employee, which yields other positive benefits in itself.

Avoiding noise in an office can also be useful. Something as simple as not providing hands-free speakerphones in open plan offices can be very effective. Locating noisy teams away from quieter ones, encouraging people to collaborate in more appropriate locations and considering the personalities of staff when making a seating plan are all useful noise avoidance techniques. Managers can also reduce the noise distraction by considering desk size and density – high density environments generate more noise distraction. Educating staff and introducing office etiquette surrounding noise can also go a long way in mitigating the impact of noise [xxii] and a shift in culture can mean the difference between a successful noise policy and a failing one.

Conclusion

In conclusion, it seems that the solution to noise distraction is as much to do with guidance on behaviour and management of space as it is about the design and acoustics of properties. At Baker Stuart we have found that the provision of different types of space teamed with agile working can be the first step in mitigating the impacts of noise in an office. A multi-layered office design which is comprised of a multitude of work settings can dictate where noisy behaviour is appropriate; breakout spaces can allow people to blow off some steam and chat with their colleagues, meeting pods for impromptu one-to-one meetings can get these meetings away from desks and areas for quiet working (with a ban on mobile phones) provides staff with the space for heads down, concentrative work. Indeed, certain spaces have the power to dictate and influence the behaviour of the people in them. Libraries, for example, are still open plan spaces but typically have a very different ambiance in comparison to traditional working environments, where peace and quiet is expected and noise is not tolerated. This is due to the expected norms of behaviour in libraries. Reducing noise in the office is as much about achieving a change in culture as it is a change in work spaces. Teaming these two mediums together is the vector for achieving a real move towards an office that offers zones with different noise levels, allowing choice for the staff working within.

View and download our other white papers here

baker
stuart

Image: PhotoPro1/Bigstock.com

_____

[i] Harford, G. 2009. Environmental motivators. New Zealand Apparel. 42(4), pp.27-27.

[ii] Oseland, N. 2015. Psychoacoustics Survey Resuts: Psychological Factors Affecting Noise and Distraction. [Online]. [Accessed 18 March 2016]. Available from: http://workplaceunlimited.com/Psychoacoustics%20Final%20Report.pdf

[iii] Treasure, J. 2012. Building in Sound: Biamp Systems White Paper. Beaverton, Oregon: Biamp Systems.

[iv] Perham, N., Banbury, S., and Jones, D. 2007. Do Realistic Reverberation Levels Reduce Auditory Distraction? Applied Cognitive Psychology, 21(7), pp. 839–847.

[v] Abbot, D. 2004. Calming the office cacophony. The Safety and Health Practitioner, 22(1), pp. 34– 36.

[vi] Jensen, K., Arens, E., and Zagreus, L. 2005 Acoustical quality in office workstations, as assessed by occupant surveys. Proceedings of Indoor Air. Indoor air 2005, proceedings of 10th international conference on indoor air quality and climate. 2(2), pp. 2401–2405.

[vii] Dhanik, T. 2015. 5 Design strategies that will make employees happier. [Online]. [Accessed 11 March 2016]. Available from: http://www.fastcompany.com/3045981/work-smart/5-office-design-strategies-that-will-make-employees-happier

[viii] Baker Stuart Ltd. 2016. [Online]. [Accessed 14 March 2016]. Available from: http://bakerstuart.com/how-much-are-you-paying-for-empty-space/

[ix] Marino, H. 2014. How much is the noise in your open office costing you? [Online]. [Accessed 18 March 2016]. Available from: http://www.entrepreneur.com/article/234922

[x] Harford, G. Environmental motivators. 2009. 42(4) pp. 27-27

[xi] Oseland, N. 2015. Psychoacoustics Survey Resuts: Psychological Factors Affecting Noise and Distraction. [Online]. [Accessed 18 March 2016]. Available from: http://workplaceunlimited.com/Psychoacoustics%20Final%20Report.pdf

[xii] Evans, G. and Johnson, D. 2000. Stress and Open-Office Noise. Journal of Applied Psychology. 85(5), pp. 779-783

[xiii] Mak, C. and Lui, Y. 2012. Building Services Engineering Research & Technology. 33(3), pp. 339-345

[xiv] Evans, G. and Johnson, D. As above.

[xv] Oseland, N. As above.

[xvi] Weinstein, N. 1978. Individual differences in reactions to noise: A longitudinal study in a college dormitory. Journal of Applied Psychology. 63(4), pp. 458–466.

baker
stuart

xvii Oseland, N. As above.

xviii Oseland, N. As above.

xix Williams, W. 2005. Noise exposure levels from personal stereo use. International Journal of Audiology. 44(4), pp. 231–236

xx Paton, N. 2014. Headphones trigger hearing loss. Occupational Health. 66(7) pp. 6

xxi Marino, D. As Above.

xxii Oseland, N. As above.

follow   visit us   add