

ADHD + THE BUILT ENVIRONMENT



#ADHD

How the built environment can provide a positive supportive experience.

EXPERIENCING ADHD

"When one can control one's environment, the adverse effects of stressors are diminished."

– Evans & Stecker, 2004, as cited in Veitch, 2011

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"The Working Brain" initiative is exploring workplace design through a sensory lens. The purpose of this article is to identify workplace design interventions relating to the ADHD sensory experience and to establish a background understanding for further research considerations and testing.

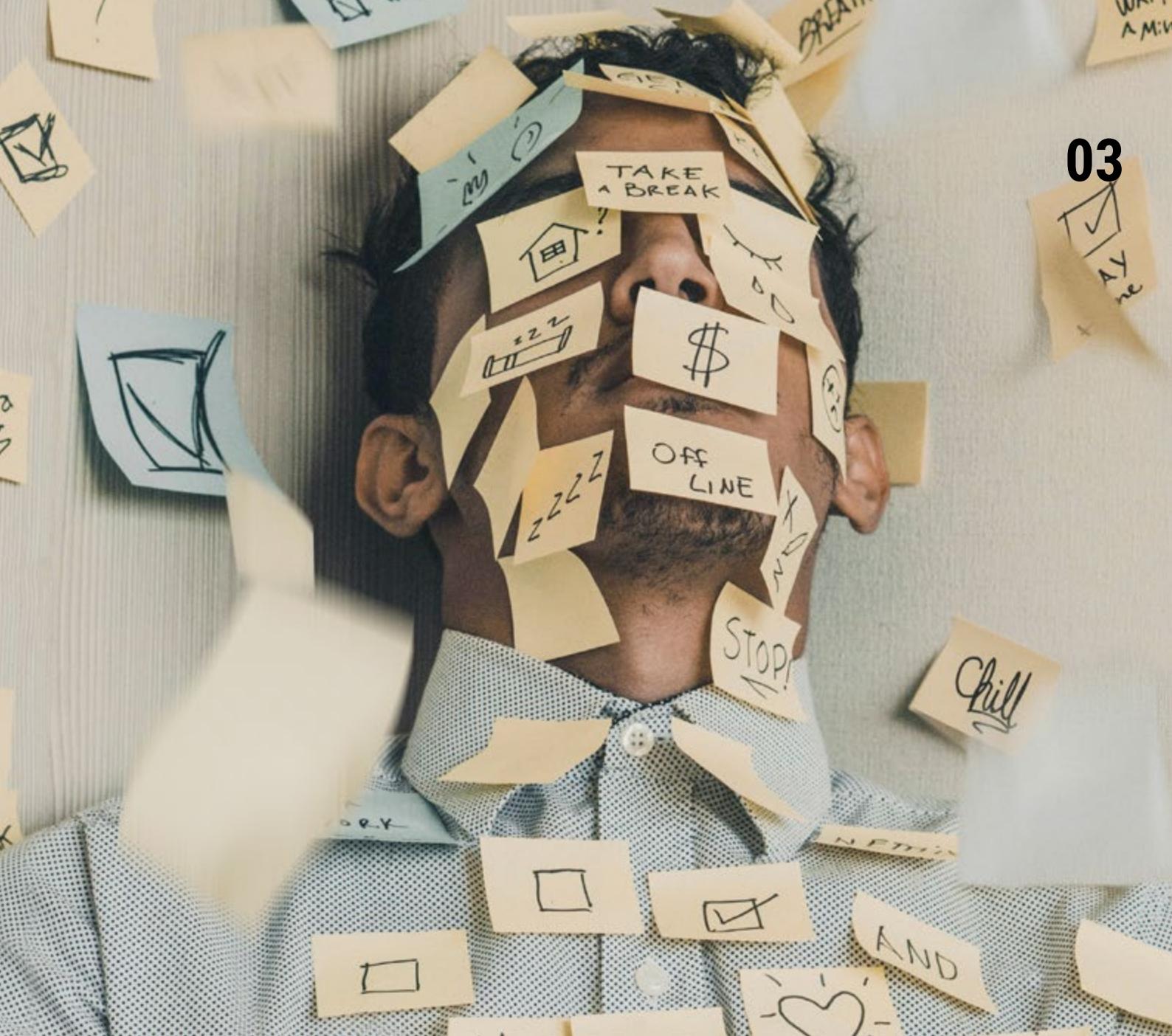
How sensitive are we to our physical workplace environment? To truly appreciate this, we hope to explore what a person with ADHD experiences from external sensory stimulus in workplace settings.

It is acknowledged that there is great variance in experience for individuals within the neurodiverse cohort and that sensory experiences can be impacted by many factors and be task related.

The following will reference terminology as defined in "The Working Brain" Issue 1 (Duric, 2019)—relating to sensory processing patterns as experienced through sight, smell, taste, hearing, touch, vestibular function and proprioception as applicable—to better understand the impact of how and what environments can stimulate over-responsive (hypersensitive) or under-responsive (hyposensitive) experiences.

There has been much research devoted to ADHD and to the ADHD profile. As a result, recommendations have been published around workplace accommodation strategies. However, most of these strategies are guidelines for employers to manage employees with ADHD and how employees with

It's like having a 100 tabs open in my head.



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ADHD can implement organisational techniques to better improve productivity. Beyond this management approach, this report hopes to establish and explore what workplace settings may trigger sensory sensitivity and how to design so that a person with ADHD may positively experience their workplace environment for success.

UNDERSTANDING

Common to most people in the neurodivergent spectrum, people with ADHD vary in their sensory sensitivity and experience. As one of the most researched neurobiological developmental disorders in the world, continuing studies propose a shift in perception. An article by William Dodson, M.D (Secret of the ADHD Brain, 2019) suggests a common thread amongst people with ADHD:

"....it is the ADHD nervous system, a unique and special creation that regulates attention and emotions

"The hallmark of the ADHD nervous system is not attention deficit, but inconsistent attention."

– William Dodson, 2019

in different ways than the nervous system in those without the condition... Almost every one of my patients and their families want to drop the term "attention deficit hyperactivity disorder" because it describes the opposite of what they experience every moment of their lives. It is hard to call something a disorder when it imparts many positives. ADHD is not a damaged or defective nervous system. It is a nervous system that works well using its own set of rules..."

ADHD processing comes with positive attributes. People with an ADHD nervous system are capable of

Expressing Emotions



Perceptive



Strengths of Adults with ADHD



Innovative

Thinking Creatively



Hyperfocussed

intense focus, multitasking and can have higher than average IQs, but can and often do struggle in educational and workplace environments. They can also have a strong sense of empathy and can contribute creative and emotional thought. The above article suggests that what triggers and motivates a person with ADHD is perhaps not aligned with conventional learning and workplace practices.

To a person with ADHD commonly the motivational triggers are connected to internal drivers rather than external incentives. Even with a predisposition to be driven internally, external coercion from environmental sensory stimulus can still be an influence on comfort and well-being.

For people with ADHD, it is well documented that boredom is a common complaint. As are the challenges of engaging the internal drivers that provide stimulation and motivation and the challenges of being sensitive to distraction and over-stimulation. These experiences result in personal frustration that manifests from the difficulty of self-regulation and unrealised potential. Energy levels can peak from high to extremely low.

Task engagement in learning and workplace deliverables for a person with ADHD enable when the task/stimulus/drivers are inclined, and the result can be intense focus, broad focus, or limited focus. It is this inconsistency that can be challenging.

As most educational and workplace environments are populated by a broad spectrum of individuals, we hypothesize sensory environmental design requires flexibility and adaptation. It needs to be self-curating and diverse to be inclusive, comfortable, and nurturing. A baseline

Mental health issues are diverse, design interventions that work for one condition might be inappropriate for another.

approach is creating an environment that is geared to reducing and eliminating external stressors from workplace settings.

RECOGNITION IN THE WORKPLACE

Research indicates that with a rise in ADHD diagnosis, workforce management has triggered the need for employers to better understand neurodiversity within the population regardless of their employment strategy. This research includes attempts to profile a person with ADHD.

The aim of this profiling is intended to assist employers in helping employees with ADHD to succeed within a neurotypical workplace system. It encourages social support and awareness. This stems from a need to minimise risk and maximise profitability and production.

Whilst minimising risk, maximising production and profitability are all important, our interests in design through a sensory lens hope to tap into a more holistic experience of success, inclusiveness, and dignity to a broader spectrum. The perspective of this study is to understand sensory processing profiles rather than neurodivergent profiles.

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SENSORY PROFILES

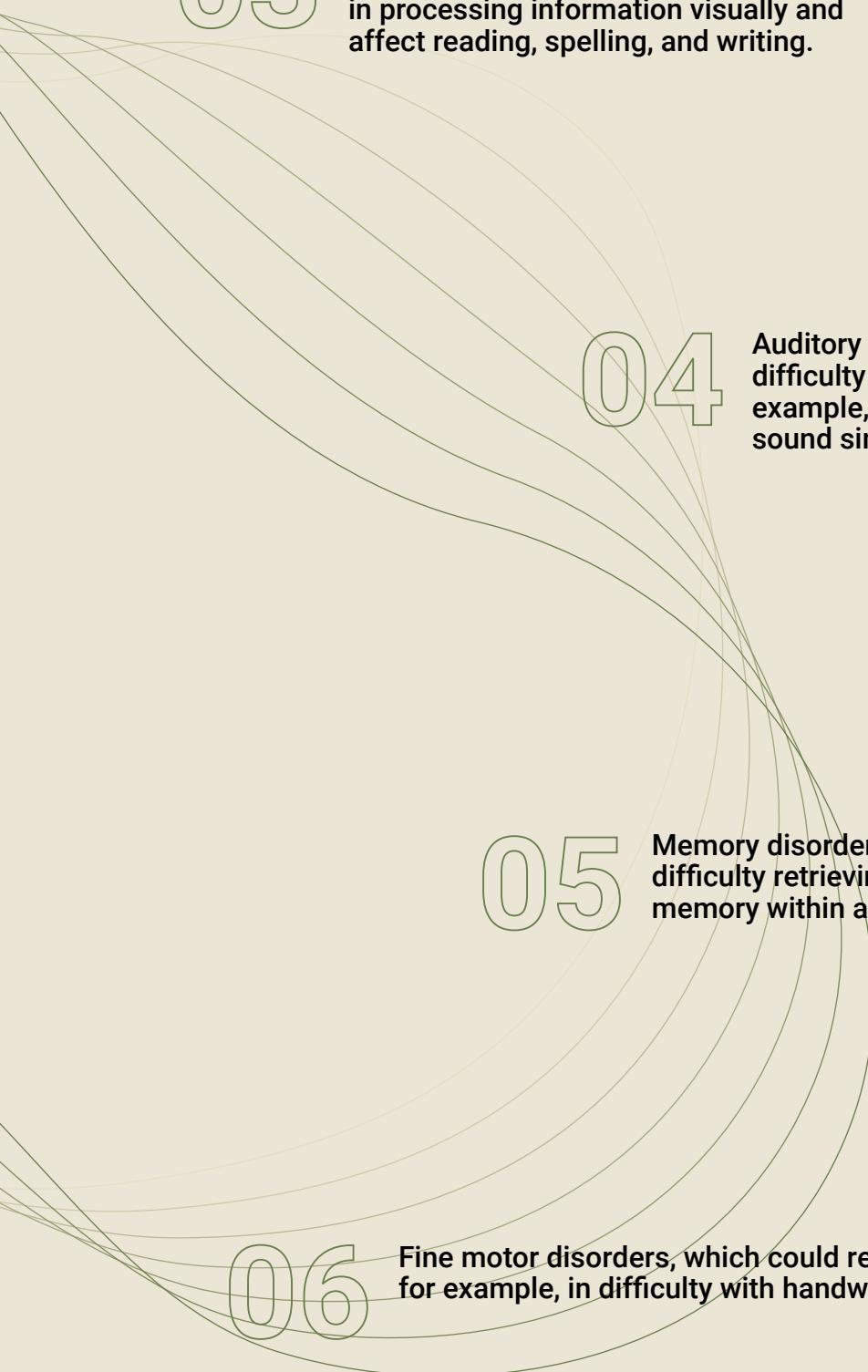
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Sequencing disorder, which may result in problems with prioritizing, organizing, doing mathematics, and following instructions.

Latham & Latham (2007)⁸ propose six sensory processing profiles which we use as the types of variance in a typical workplace.

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Language disorders, such as difficulty with receptive or expressive language.



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Visual perceptual and visual motor disorders, which may cause difficulty in processing information visually and affect reading, spelling, and writing.

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Auditory disorders, which may cause difficulty with processing sounds, for example, distinguishing words that sound similar.

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Memory disorder, which includes difficulty retrieving information from memory within a reasonable period.

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Fine motor disorders, which could result, for example, in difficulty with handwriting.



SENSORY EXPERIENCE IN THE BUILT ENVIRONMENT

Issue 1 by Sonja Duric concludes: "... as designers we should consider at least two modes within our built environment: (1) a high stimulation mode and (2) a low stimulation mode. There are other variables within each of these modes which may be considered. They each come with SENSORY DESIGN INTERVENTIONS (SDIs).

A study by Brill, Weiderman and BOSTI Associates (2001) surmises that there is great knowledge and social contribution to be untapped outside the restraint of neurotypical learning and workplace processes.

Understanding of the motivators of an ADHD mind suggest that the common preconception of disorganisation, lack of motivation and laziness is often associated with ADHD, but rather it is a result of different internal sensory processing. It is not a deficiency but a different mode of operation.

Littman (Attitude, 2019) suggest that a person with ADHD is internally driven to scan for stimulation that activates dopamine induction, and they can have trouble in registering external demand priority. Within the parameters of a high stimulation mode and a low stimulation mode environment, a high stimulation mode could be overwhelming or creatively stimulating, and a low stimulation mode could have less distraction to enable focus or could be unbearably boring and unmotivating. Dependant on the task perhaps environmental choice and

self-curation could assist in sensory comfort for self-regulation. At the least being able to avoid uncomfortable environments should be an option.

A narrowly defined system of learning and working is at risk of missing potential. Whilst there are many variations of neurodiversity in our population, opening different paths of learning and working is the start of an inclusive culture.

Awareness and understanding of what a sensory obstacle could be and how this can impact on task challenges has great potential to be a catalyst in inclusiveness and the potential to shift our cultural acceptance of normal. Workplace and learning environments need to offer diversity.

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"Preliminary studies in children and adults with Attention Deficit Hyperactivity Disorder (ADHD) report both hypo-responsiveness and hyper-responsiveness to sensory stimuli, as well as problems modulating sensory input. As it has been suggested that those with ADHD exist at the extreme end of a continuum..."

– Panagiotidi, M, Overton, PG, Stafford, T (2018)

SENSORY EXPERIENCE AND A HOLISTIC VIEW

Strategies around ADHD within the workplace mostly provide guides and tools aimed at supporting the ability to maintain focus and suggest avoidance of distraction.

The nature of the recommendation is geared towards isolation. Enclosed offices, high workstation screens, located away from traffic zones and access to nature views can improve performance on focused tasks.

The logic of such an approach could be applied to most high focus tasks, however most job roles include a variety of workplace tasks. Current

thinking on the agile workplace recognises that a variety of task-oriented spaces should be considered for maximum performance. To encourage movement, collaboration and privacy, varied workplace settings are intended to enable choice and personal preference. The additional consideration of wellness design principles would positively impact on the success of such spaces for an all-inclusive approach of comfort and wellbeing.

Sensory design should consider how environments can lead to individuals being over-responsive (hypersensitive) or under-responsive (hyposensitive). What is not clearly understood is the impact of sensory design on a broader range of the ADHD experience.

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Calm, focussed spaced

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Connected and visually creative



Design interventions

The following considerations are suggested for further studies in design interventions that relate to the sensory comfort and mental wellbeing of a person with ADHD.

1. To support a distracted mind—calm quiet places and focus spaces can enhance task concentration and support focused thought. Acoustic treatment and visual barriers are key to minimising distractions in open plan environments.
2. To support a disengaged mind—how does a low stimulus setting and being segregated impact on boredom, provide incentive and inspire creativity which is at the heart of innovation?

Disengagement could trigger loneliness and boredom and impact on time management. Would a more connected and visually creative space be more motivating in some instances?

3. In times of mental overstimulation—design interventions such as quiet spaces with a natural view for meditation give opportunities for the therapeutic benefits of mindfulness distraction. Massage chairs and wellness rooms enable time out zones.
4. Associated with recovery from stressful experiences is the access to experience a window with a view. "This might be of particularly beneficial for Individuals with ADHD. Experimental investigations

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Meditative and therapeutic



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Nature or biophilic space

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in healthy adults have shown that exposure to nature, both by walking in it and by viewing pictures, can improve performance on directed-attention tasks." (Veitch, 2011, p.3). Also of interest is the impact of Biophilic design in general and when external views are not possible.

5. In instances of physical overstimulation—design interventions such as playful interaction areas, time out areas for stretching, ping pong tables or exercise bikes zones could provide outlets for adrenalin rushes.
6. People with ADHD can often experience poor time management because of distraction from a scattered focus, and an inability to prioritise. Whether an individual is more prone to going off on a tangent when they are isolated or if distracted by a busy environment is different for individuals and tasks. Workplaces that offer quiet booths, group desking, lounge work zones, stand up tables, create a variety choice.
7. Restlessness, fidgeting and the need for constant movement is a common state for a person with ADHD, often not intentional or conscious, such behaviours can be irritating to others. Use of fidget and stress relief objects have been adopted by many. Workplace support can be enhanced by sit to stand desks, fit-balls and balance chairs enabling posture and movement options, hydration, recycling and copying hubs to encourage movement with intention.
8. ADHD behaviour often leads to an unbalanced view and a focus
9. The study of personal space by environmental psychologists through concepts such as territoriality, crowding and privacy advise that for all people, workplace choices are fundamental to the occupants' experience. Establishing personal space and comfort and the ability to self-regulate social interactions greatly impact on mental wellbeing (Veitch, 2011, p.2). This relates to a space and workplace culture that respects individual preferences for social interaction and is mindful to personal spatial needs of individuals e.g. spaces that clearly message the need for privacy such as designated focus zones, phone booths; and spaces that allow for choice in social interactions such as zoned collaborative areas, spaces that expand to accommodate larger groups, considered meeting space sized to facilitate smaller meetings, comfortable circulation around work points and transitional areas.
10. Sensory sensitivity to sight, smell, taste, hearing, touch, vestibular and

on failures. Frustration and low self-esteem from not achieving full potential are common experiences. Would a more inclusive and understanding social environment support encouragement and acknowledgment of achievements, enable shared knowledge and platforms to find support connections to foster empathy?

Environments that encourage spontaneous connection are spaces such as collaborative work zones, social corridors and staircases, friendly casual breakout spaces, common support facility areas for printing, hydration points, and recycling areas.

05**Playful, interactive areas****06****Variety of workplace settings****07****Design that encourages movement with intention****05****05****13****06****07**

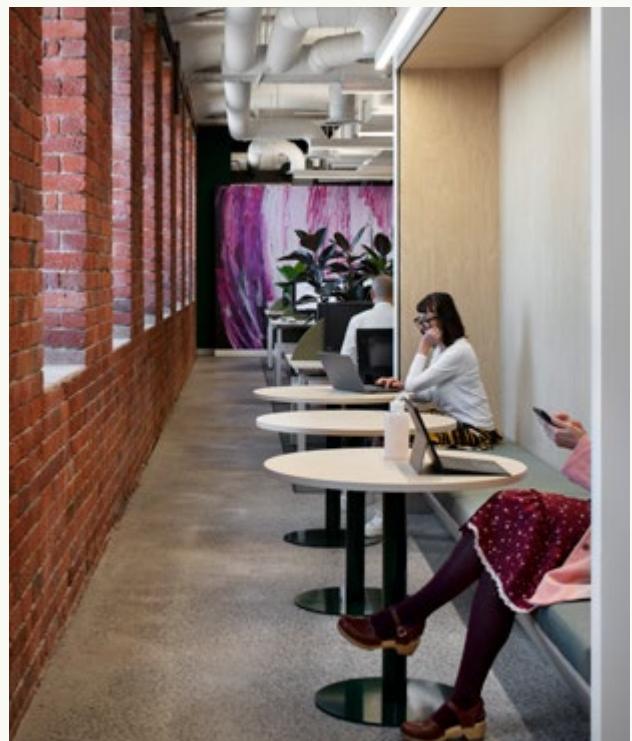
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Spontaneous connection

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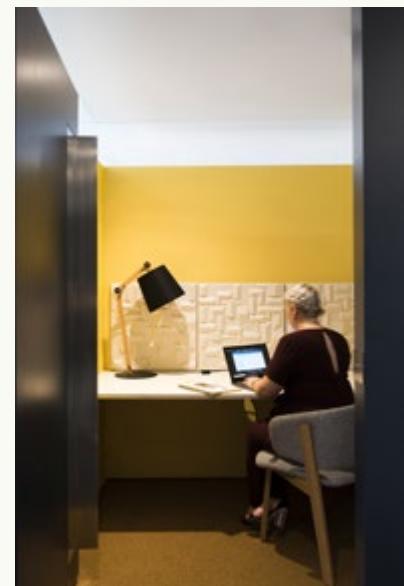
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Privacy and social control

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Environmental sensory control

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Hygiene and safety



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proprioception can universally vary. Poor environmental conditions can induce stress and physical discomfort. Individual control of lighting, fresh air, temperature, acoustics should be considered. Areas of dimmable lighting, additional desk lighting, fresh air spaces, zones with temperature control settings etc allow for personal preferences.

11. Of high priority to most working environments in our current pandemic experiences are the heightened concerns regarding safety and hygiene. The stressors associated with this are attributing to a rise in mental health issues. Sanitising zones, touchless controls, distanced work settings and technology enabling remote working, can provide options to respond to varying health circumstances.

12. Investing in considered colour palettes, textures, materials and forms, quality of lighting, air quality, thermal comfort, encouraging

healthy choices that support wellness and comfort for all regardless of their neurotypical profile, is a good design principle. Basic principles in Wellness design and Biophilia design greatly support human comfort.

Achieving inclusion in workplace is supported by providing a variety of settings that allow self-curation and evolution while being teamed with an enabling culture of permissions and social awareness.

Brill, Weidemann & Associates (2001) say, "good working conditions enable employees to work effectively.

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Investments in the physical workplace that create those conditions pay back quickly; salaries and benefits are ~80% of the cost of operating a building during its lifetime, whereas construction, furnishings, maintenance and operation total ~10%". Whilst Veitch (2011, p.5) suggests designing the workplace according to the empirical literature on workplace design is to the benefit of all employees, not just those with mental health problems. Using this design sensibility to tailor the workplace design to individual needs of all kinds will have an added benefit for individuals and society, in that stigma will disappear. No one is stigmatized when everyone's individual needs are, so far as possible, considered in the design, assignment, and operation of the workplace.

Many progressive workplaces are documenting the sustainable benefits of employee investment, redundancy minimisation and costs of workplace retraining, maintaining company collateral, maximising innovation, and creativity.

As workplace designers our methodology includes a strong briefing and client engagement process, exploring industry benchmarking then testing findings to help further our understanding of outcomes. Our study in design through a sensory lens endeavours to test workplace comfort in relation to task requirement and sensory profile.



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Human centric designs



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DISCUSSION

There is no one-size-fits-all solution.

The aim of the article is to identify various sensory design interventions to be considered as influences on sensory experiences for a person with ADHD. Research suggests a workplace and learning environment that offers awareness of individual complexities, diversity, choice, and control provides for a more supportive and inclusive environment.

Understanding variable sensory profiles extends our knowledge as designers to further test and research positive design impacts on an individual's comfort to achieve success.

We welcome further comment to expand our research considerations in relation to the ADHD experience in the workplace.

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IMPRINT

The author of this article, Suzi Wedd, is a part of a group of designers researching Neurodiversity and Mental Health in the built environment. You can follow their progress at:

theworkingbrain.net

Due to a lack of data on designing for the neurodivergent person, the research team will test SENSORY DESIGN INTERVENTIONS across a range of design projects. In context of Sensory Processing Disorder, the team will establish people's sensory profiles (using an Occupational Therapist Measuring Tool) and then research the comfort factors of various built environments which have been designed with SENSORY DESIGN INTERVENTIONS. The results of this research will be available in near future.

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