Active Design Approach Affect the Environmental Psychology

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The growing urban population has increased environmental demands and affects human health due to the rise of chronic diseases caused by populations' inactivity. A new design trend introduced by scientists and researchers for solving this issue is the active design approach. Built environments that were expressly designed to improve physical activity correlated to higher rates of physical activity, which in turn, positively affects health.

1. Introduction

The growing urban population has increased environmental demands and affects human health due to the rise of chronic diseases caused by populations' inactivity [1]. A new design trend introduced by scientists and researchers for solving this issue is the active design approach [2]. This approach was developed in the U.K. by Sport England, which commissioned the active design to promote physical activity in a creative environment that encourages communities to be active as a natural part of their daily lives [3]. Additionally, A.I.A. (U.S.A.) released evidence-based active design guidelines (A.D.G.) with twenty-three strategies—thirteen for urban design and ten for building design—to increase physical activity through the built environment. The built environment includes all the physical parts of where we live and work (e.g., homes, buildings, streets, open spaces, and infrastructure) [2]. Additionally, the built environment influences a person's level of physical activity [4][5]. For example, inaccessible or non-existent sidewalks, bicycles, or walking paths [6][7] contribute to sedentary habits. These habits lead to poor health outcomes such as obesity, cardiovascular disease, diabetes, and cancer [8][9], affecting human health and well-being.

In addition to public health [10], the built environment belongs to physical environments which are designed to achieve health and wellness as integral parts of communities' health [11]. At the same time, studies have shown that built environments that were expressly designed to improve physical activity correlated to higher rates of physical activity, which in turn, positively affects health. In order to understand people–environment interactions and how they relate to real-world issues [10][12], environmental psychology now encompasses various research fields. Architecture is most familiar, and environmental psychology and architecture have been encouraged to become more attentive to each other's impacts. In other words, architectural psychology links psychology with architecture. The study of architectural psychology, which emphasises how people interact with the built environment, increased in the 1950s to enhance humans' peace of mind and well-being by designing or modifying architectural settings. Its impact can be seen in urban design through the long-term reconfiguration of personal and societal norms, values, and beliefs caused by social isolation, social segregation, and quarantine [13][14][15]. In addition, some people in the fields of interior design, architecture, landscape design, and urban design have conducted structured research using behavioural sciences, and this group grows enormously day by day [16]. Researchers believe behavioural sciences can develop some models and concepts that clearly understand human–environment relations. Consequently, it improves our knowledge of how the physical environment [17] affects the population's health [18].

In the same way, environmental psychologists take into consideration any individual activity to be situated along three measurements at the same time: the person (e.g., age, gender, personality, and culture), the place (e.g., home, classroom, workplace, park, and nature), and the psychological procedure of enthusiasm (e.g., socialising, working, learning, playing, and exploring). Another significant aspect of environmental psychology is change throughout time with reference to the temporal dimension of the people–environment link, while the physical and social environments have generally been ignored in environmental psychology [19][20][21]. Multiple interventions are brought about by the time dimension, human well-being, and the importance of spatial anchoring. The act of anchoring is always a procedure that takes place in some dimension of time. It reflects the individual's ambitions, social standing, family life circumstances,

plans for the future, and human well-being. For the purpose of this article, we focused on the need (ambition) and well-being of users in the environmental psychology context. Jointly, [22] observed, "Due to the absence of any coherent body of study or theory, campus planning is likely to be continued on a pragmatic basis." Thus, the environmental psychology of campuses is perhaps the most neglected. Also, improving environmental knowledge and capacities without the concurrent development of the possibility of action leads to a sense of meaninglessness [23]. Correspondingly, any educational institution may become a healthy university by establishing a community emphasising health and wellness by increasing active opportunities through the active design. The majority of students spend most of their time on campus. A healthy campus is a place that actively promotes optimal health outcomes and helps each student as a whole—as a single bio-psycho-social person [24][25][26]. The university campus environment is the most critical environment influencing students' daily activities and health from the perspective of environmental behaviour and the campus space environment [27].

2. Active Design Approach Affect the Environmental Psychology

2.1. Active Design and Physical Activity

The definitions for active design in the U.K. and U.S.A. are similar in that both promote physical activity to create a healthy environment and society. Likewise, physical activity is the primary variable of active design, so the last updated definition for the active method is, by [28], defined as "people moving, acting and performing within culturally specific spaces and contexts, and influenced by a unique array of interests, emotions, ideas, instructions, and relationships." There is overwhelming evidence corroborating the definition of physical activity from Caspersen et al. 1985, reviewed from different sources, which covers aspects such as the cerebral, social, situated, and political. The last updated definition by [28] was accepted, studied, and analysed by being categorised into three categories by the author:

- Physically active: for example, the person moving, acting, and performing to achieve physical wellness in the built environment could be adopted as indoor staircases and outdoor walkways encourage more physical activity on campus, etc.

- Mentally active: influenced by a unique array of interests, emotions, and ideas to achieve mental health in a built environment which could be adopted as walkways that wind through quiet outdoor areas offer students calm spaces to relax before and after classes [29].

- Socially active: within culturally specific spaces and contexts, to achieve social well-being in a built environment, this could be adopted as designing community spaces within high-traffic areas encourages students to socialise with their peers.

Furthermore, the active built environment should enhance physical activity, which can be identified by its type, intensity, amount, and measuring tool, to know the amount of physical activity and active design in the built environment, thus displaying the ratio of active living and lifestyle.

Ultimately, the new approach to active design and its definition were studied, analysed, and categorised [26].

2.2. Environmental Psychology

Environmental psychology is a branch of psychology that studies the mutual relationships and interactions between human behaviour (including experience and action) and its surroundings (material, social, and cultural) [27][30]. There are multiple pieces of evidence showing environmental psychology could be considered in built environments as having an essential role in shaping human behaviour, such as the psycho-social approach which emphasises people's environmental relationships in environmental perception, cognition, and attitude [31][32][33] in addition to space perception as urban spaces, which reflect daily life and shape personality with perception [34][35]. Concerning mental health with expanding urbanisation, more individuals are exposed to environmental stressors, which may contribute to increased stress and worsen mental health [36] and the effects of smell, colour, and light on human behaviour and experience, as well as the way physical environments influence social identity [37]. This also concerns cross-cultural environmental psychology since-human–environment interactions are culture-bound [30]. Environmental psychology also includes social-psychological contextual elements, such as the presence of others' or one's place in the group, which can affect behaviour in a specific physical setting [18]. Thus, the concepts of environmental psychology can be utilised in a wide variety of situations, including private homes, public institutions (such as schools), workplaces, and recreational areas. Humans may change their behaviour which hurts the environment at both the micro and macro levels [38]. Environmental psychology accepts the natural world through which people experience life and shapes human behaviour and health. The evidence with regard to the scope of this research study indicates the relevance of environmental psychology and the built

environment in shaping human behaviour. Yet, notions such as the connection between the physical environment and psychological processes and investigating human behaviour in natural settings, rather than artificial settings, influenced many subsequent studies on human–environment interactions.

For this reason, environmental psychology (E.P.) is many things; it is something which is seen and felt more as an area of overlap between psychology and several disciplines or domains [33], and E.P. is not only an area within psychology but is interdisciplinary, suggesting the need to develop a coherent core for E.P. and recognise its applied context. There are multiple definitions for E.P. such as a "multi-disciplinary behavioural science, both basic and applied in orientation, whose foci are the systematic interrelationships between the physical and social environments and individual human behaviour and experience" [35]. Furthermore, "Environmental psychology is the discipline that studies the interplay between individuals, the built and natural environment". So, environmental psychology examines the influence of the environment on human experiences, behaviour, and well-being, as well as the influence of individuals on the environment, that is, the factors influencing environmental behaviour and ways to encourage pro-environmental behaviour [39]. In other words, environmental psychology studies interactions between humans and their surroundings because human–environment interactions are culturally determined [30]. Many researchers use multiple ecological models to assess the linkage and relationships among various factors affecting health as an ecological model [40].

This study, concerning modern architecture, shows the distinction between traditional psychology and architectural psychology and includes studies of how different environments influence human perception and behaviour. Recently, regarding environmental psychology, much attention was given to the built physical environment and how it affects human behaviour and well-being [20][41]. **Figure 1** shows that environmental psychology is context (environment) and content (people–environment relation) interrelated, most of which emphasise social aspects. Conversely, for this study, the environmental psychology of a campus-built environment is context (campus environment) and content (student–environment relation) in three categories of physical activity: physically active, mentally active, and socially active.
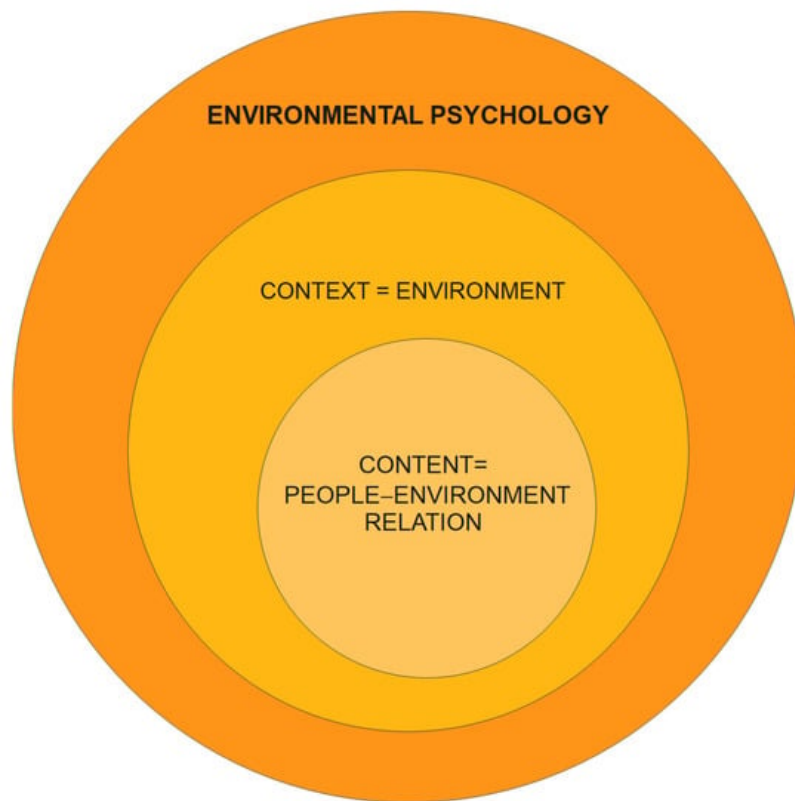

Figure 1. Environmental psychology model for determining its parameters (authors).

2.3. Healthy Campus as a New Trend

In general, campus master plans prescribe a set of design and planning actions to achieve a university's goals and objectives as a higher education institution. It started in medieval Europe, and modern universities evolved in America. Some of the best university campuses developed in the 19th century and early 20th century in the U.S.A. in terms of campus planning and architecture follow specific typologies such as the quadrangle campus, picturesque campus, and beaux-art campus, but after world war II, emphasise freestanding buildings than on-campus master plans [22][42]. The quality of the campus built environment determines the health of users; thus, most designs focus on micro-scale designs rather than macro-scale designs.

Therefore, an index proposed by [43] called the campus score measures the main physical qualities of university campuses, which are composed of three latent variables, urbanism, greenness, and on-campus living, with ten indicators, activity density, context land use mix, intersection density, campus connectivity, campus mass density, surface parking, pervious surfaces, tree canopy, and living on campus. University campuses can address this wide range of issues and concerns differently. The author of [44] argued for "campuses to be designed, not only to heighten the quality of the learning experience, but also as working demonstrations of ways in which places everywhere can be transformed into more healthy, humane, civic environments". The authors of [42] discuss "trends" in contemporary campus designs which are adaptive reuses of buildings and facilities, architecture, hub buildings, interdisciplinary science research buildings, commercial urban developments, large-scale campus expansions, and revitalising master plans. But today, for modern society, the new trend is a healthy built environment with a new approach known as the "Healthy Campus framework", which was formulated by the American College Health Association and lately presented multiple student health targets, including a requirement to "create social and physical environments that promote good health for all" to "support efforts to increase academic success, productivity, student and faculty/staff retention, and life-long learning." [45] The ecological model of [46] was explained by the American College Health Association's (2023) Healthy Campus 2020 initiative and composed of five factors: intrapersonal and interpersonal processes and primary groups, institutional factors, community factors, and the last public policy for creating a healthy campus.

The campus's architectural design is the main factor in creating a healthy built environment for students and staff. The new design trends by A.I.A. and U.K. Sport England introduced an active design for promoting physical activity in built environments to obtain a healthy built environment and achieve a healthy community [2][3][47][48][49][50][51][52][53][54][55]. **Figure 2** illustrates the chronological trend of a healthy campus by the American College Health Association (2023) and active design by Sport England and A.I.A. The start of a healthy campus, from 1979 till now, continued and developed, focusing on the healthy campus framework (infrastructure, cornerstone, community, and culture) which sets forward an approach for creating a college culture that sees students' success as mainly reliant on their health and well-being. Any campus may become a healthy campus by fostering a community and culture that places a high value on health and well-being. But the start of an active design after the growth of chronic diseases and obesity among people since 2005 mainly focuses on physical activity that keeps humans active and improves their well-being. The chronological combination between the two trends includes when and where they started, since the active design approach will be used to show it is a way of achieving a healthy campus and improving the environmental psychology of a campus.
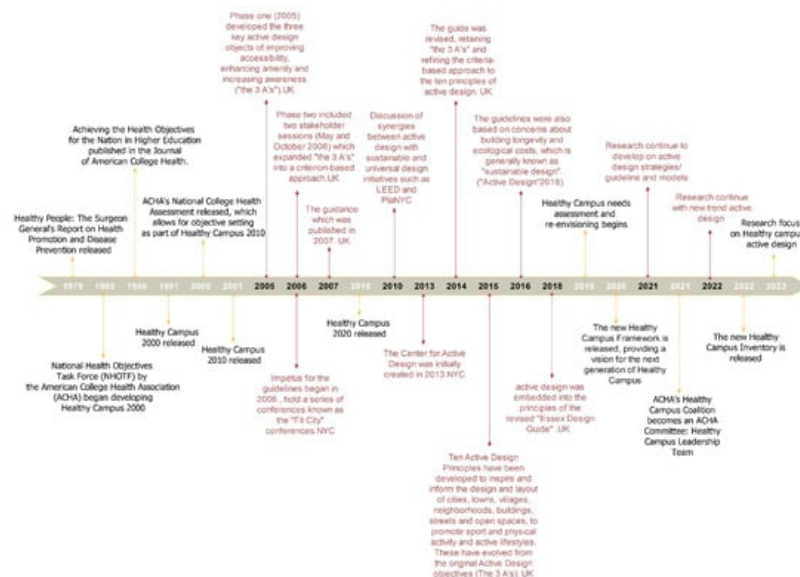

Figure 2. Significant moments in healthy campus history data from American College Health Association 2023 with the active design approach. Timeline diagram (by the authors).

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