



THE PSYCHOLOGY OF LEASURE SPACES IN CORPORATE OFFICE:

ENHANCING EMPLOYEE WELL-BEING AND PRODUCTIVITY THROUGH ARCHITECTURAL INTERVENTIONS

BY- Dhruvi Khadayta, AR. Naman Shrotriya

Student; Architect

SOA, IPS Academy, Indore

Abstract : The literature review establishes the foundation by examining existing research on workplace psychology, emphasizing the role of leisure spaces in fostering a conducive and satisfying work environment. Drawing on theories from environmental psychology, place attachment, and stress reduction, the paper establishes a theoretical framework to guide the subsequent analysis.

Architectural interventions take center stage, with a focus on biophilic design, flexible workspaces, natural light, and restorative elements. These interventions are explored not only for their aesthetic value but also for their potential to positively influence employee well-being and productivity.

The paper concludes by offering practical recommendations for architects, designers, and organizational leaders to implement effective leisure space designs. It emphasizes the importance of tailoring these spaces to diverse workforces, ensuring long-term sustainability, and advocating collaboration with occupational psychologists for a holistic approach to workplace design.

In summary, this research paper serves as a comprehensive guide for those seeking to understand and implement architectural interventions in corporate leisure spaces, bridging the gap between theoretical understanding and practical applications to create work environments that prioritize employee well-being and elevate organizational productivity.

IndexTerms - Psychology of leisure spaces, corporate office environments, Employee well-being, Productivity, Architectural interventions, Theoretical framework.

I. INTRODUCTION

Defining Leisure Spaces in Corporate Offices

Defining leisure spaces in corporate offices involves creating designated areas within the workplace environment that prioritize relaxation, socialization, and rejuvenation for employees. These spaces depart from traditional work areas and serve as hubs for informal interaction and personal well-being. Leisure spaces are characterized by their emphasis on comfort, flexibility, and employee choice, offering a range of amenities and activities to cater to diverse needs and preferences.

Leisure spaces are designed to provide employees with opportunities to unwind, recharge, and foster connections with colleagues outside of formal work settings. They may include features such as comfortable seating arrangements, recreational activities, and access to natural light and greenery. These elements are strategically incorporated to promote relaxation, reduce stress, and enhance overall job satisfaction.

In addition to promoting individual well-being, leisure spaces also play a crucial role in fostering a sense of community and belonging within the workplace. By creating environments that encourage social interaction and collaboration, organizations can strengthen employee relationships, improve team dynamics, and enhance organizational culture.

The design of leisure spaces in corporate offices is informed by principles from environmental psychology, biophilic design, and workplace ergonomics. These principles emphasize the importance of considering psychological factors, such as mood, cognition, and behaviour, in shaping the built environment to support employee well-being and performance.

Ultimately, defining leisure spaces in corporate offices involves recognizing the value of providing employees with environments that go beyond mere functionality to prioritize their holistic needs and experiences. By creating spaces that promote relaxation, socialization, and personal fulfilment, organizations can cultivate a positive work environment that contributes to employee engagement, productivity, and overall organizational success.

Importance of Psychological Factors in Design:

The importance of psychological factors in design cannot be overstated, particularly in environments such as corporate offices where employees spend a significant portion of their time. Psychological factors play a crucial role in shaping the way individuals

perceive, interact with, and are affected by their surroundings. In the context of design, understanding and incorporating these factors can profoundly influence the well-being, productivity, and satisfaction of occupants.

One of the primary reasons psychological factors are critical in design is their impact on human behaviour. The design of a space can influence how people feel, think, and behave within it. For example, factors such as lighting, colour, layout, and spatial organization can affect mood, cognition, and social interactions. By considering these factors, designers can create environments that promote positive emotions, foster creativity, and support various activities and tasks.

Moreover, psychological factors play a significant role in determining the level of comfort and satisfaction individuals experience in a space. Elements such as ergonomics, acoustics, and thermal comfort are essential considerations in design, as they directly affect occupants' physical well-being and overall satisfaction with their environment. For instance, poorly designed workstations or inadequate lighting can lead to discomfort, fatigue, and decreased productivity.

Furthermore, psychological factors influence individuals' sense of identity and belonging within a space. The design of a workplace can communicate organizational values, culture, and identity, shaping employees' perceptions of their workplace and their connection to the organization. By creating environments that reflect and reinforce organizational identity, designers can enhance employee engagement, loyalty, and commitment.

In addition, psychological factors are instrumental in addressing the diverse needs and preferences of occupants. People have varying personality traits, preferences, and sensory sensitivities that influence their responses to the built environment. Designers must consider these individual differences when creating spaces that are inclusive, accommodating, and supportive of diverse users. For example, providing a variety of work settings, from quiet retreats to collaborative areas, allows employees to choose environments that best suit their preferences and work styles.

Moreover, psychological factors are closely linked to issues of health and well-being in the built environment. Research has shown that factors such as access to natural light, views of nature, and opportunities for physical activity can have significant effects on mental and physical health outcomes. Designing spaces that promote wellness, stress reduction, and active lifestyles can contribute to improved employee health, satisfaction, and overall quality of life.

Furthermore, psychological factors play a crucial role in influencing decision-making and behaviour change. Design interventions that incorporate principles from behavioural psychology, such as choice architecture and nudging, can encourage desired behaviours and promote positive outcomes. For example, strategically placing healthy food options in accessible locations can encourage healthier eating habits among employees.

II. HISTORICAL OVERVIEW OF CORPORATE OFFICE DESIGN

Evolution of Workplace Environments:

The evolution of workplace environments has been a dynamic journey shaped by changing societal, technological, and organizational trends. Historically, workplaces were characterized by hierarchical structures and rigid, compartmentalized layouts, reflecting a top-down approach to management and a focus on individual productivity. However, as societal attitudes towards work, technology, and employee well-being have evolved, so too have workplace environments.

One significant shift in workplace design has been the move towards open-plan layouts and flexible workspaces. This transition, influenced by the rise of knowledge-based industries, collaborative work processes, and the advent of digital technologies, has transformed the physical layout of offices. Open-plan designs promote transparency, communication, and teamwork, fostering a culture of collaboration and innovation.

Another key trend in the evolution of workplace environments is the emphasis on employee well-being and satisfaction. Organizations have recognized the importance of creating environments that support physical health, mental well-being, and work-life balance. This has led to the incorporation of amenities such as wellness rooms, fitness centres, and ergonomic furniture, as well as initiatives promoting flexible work arrangements and remote work options.

Technological advancements have also played a pivotal role in shaping workplace environments. The proliferation of digital tools and communication technologies has enabled greater flexibility in where and how work is performed. Remote work, telecommuting, and virtual collaboration have become increasingly common, blurring the boundaries between traditional office spaces and remote workspaces.

Moreover, the evolution of workplace environments has been influenced by changing attitudes towards organizational culture and employee engagement. Companies are increasingly recognizing the importance of fostering a positive workplace culture that values transparency, diversity, inclusion, and employee empowerment. This has led to the creation of environments that prioritize employee experience, satisfaction, and well-being as key drivers of organizational success.

III. SHIFT TOWARDS EMPLOYEE WELL-BEING AND SATISFACTION

The shift towards prioritizing employee well-being and satisfaction represents a significant evolution in workplace culture and design. Historically, workplaces were primarily focused on maximizing productivity and efficiency, often at the expense of employee health and happiness. However, as organizations recognize the critical role of employee well-being in driving productivity, creativity, and organizational success, there has been a notable shift towards creating environments that support the holistic needs of employees.

This shift is driven by various factors, including research findings linking employee well-being to improved job performance, engagement, and retention. Studies have shown that employees who feel valued, supported, and satisfied with their work environment are more likely to be motivated, productive, and loyal to their organization.

Moreover, changing societal attitudes towards work-life balance, mental health, and personal fulfilment have contributed to the growing emphasis on employee well-being in the workplace. Employees today expect more than just a pay check from their jobs—they seek environments that promote physical health, mental well-being, and a sense of purpose and fulfilment.

Organizations are responding to these changing expectations by implementing initiatives and programs aimed at enhancing employee well-being and satisfaction. This may include offering flexible work arrangements, providing access to wellness programs and resources, promoting work-life balance, and creating supportive and inclusive workplace cultures.

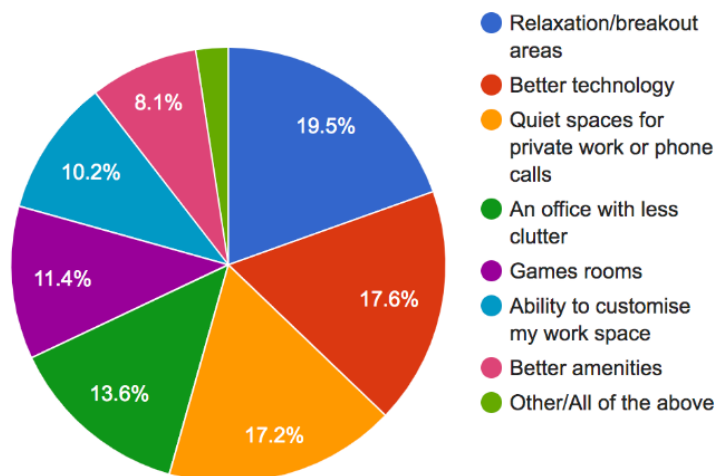
Furthermore, the COVID-19 pandemic has accelerated the focus on employee well-being, as organizations grapple with the challenges of remote work, social isolation, and heightened stress levels. The pandemic has underscored the importance of prioritizing mental health and resilience in the workplace and has prompted many organizations to reevaluate their approach to employee well-being.

Overall, the shift towards employee well-being and satisfaction reflects a broader recognition of the importance of human capital in driving organizational success. By investing in the well-being of their employees, organizations can foster a positive work environment, enhance employee engagement and retention, and ultimately achieve greater productivity, innovation, and long-term success.

IV. SHIFT TOWARDS EMPLOYEE WELL-BEING AND SATISFACTION

Impact of Environment on Employee Behaviour and Productivity

The environment in which employees work has a profound impact on their behaviour and productivity. Factors such as lighting, layout, noise levels, and temperature can significantly influence how employees feel and perform in their roles. A well-designed workspace that incorporates elements of comfort, flexibility, and aesthetics can foster a positive work atmosphere, encouraging motivation, focus, and creativity among employees. Conversely, environments that are poorly lit, noisy, or uncomfortable can lead to increased stress, distraction, and reduced productivity. Research has shown that access to natural light, ergonomic furniture, and greenery can enhance employee well-being and performance. Additionally, the layout of the workspace, including opportunities for collaboration and privacy, can affect communication, teamwork, and individual productivity. By prioritizing the creation of supportive and engaging work environments, organizations can maximize employee satisfaction, retention, and overall organizational success.



V. DESIGN PRINCIPLES FOR LEISURE SPACES

Incorporating Biophilic Design Elements

Incorporating biophilic design elements involves integrating natural elements and patterns into the built environment to create spaces that promote human health, well-being, and productivity. Biophilic design principles draw inspiration from nature and seek to establish a connection between people and their surroundings. Here's how biophilic design elements can be incorporated into corporate office spaces:

- **Natural Light:** Maximizing access to natural light is one of the foundational principles of biophilic design. Designers can achieve this by incorporating large windows, skylights, and glass partitions to bring daylight deep into the workspace. Natural light not only reduces the reliance on artificial lighting but also helps regulate circadian rhythms, improve mood, and enhance visual comfort.
- **Indoor Plants:** Integrating indoor plants into the office environment can have numerous benefits for employees. Plants not only improve air quality by filtering pollutants and increasing oxygen levels but also contribute to stress reduction, productivity enhancement, and overall well-being. Designers can incorporate plants through living walls, potted plants, or greenery strategically placed throughout the workspace.
- **Biophilic Materials:** Using natural materials such as wood, stone, and bamboo in interior finishes and furnishings can evoke a sense of connection to nature. Biophilic materials add warmth, texture, and visual interest to the space while promoting sustainability and environmental responsibility. Incorporating elements such as exposed wood beams, stone accent walls, or cork flooring can create a biophilic aesthetic.
- **Views of Nature:** Providing views of nature, such as landscapes, greenery, or water features, can have a restorative effect on employees' well-being and performance. Designers can strategically position workstations and communal areas to

capitalize on outdoor views, whether through large windows or outdoor terraces. Access to natural views can reduce stress, increase attention restoration, and promote a sense of tranquillity.

- **Natural Patterns and Textures:** Incorporating natural patterns and textures into interior design elements, such as carpets, wallpapers, or artwork, can evoke the sensory experience of being in nature. Designers can use organic shapes, fractal patterns, or biomimetic designs to create visual interest and promote a sense of harmony and balance in the workspace.
- **Water Features:** Introducing water features, such as fountains, ponds, or indoor waterfalls, can evoke the calming and soothing effects of natural water sources. Water features add a dynamic element to the environment, creating auditory and visual stimuli that enhance relaxation and stress reduction.

Utilizing Colour Psychology and Lighting Effects

Utilizing colour psychology and lighting effects in corporate office design involves strategically selecting colours and lighting schemes to create environments that influence mood, behaviour, and productivity. Here's how colour psychology and lighting effects can be effectively incorporated into workplace design:

Colour Psychology:

- **Warm Colours:** Warm colours such as red, orange, and yellow are associated with energy, vitality, and warmth. These colours can stimulate creativity, promote enthusiasm, and increase alertness. However, excessive use of warm colours may lead to feelings of agitation or intensity, so they are often used as accent colours or in moderation.
- **Cool Colours:** Cool colours such as blue, green, and purple are calming and soothing. They evoke feelings of tranquillity, relaxation, and focus. Cool colours are commonly used in workspaces to create a sense of calmness and enhance concentration. Blue, in particular, is known to stimulate productivity and is often used in offices where tasks require high levels of concentration.
- **Neutral Colours:** Neutral colours such as white, grey, and beige provide a sense of balance and neutrality. They serve as a backdrop for other colours and can help create a clean, modern aesthetic. Neutral colours are often used for walls, floors, and furniture in corporate offices to create a timeless and professional environment.

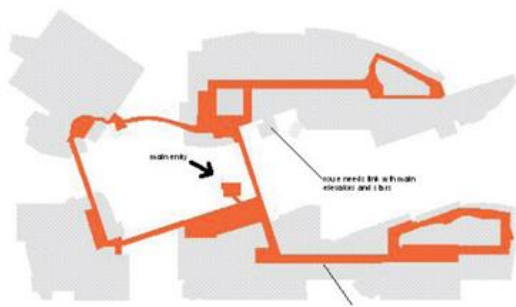
Lighting Effects:

- **Natural Light:** Maximizing access to natural light is essential for creating a healthy and stimulating work environment. Natural light provides numerous benefits, including boosting mood, regulating circadian rhythms, and reducing eyestrain. Designers can incorporate large windows, skylights, and light wells to bring daylight into the workspace and minimize the reliance on artificial lighting.
- **Artificial Lighting:** Artificial lighting plays a crucial role in supplementing natural light and providing illumination in areas with limited access to daylight. Designers can use a combination of ambient, task, and accent lighting to create layers of light that enhance visibility and visual comfort. LED lighting fixtures with adjustable brightness and colour temperature allow for flexibility in creating different atmospheres throughout the day.
- **Dynamic Lighting:** Dynamic lighting systems that mimic the natural progression of daylight can have a significant impact on employee well-being and productivity. Tenable LED lighting systems can adjust colour temperature and intensity throughout the day to simulate the changing qualities of natural light. This helps regulate circadian rhythms, improve alertness, and promote better sleep patterns among employees.

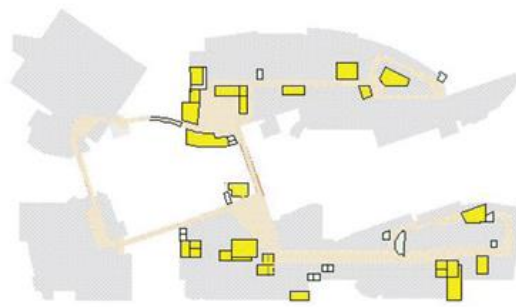
VI. CASE STUDIES

GOOGLEPLEX (GOOGLE HEADQUARTERS), MOUNTAIN VIEW, CALIFORNIA:

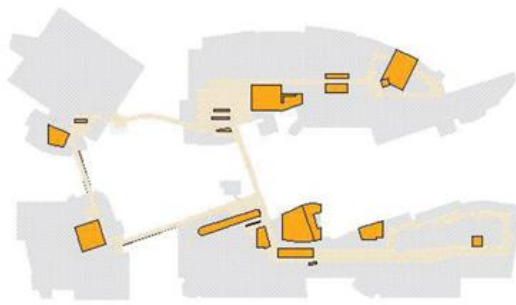
- **Description:** Google's headquarters, known as the Googleplex, is renowned for its innovative and employee-centric design. The campus spans over 2 million square feet and features a variety of leisure spaces aimed at fostering creativity, collaboration, and employee well-being.
- **Leisure Spaces:** Googleplex boasts numerous leisure spaces, including micro-kitchens stocked with healthy snacks and beverages, colourful lounges with comfortable seating areas, outdoor recreational areas with volleyball courts and basketball hoops, and even on-site massage and wellness centres.
- **Impact:** These leisure spaces contribute to Google's renowned company culture, promoting employee satisfaction, engagement, and productivity. Employees have opportunities to socialize, relax, and recharge throughout the workday, fostering a sense of community and camaraderie among colleagues.
- **Innovation:** Googleplex exemplifies innovation in corporate office design by prioritizing employee well-being and creating environments that inspire creativity and collaboration. The integration of leisure spaces reflects Google's commitment to creating a supportive and inclusive workplace culture.



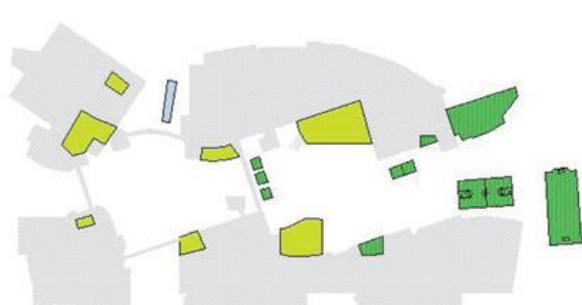
PRIMARY CIRCULATION



ENCLOSED MEETING SPACES



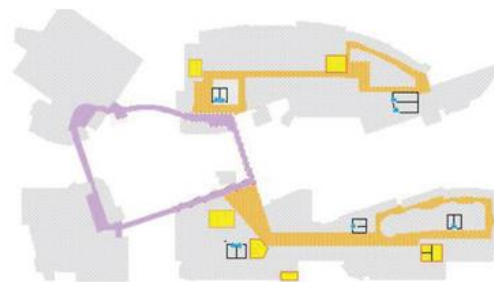
NETWORK LEARNING



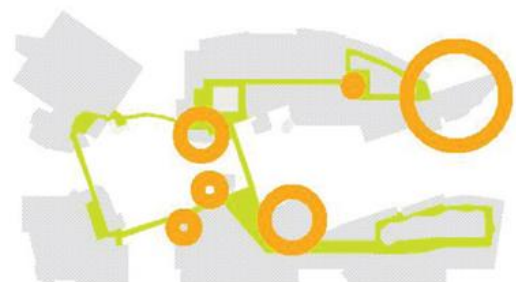
WORKLIFE BALANCE



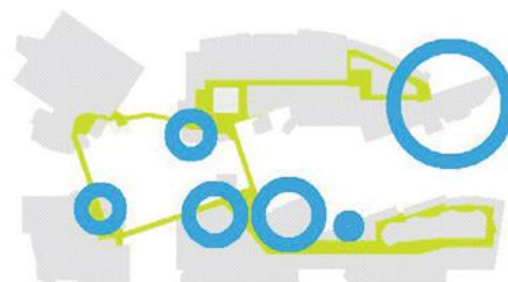
NOMADIC WORK ZONES



LIGHTING CONCEPT



TIME USED - EARLY MORNING



TIME USED - LATE EVENING

Airbnb Headquarters, San Francisco, California:

- **Description:** Airbnb's headquarters in San Francisco reflects the company's values of hospitality, creativity, and community. The office space, located in a historic building in the Soma district, embodies Airbnb's brand identity and culture.
- **Leisure Spaces:** Airbnb's headquarters feature a variety of leisure spaces designed to accommodate different work styles and activities. These include cozy lounge areas with comfortable seating, communal dining spaces where employees can gather for meals and socializing, and themed meeting rooms inspired by Airbnb listings from around the world.
- **Impact:** The leisure spaces at Airbnb headquarters contribute to a vibrant and dynamic work environment, fostering collaboration, innovation, and employee satisfaction. By providing spaces for relaxation, socialization, and informal meetings, Airbnb empowers employees to balance work and life effectively.
- **Community Engagement:** Airbnb's office design reflects its commitment to fostering a sense of community and belonging among employees. The company hosts regular events, workshops, and cultural activities that bring employees together and celebrate diversity, creativity, and collaboration.

Salesforce Tower, San Francisco, California:

- **Description:** Salesforce Tower is the headquarters of Salesforce, a leading cloud-based software company known for its customer-centric approach and commitment to employee success. The tower, located in the heart of San Francisco's Financial District, offers breathtaking views of the city skyline.
- **Leisure Spaces:** The Salesforce Tower features a range of leisure spaces designed to promote employee well-being, collaboration, and creativity. These include spacious lounges with panoramic views, wellness rooms for meditation and relaxation, and communal kitchens stocked with healthy snacks and beverages.
- **Impact:** The leisure spaces at Salesforce Tower contribute to a positive work environment where employees feel valued, supported, and inspired to perform their best. By prioritizing employee well-being and providing amenities that enhance work-life balance, Salesforce reinforces its commitment to employee success and satisfaction.
- **Sustainability:** Salesforce Tower is also designed with sustainability in mind, featuring energy-efficient systems, green building materials, and eco-friendly amenities. The company's commitment to environmental stewardship aligns with its core values of trust, customer success, innovation, and equality.

VII. CHALLENGES AND CONSIDERATIONS

Budget Constraints and Real Estate Limitations: Incorporating leisure spaces into corporate office design often presents challenges related to budget constraints and limitations in available real estate. Designing and furnishing these spaces can require significant investment, and organizations must balance the cost with the expected benefits in terms of employee satisfaction, retention, and productivity. Additionally, limited space within existing office layouts may necessitate creative solutions such as repurposing underutilized areas or optimizing multi-functional spaces to accommodate leisure activities.

Balancing Privacy and Collaboration Needs: Designing leisure spaces that strike a balance between privacy and collaboration is essential to meet the diverse needs of employees. While some individuals may prefer quiet, secluded areas for focused work or relaxation, others may seek opportunities for social interaction and informal networking. Achieving this balance requires careful consideration of spatial layout, furniture arrangement, and acoustic design to create zones that cater to different preferences and work styles without compromising overall functionality and comfort.

VIII. FUTURE DIRECTIONS AND TRENDS

Integration of Technology in Leisure Spaces: The integration of technology into leisure spaces represents a growing trend in corporate office design. Advancements in virtual reality, augmented reality, and interactive displays offer opportunities to enhance employee experiences and engagement within these spaces. For example, virtual relaxation environments, digital art installations, and gamified wellness programs can provide novel ways for employees to unwind, destress, and recharge during breaks.

Potential Impact of Remote Work on Office Design: The increasing prevalence of remote work arrangements has significant implications for the design of corporate office spaces, including leisure areas. As more employees have the flexibility to work from home or alternative locations, the role of the office as a hub for collaboration, socialization, and professional development may evolve. Designing flexible, adaptable environments that accommodate hybrid work models while fostering a sense of community and belonging will be essential to meet the changing needs and expectations of the workforce.

IX. CONCLUSION

In conclusion, the examination of the psychology of leisure spaces in corporate offices has revealed several key findings that underscore the importance of thoughtful design in promoting employee well-being, satisfaction, and productivity.

Firstly, incorporating leisure spaces into corporate office design plays a crucial role in meeting the diverse needs and preferences of employees. These spaces provide opportunities for relaxation, socialization, and personal rejuvenation, fostering a sense of balance and fulfillment in the workplace.

Secondly, psychological factors such as environmental psychology, biophilic design, and colour psychology significantly influence the design and effectiveness of leisure spaces. By integrating principles from these fields, designers can create environments that support cognitive function, emotional well-being, and social interaction among employees.

Thirdly, the evolution of workplace environments reflects broader societal trends towards prioritizing employee well-being and satisfaction. Organizations are increasingly recognizing the value of creating environments that promote health, happiness, and engagement among employees as a means of driving organizational success.

Implications for Future Architectural Design and Workplace Culture: Moving forward, the findings presented in this paper have significant implications for future architectural design practices and workplace culture. By prioritizing employee well-being and satisfaction in office design, organizations can create environments that support creativity, collaboration, and overall organizational success.

The integration of technology, flexible work arrangements, and sustainable design practices will continue to shape the evolution of workplace environments in response to changing workforce dynamics and societal expectations. Additionally, on-going research and innovation in the field of workplace design will be essential to adapt to emerging trends and ensure the continued relevance and effectiveness of leisure spaces in corporate offices.

Overall, the psychology of leisure spaces in corporate offices highlights the critical role of design in shaping the employee experience and organizational culture. By creating environments that prioritize employee well-being, satisfaction, and productivity, organizations can cultivate a positive workplace culture that fosters creativity, collaboration, and success.

Implications for Future Architectural Design and Workplace Culture

The implications for future architectural design and workplace culture based on the findings regarding the psychology of leisure spaces in corporate offices are profound and far-reaching. Here are some key implications:

- **Focus on Human-Centric Design:** Future architectural design will increasingly prioritize human-centric approaches, placing the well-being, comfort, and productivity of employees at the forefront. Designers will need to consider the diverse needs and preferences of occupants, creating environments that support various work styles, activities, and interactions.
- **Integration of Biophilic Design:** Biophilic design principles will become more prevalent in future architectural design, with a focus on incorporating natural elements and patterns into the built environment. Green spaces, natural light, and views of nature will be integrated into office spaces to promote health, well-being, and connection to the natural world.
- **Flexible and Agile Workspaces:** The future of architectural design will involve creating flexible and agile workspaces that can adapt to changing needs and preferences. Modular furniture, movable partitions, and adaptable layouts will allow for easy reconfiguration of spaces to accommodate different tasks, team sizes, and work modes.
- **Technology Integration:** Technology will play an increasingly integral role in future architectural design, facilitating communication, collaboration, and productivity in the workplace. Smart building systems, IoT devices, and virtual reality tools will be seamlessly integrated into office environments to enhance efficiency, connectivity, and user experience.
- **Promotion of Work-Life Balance:** Future architectural design will prioritize the promotion of work-life balance by creating environments that support employee health, wellness, and personal fulfilment. Leisure spaces, wellness amenities, and recreational facilities will be incorporated into office designs to encourage relaxation, socialization, and stress reduction.
- **Emphasis on Sustainability:** Sustainable design practices will continue to shape future architectural design, with an emphasis on minimizing environmental impact, conserving resources, and promoting occupant health and well-being. Green building certifications, energy-efficient technologies, and renewable materials will be standard features in office designs.
- **Cultural Transformation:** The integration of leisure spaces into corporate offices will contribute to a cultural transformation within organizations, fostering a more inclusive, collaborative, and supportive work environment. By prioritizing employee well-being and satisfaction, organizations can cultivate a positive workplace culture that attracts and retains top talent.

X. REFERENCE

Ackland, M., Choi, B.C.K. and Puska, P. (2003), "Rethinking the terms non communicable disease and chronic disease", *Journal of Epidemiology and Community Health*, Vol. 57 No. 11, pp. 838-839. Architects' Council of Europe (2014), "Architects' Council of Europe", available at: <https://www.ace-cae.eu> (accessed 13 September 2017). Arksey, H. and O'Malley, L. (2005), "Scoping studies: towards a methodological framework", *International journal of social research methodology*, Vol. 8 No. 1, pp.19-32. Ashton, J. (Ed.), (1992), *Healthy cities*, Milton Keynes, Open University Press. Auge, M. (2008), *Nonplaces: Introduction to an Anthropology of Supermodernity*, Verso, London. Barton, H. and Grant, M. (2006), "A health map for the local human habitat", *The Journal for the Royal Society for the Promotion of Health*, Vol. 126 No. 6, pp.252-253. Berman, M. G., Jonides, J., and Kaplan, S. (2008), "The cognitive benefits of interacting with nature", *Psychological Science*, Vol. 19, No. 12, pp. 1207-1212. Bloom, D.E., Cafiero, E.T., Jané-Llopis, E., Abrahams-Gessel, S., Bloom, L.R., Fathima, S., Feigl, A.B., Gaziano, T., Mowafi, M., Pandya, A. and Prettner, K. (2011), *The global economic burden of noncommunicable diseases*, Geneva, World Economic Forum. Bluysen, P. M. (2014), *The Healthy Indoor Environment: How to assess occupants' wellbeing in buildings*, Routledge, Oxon. Bokalders, V., and Block, M. (2010), *The Whole Building Handbook: How to Design Healthy, Efficient and Sustainable Buildings*, Earthscan, London. Bonell, C., Farah, J., Harden, A., Wells, H., Parry, W., Fletcher, A., Petticrew, M., Thomas, J., Whitehead, M., Campbell, R. and Murphy, S. (2013), "Systematic review of the effects of schools and school environment interventions on health: evidence mapping and synthesis", *Public Health Research*, Vol. 1, 1. Bratman, G. N., Hamilton, J. P. and Daily, G. C. (2012), "The impacts of nature experience on human cognitive function and mental health", *Annals of the New York Academy of Sciences*, Vol. 1249 No. 1, pp. 118-136. Brown, T.M., Cueto, M. and Fee, E. (2006), "The World Health Organization and the transition from 'international' to 'global' public health", *American journal of public health*, Vol. 96 No. 1, pp.62-72. Bukowski, C. (1982), *Ham on Rye*, Blacksparrow Press, Santa Rosa. Chappell, D. and Dunn, M.H. (2015), *The Architect in Practice*, John Wiley and Sons, West Sussex.

American Institute of Architects. (2018a). AIA's design and health initiative. Retrieved from <https://www.aia.org/pages/3461-aias-design-health-initiative>

American Institute of Architects. (2018b). Health, safety and welfare credits. Retrieved from <https://www.aia.org/pages/3281-health-safety-and-welfare-credits>

Klepeis, N. E., Nelson, W. C., Ott, W. R., Robinson, J. P., Tsang, A. M., Switzer, P., ...Engelmann, W. H. (2001). The National Human Activity Pattern Survey (NHAPS): A resource for assessing exposure to environmental pollutants. *Journal of Exposure Analysis and Environmental Epidemiology*, 11, 231-252. doi:10.1038/sj.jea.7500165 Tzivian, L. (2011). Outdoor air pollution and asthma in children. *Journal of Asthma*, 48, 470-481. doi.org/ 10.3109/02770903.2011.570407

Ulrich, R.S., Zimring, C., Zhu, X., DuBose, J., Seo, H. B., Choi, Y. S., ... Joseph, A. (2008). A review of the research literature on evidence-based healthcare design. *Health Environments Research & Design Journal*, 1, 61-125. doi:10.1177/193758670800100306

United Nations, Department of Economic and Social Affairs, Population Division. (2014). *World urbanization prospects: The 2014 revision, highlights (ST/ESA/SER.A/352)*. Retrieved from <https://esa.un.org/unpd/wup/Publications/Files/WUP2014-Highlights.pdf>

https://www.clivewilkinson.com/pdfs/CWACaseStudy_GoogleplexANewCampusCommunity.pdf

https://www.researchgate.net/publication/376166623_Leisure_spaces_within_work_environments_in_the_Performance_society

https://www.academia.edu/31079283/Psychological_effects_of_work_space_layout

extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.scielo.br/j/cm/a/DNvVPwH4sHbMFBgZpWmNyGC/?format=pdf&lang=en

https://www.researchgate.net/publication/27400198_Work_Leisure_and_Well-Being

<https://www.forbes.com/sites/alankohl/2019/01/24/how-your-office-space-impacts-employee-wellbeing/?sh=182c5f5a64f3>

<https://www.triplepundit.com/story/2014/psychology-space-smell-and-feel-your-workplace/46236>

<https://daleoffice.co.uk/space-relax-work-key-increased-productivity-1-5-office-workers/>

