Healthy Workspaces: Strategies for Increasing the Indoor Environmental Quality at Call Centre Interiors for Employee Wellbeing and Productivity

PhD.
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This study focuses on call centre interiors as a type of workspaces, where the employees spend a long time in the interior space communicating with customers on the phone. The aim is to provide theoretical information and practical application suggestions for higher quality design in call centre interiors.

Human civilization is going through hard times in the 21st century, searching for ways to protect its health and well-being while sustaining the global economic growth. Although economic growth is considered to bring high living standards for humans, its effect is not always equitable and balanced. Consequently, lifestyle diseases like asthma, Alzheimer's disease, or cancer have recently started to cause more premature deaths than communicable diseases [1]. Additionally, the effects of lifestyle diseases are not only about long term and physical, but also short term and psychological health. On the other hand, lifestyle diseases are different from other diseases because these are potentially preventable, and can be lowered with changes in diet, lifestyle, and environment [2]. One can assume that improving the wellness of the built environment can contribute to the prevention of lifestyle diseases.

The relationship between the built environment and the health of its inhabitants is irrefutable. However, architecture profession only recently started to seriously consider health and well-being issues as significant factors in design. Even though there were some considerations on the health of the built environment earlier, holistic, and systematic approach for healthy architecture emerged in the last decades. Nowadays there are studies focused on the effect of the built environment on health [3-5]. According to Rice, healthy architecture is not only about the absence of disease or infirmity, but also about a state of complete physical, mental and social well-being [6]. Desmet

and Pohlmeyer approach the problem from the Positive Design perspective, highlighting its characteristics like possibility-driven, balanced, personal fit, and requirements such as active user involvement, and to be effective in long-term [7].

The contribution of architecture on the health of the built environment can be seen in different building types, and through different design strategies. This paper presents a study about architectural design's contribution in healthy workspaces, focusing on strategies for well-designed call centre interiors.

Healthy built environment

Architecture, as the profession responsible for the design of all built environment, recently started to be aware of its responsibility for creating healthy environments. Even though creating firm and resilient structures for user safety and differentiating spaces according to sanitation requirements and following work safety regulations or fire codes are important contributions, architecture's role in creating healthy built environments is not limited with these. From its location within the urban environment to the ergonomic quality of the users, architectural design has important roles and responsibilities for the creation of healthy environments. For this purpose, various strategies can be developed and implemented into different building types such as residential, public, cultural, and commercial ones. Some of the strategies can be implemented into any building type, as some others are only applicable to certain functions. The strategies for healthy built environment can also be gath-

ered according to the scale of the design; namely urban, building, and interior domains. Following subchapters summarize the strategies for creating healthy environments in different design domains.

Urban domain

Urban domain of healthy built environment goes hand in hand with the idea of healthy cities. WHO states that the way neighbourhoods and streets are built and designed, the way cities are planned and expanded, how effectively transport provides opportunities for easy and active mobility, are all aspects of healthy urban planning and design that can make a significant difference to the health of individuals and communities [8]. These aspects of healthy urban planning are provided through various strategies such as increasing the density of green areas in urban settlements, ensuring that walking and cycling to be the main transportation option in settlements, controlling the expansion of the urban settlements to balance the population density, and providing sufficient and sustainable infrastructure in the cities. The decisions that contribute to the health of the built environment in urban domain also provides a framework for the approaches in building domain.

Building domain

Healthy built environments in building domain have a strong relationship with the urban. The health of the building is determined in the first place by the location selection within the urban setting. Buildings in suitable, green and scarcely populated sec-

tions of the urban settlement are advantageous in terms of healthy architecture as the ones in a tight setting with dense population have to deal with more problems in the first phases of design. Regarding further strategies of architecture to provide healthy environments in building scale, various research have been conducted [9-11]. These strategies mostly match with the principles of sustainable and energy efficient design. Therefore, it is possible to state that healthy built environments also contribute to sustainability issues. Bokalders and Block state that sustainable planning and building requires a holistic perspective based on a comprehensive and integrated approach, and an understanding of the different parts including healthy design principles are important for the whole [12]. Among the strategies for creating healthy environments in building scale are; open space organization and interior-exterior relations, form and orientation of the building mass, design of the building envelope, and building maintenance regarding energy, water and waste management. However, some design features such as spatial requirements or maintenance issues are by their nature in the intersection of building and interior domains. Following chapter summarizes the characteristics of healthy built environment in interior domain.

Interior domain

Interior environment is very important in terms of healthy architecture. It has been studied by various researchers from different disciplines [13-15]. Study shows that in the interior domain most important principles are about the use of daylight and artificial light, natural and artificial climatization, acoustics, finishing materials, and ergonomics. Healthy interiors are also considered as an important factor regarding environmental sustainability. Green building accreditation systems like LEED, BREEAM, or DGNB evaluate indoor environmental quality as one of the elements of sustainable design. The indoor environmental quality category in LEED rewards indoor air quality and thermal, visual and acoustic comfort to protect the health and comfort of building occupants, enhance productivity, and decrease absenteeism [16]. Therefore, one can assert that quality interiors are significant indicators of healthy built environments.

Most important characteristics of healthy interiors can be seen either in residential buildings or in workspaces. In existing literature, there are already a lot of studies on the health and wellbeing of residential spaces [17-22]. Therefore, this article focuses on workspaces. Next chapter presents healthy architecture in the workspaces and its characteristics, exemplified by call centre interiors.

Healthy workspaces

Workspaces need to be healthy environments and serve for the wellbeing of their users as employees generally spend one third of their day in those workspaces. Basic health and safety issues in workspaces have been given consideration for a long time in the literature and regulations for workspaces [23, 24]. However, emerging studies show that wellbeing of the employees in the office environment and long-term health issues are as important as short term concerns. According to existing literature, healthy environment in the workspaces also contribute to employee performance [25]. The quality of interior environments affects wellbeing and productivity [26, 27]. Various benefits of healthy environments can be seen in different types of workspaces.

Healthy call center interiors

Call centre is a special kind of workspace with certain characteristics and requirements. First of all, success of a call centre depends mostly on the employee performance. Based on this fact, employee satisfaction must be a decisive factor in the design of the call centre interiors. Furthermore, call centres are workplaces that are generally active for 24 hours of a day. Therefore, the health of the built environment is more important than any other workspace as it has more effect on the employee performance. The call centre interiors must be sufficiently and properly lit for both, day and night conditions using natural and artificial lighting equipment. Additionally, workstations in the call centres are generally for common use of the employees and there is no personalization option. Accordingly, the workstation design and ergonomics must be flexible for the use of different people. Ergonomics of the furniture and equipment in the call centres are highly important as the employees are occupying them for long times. Moreover, the acoustic quality in the call centre environments is also very important as the work generally happens through conversation. Use of technology in this case can be helpful to protect the privacy of the customers and the acoustic quality of the workspace at the same time.

As a result of the given characteristics and requirements of the call centre interiors, some strategies must be developed to design better and more productive workspaces. Next subchapter of the article summarizes these strategies.

Strategies for healthy call centre interiors

Creating more healthy working environments in call centre interiors requires strategies in different scales and fields of design from the façade of the building to technological equipment. O'Donnel et al. summarize these strategies as factors that lead to a healthy workplace [28]. The proposed strategies are as follows:

Connection to the outer world and nature

Providing visual connection between the employee and the outer world by providing wall openings in proper locations or having natural elements in the interiors may improve performance by improving their motivation. Van Esch et al. state that offices with view possibilities to the outside contribute to the employee wellbeing [29]. Raanaas et al. assert that indoor plants provide benefits for employees by raising the attention capacity [30]. The relationship between the built and natural environment, as well as the connection between interior and exterior worlds might be beneficial for employee wellbeing and productivity.

Opportunities for socialization

It must not be forgotten that humans are social beings and even in workspaces they need to have opportunities for interaction with peers and other people. Regular office layouts and workflows include social interaction as in call centres it is prohibited because of the nature of the job that the work goes on between the agent and customer only. Therefore, in call centre interiors special attention must be given to socialization of the employees, by providing sufficient and desirable spaces for common activities during breaks.

Daylight use

Effect of daylight on occupants' comfort is obvious. Candido et al. state that workspaces with high occupants' satisfaction for spatial comfort prioritize access to daylight [31]. Even though the job of a call centre agent is not directly connected with daylight, its effect on the employee motivation is important. Therefore, a call centre interior must have enough connection with daylighting opportunities.

Acoustic quality

Acoustics is one of the prominent features of proper workspaces. Jablonska and Trocka-Leszczynska consider acoustics as one of the crucial aspects in contemporary offices [32]. Acoustic quality is crucial for call centres as most of the work happens through spoken language and on the phone. Finishing material, as well as the office layout becomes important in this case. Additionally, use of technological devices that provide acoustic quality on the desired level and isolation from the background noise might be preferred.

Indoor air quality

Air quality is one of the vital elements in interior spaces. In workspaces, and especially in call centres it is even more important because occupants of these spaces spend long

hours there. It is preferred to have fresh air and natural ventilation in the call centre interiors. However, in case where it is impossible due to some specific reasons, high quality HVAC devices may be utilized to conserve the air quality inside the workspace.

Ergonomics of the furniture and equipment

Ergonomics in office spaces is a very important issue in terms of well-being of the employees. In call centres it becomes even more important because the occupants of workstations change from time to time. Therefore, flexibility is required to provide ergonomics for users with different anthropometric dimensions.

Employee participation in decision making

Sense of belonging to a company is one of the most important factors that provides employee motivation. In call centres, the turnover rates of the employees are quite high, so that maintaining the sense of belonging along employees is harder than other offices. In this regard, the design phase of the call centre interiors can be used as an opportunity. Generating higher levels of employee commitment in call centres is a critical factor to their successful operation [33]. Consulting the existing or future employees about the decisions on the built environment they will work regarding colour or material choice, etc., would help them to have higher motivation and performance.

Conclusion

Policies, training programs, and managerial decisions influence employee wellbeing and productivity in companies as primary factors, and physical environment of workspaces is another decisive one along with them. Therefore, none of those factors is enough by itself and a holistic approach is required for more productivity in workspaces and the wellbeing of the employees. Various disciplines are involved in the relationship between the physical environment and wellbeing. Architecture, medicine, psychology, sociology, marketing, and environmental engineering are some of those disciplines, and multidisciplinary action is required to come up with right and proper results in terms of creating healthy workspaces. From the perspective of design, holistic approach is also a necessity. USGBC cites to have a high-quality indoor environment, you need a high quality building, one that is holistically developed [34]. Basically, design process happens in different scales that relate to each other, and all elements of design need to work in harmony [35-36]. Hence a multidisciplinary and holistic approach is needed for designing healthy workspaces.

The strategies suggested in this article are based on the observations on interior environments of call centres in Istanbul, Tur-

key, but they are possibly applicable to other workspaces, as well. Study is focused on call centre interiors because given the existing examples, health and wellbeing of the employees are not the first things considered when designing a call centre. The underlying cause may be the high turnover rate in call centre companies, consequent low level of employee commitment, and the age group of the employees that is younger than in other types of workspaces. However, the attitude in this regard must change because the consequences of healthy and well interior spaces can only be visible in long term. Therefore, some outcomes of healthy architecture in call centres may be seen in the rise of productivity in short term, but the more important and humane results will be seen in longer term, which may be a subject for further studies.

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Abstract: Indoor environmental quality is a requirement for good architectural and interior design. The definition of indoor environmental quality refers to the conditions of the interior space that provide health and wellbeing for its occupants. Elements of indoor environmental quality are thermal comfort, indoor air quality, ventilation, ergonomics, natural and artificial lighting, odor, and acoustic quality. Indoor environmental quality is required in every type of interior space including ones with residential, educational, and cultural functions and workspaces. It is also included as one of the factors of energy effi-

cient and sustainable design in building energy certification and accreditation systems. This study focuses on call center interiors as a type of workspaces, where the employees spend a long time in the interior space communicating with customers on the phone. The aim is to provide theoretical information and practical application suggestions for higher quality design in call center interiors.

The methodology of this paper consists firstly of a literature review to study and analyze the definition and elements of indoor environmental quality, and its implementation into call center interiors as workspaces. Analytical studies lead to strategy proposals for better designed call center interior spaces. The results of the study indicate that better designed interior spaces in call centers lead to better health and wellbeing of the employees, resulting with higher performance and service quality.

Keywords: indoor environmental quality, call center design, interior design, workspace ergonomics

Streszczenie: ZDROWE MIEJSCA PRACY: STRATEGIE POPRAWY JAKOŚCI ŚRO-DOWISKA WEWNĘTRZNEGO W BIU-RACH OBSŁUGI KLIENTA CELEM ZA-PEWNIENIA DOBREGO SAMOPOCZU-CIA I PRODUKTYWNOŚCI PRACOWNI-KÓW. Zapewnienie wysokiej jakości środowiska wewnętrznego budynku jest niezbędne w optymalnym projektowaniu architektonicznym oraz projektowaniu wnętrz. Definicja jakości środowiska wewnętrznego odnosi się do warunków przestrzeni wewnętrznej budynku, które zapewniają zdrowie oraz dobre samopoczucie użytkowników. Do elementów jakości środowiska wewnętrznego zalicza się komfort termiczny, jakość powietrza w pomieszczeniach, wentylacja, ergonomia, naturalne i sztuczne oświetlenie, zapachy, jakość akustyczna. Wysoka jakość środowiska wewnętrznego jest wymagana w każdym rodzaju przestrzeni wewnętrznej, w tym pełniącym funkcje mieszkalne, edukacyjne, kulturalne, a także w miejscach pracy. Jest ona również uwzględniana jako jeden z czynników efektywnego energetycznie i zrównoważonego projektowania w systemach certyfikacji oraz akredytacji energetycznej budynków. Niniejszy artykuł dotyczy wnętrz w centrach obsługi telefonicznej jako miejsc pracy, w których pracownicy spędzają dużo czasu w przestrzeni wewnętrznej, komunikując się z klientami przez telefon. Celem opracowania jest dostarczenie teoretycznych informacji i praktycznych sugestii dotyczących zastosowania wysokiej jakości wzornictwa we wnętrzach centrów obsługi telefonicznej.

W niniejszym artykule wykorzystano przede wszystkim metodologię polegającą na przeglądzie literatury mającym na celu zbadanie i analizę definicji, a także elementów jakości środowiska wewnętrznego oraz jej wdrożenia we wnętrzach centrów obsługi telefonicznej jako miejscach pracy. Na podstawie badań analitycznych sformułowano propozycje strategii lepszego projektowania przestrzeni wewnętrznych w centrach obsługi telefonicznej. Wyniki badań wskazują, że lepiej zaprojektowane przestrzenie wewnętrzne w centrach obsługi telefonicznej prowadzą do poprawy zdrowia i samopoczucia pracowników, co przekłada się na wyższą wydajność oraz jakość usług.

Słowa kluczowe: jakość środowiska wewnętrznego budynku, projektowanie centrum obsługi telefonicznej, projektowanie wnętrz, ergonomia miejsca pracy