Place-making and Open spaces: Impacts on Well-being in Learning Environments

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Open spaces in learning environments are designed for various outdoor activities to support users' well-being and educational experiences. This paper evaluated the notions of place-making as a collaborative process for creating quality open spaces in the environment within the University of Lagos Nigeria, and the impact on student's learning experiences and well-being. Mixed methods design was used to evaluate the open spaces within the precincts of the Faculty of Engineering, University of Lagos. This was carried out through direct physical observation over two years, appraisal of the existing master plan, and structured questionnaires, to determine the functionalities of the open space. Findings show that open spaces in faculty vicinities have been transformed and used for various activities that elicit a sense of community, help forge closer interactions among students, and also serve as a hub for social gatherings and extra-curricular activities. The open space also served as an alternative classroom for studio work presentations to observe physical and social distancing protocols to curtail coronavirus spread. The study revealed that there is a significantly strong correlation between activities in the open spaces and learning experience on one hand and activities in the open spaces and the Well-being of the students on the other hand. The study also showed that there is a strong relationship between activities in the open spaces and the learning experience as the well-being of the students. The study advocates that stakeholders and built-environment practitioners should adopt the place-making notion as a valuable insight into creating healthier and more productive learning environments, because of its developmental and summative benefits on students' learning experiences, achievements, and overall well-being.
Keywords: Learning environments, Open spaces, Place-making, Well-being

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Introduction

Placemaking is the process of creating quality places that people want to live, work, play and learn in (Stedman, 2003; Lewinski, 2015) while open spaces can be described as undefined spaces planned with or without natural elements and buildings. They can serve as parks and landscaped for recreational purposes. Public schools are tasked with preparing students to fulfil their potential, lead satisfying and productive lives, and be ready for the workforce, and public life. Academic performance including examination grades is part of an important predictor of achievement and well-being, even in adulthood. More specifically, students who demonstrate better performance at school or in university are more likely to earn higher wages, engage more in socio-political activities, report higher life satisfaction, and happiness, and be more responsible citizens (Browning & Rigolon, 2019). The perception of this context is a key concept in mutual understanding of environment-human studies in micro and macro scales. The immediate surrounding area or the physical world as the transmitter connects all information in different ways to humans, where man's survival as a receptor is determined by the quality of the environment. Today, in urban centres, pupils have been confined in crowded apartments and neighbourhoods with poorly equipped schools lacking play and recreative spaces (Muñoz, 2009). The learning environment still in contact with nature is missing in many schools of higher learning especially in urban areas with increasing pressures of urbanization and land shortage (Lawanson 2016, 2018). Places for learning are integral components of old or emerging urban centres around the world. Urban studies show that planning for education from the elementary stage through to tertiary levels for growing urban populations is of primary concern to municipal governments. Access to quality education has been one of the major challenges confronting vulnerable urban communities in the Global South, because of prevalent poverty and sharp economic downturn. Education at the tertiary level has been adversely affected by lack of financial resources, inaccessibility to land, and lack of urban inventiveness essential for the establishment of dynamic learning environments for the well-being of rising student populations (UN-Habitat, 2020).

There is a growing debate on the balance between making sure our children are safe versus letting the children play in physically and emotionally stimulating and challenging environments. This entails building inclusive, healthy, functional, and productive universities with integrated open spaces for the well-being of students in learning environments (Canter, 1977; Davenport & Anderson, 2005). Integrating this idea would enhance the prevailing poor infrastructure in

the education amenities in most Nigerian urban universities. Socialization among students currently requires a healthy environment to enhance learning and other psychosocial well-being factors and academic performances (Fisher, 2019). Outside of the home environment, school settings constitute one of the most important cognitive environments important for learning and education (Muñoz, 2009). From the social perspective, learning environments constitute the places where lifetime social bonds are formed, while the spatiality of schools and its impact on students' developmental windows play a major role in intellectual progress. In this sense, happiness, and vitality within school premises are known to lead to the development of the student in physical, cognitive, emotional, moral, and spiritual dimensions. Neglect or damage to one of these dimensions usually affects abilities and competencies negatively. Though the pressures of urbanization and globalization are impacting in diverse ways, physical schools are still considered the best environment for interactive and real-time learning (Abubukar & Lawanson, 2020). Traditionally, masterplans of schools often include; classrooms, assembly or multipurpose halls, vocational workshops and science laboratories, sports fields, gyms, and nature study gardens (Davies *et al*., 2013). Studies from Western and Eurocentric examples show that the layout and planning of the learning environment paid attention to architectural design and the overall landscape of schools to generate interest in education and the overall achievement of stakeholders' aspirations (Stine, 1997). Twenty-first-century education is currently experiencing a period of atrophy due to technological advancements. Universities education are increasingly going 'virtual' rather than 'real' in the aftermath of the global covid19 pandemic (Udem *et al*., 2021). Social and physical distancing requirements demand more pragmatic approach to space usage, a situation that is increasingly making learning from home unavoidable. The investigation of the environment-academic activities in the University of Lagos lacks adequate attention to planning, landscaping, and integration of open spaces concept, thus losing their effective role in improving education and learning activities among students. This is the gap in knowledge. Therefore, this paper focused on the notion of place-making as a collaborative process for creating quality open spaces in the environment within the University of Lagos, Nigeria, and the impact on students' learning experiences and well-being. For further illumination, answers were provided to the following questions. How or what were the open spaces designed to be used for? How have open spaces been used over time, in terms of functions and activities? How do open spaces impact the learning experiences of users? What is the value of open spaces as it relates to place-making and well-being in learning environments?

The Concept of Place-making in Open Spaces around Lecture Rooms

Placemaking is the process of creating quality places that people want to live, work, play and learn in. However, placemaking is usually an evolving process and should be adaptable to improve the space's usefulness to its community over time. It is can be said that informal learnings of social skills, and other ex-curricular activities occur in the interstitial spaces around school buildings. Also, apart from serving as connectors between faculty buildings, the idea of open spaces in the homes, civic buildings, districts, and buildings in the university environment has contributed significantly to the salutogenic ambiance in learning environments (Johnson *et al*., 2017). They sometimes served as hubs for social interaction, and recreation among students of other faculties and added to the general aesthetics. Like the high streets of urban centres, these spaces also ensure that activities that will not traditionally occur in classrooms find room for expression in these spaces. In essence, the open spaces also provide outdoor extensions to classroom activities such as tutorial group discussions and individual studying arenas for interested single users. Corroborating assertions that places play a significant role in developing and maintaining the group and self-identity of people and that attachment to particular settings can also be influenced by the qualities and physical characteristics of the place (Gieryn, 2000; Stedman, 2003; Davenport & Anderson, 2005).

Open spaces are an important physical component contributing to user's well-being in learning settings. They are known to help create a healthy environment, improve air quality, especially in polluted urban scenarios, conducive outdoor ambiance, and enhance the learning experience of students in such a context. Open spaces in vicinities can also bring a sense of community and help forge closer relationships among students because they can act as a node for social gatherings or extra-curricular activities. In addition, green open spaces are moderators for the local micro-climate, create a place of relaxation, provide shade, and increase the positive aesthetic feelings of users (Wells *et al*., 2014). Although there have been numerous reviews of studies of green space benefits for childhood health, well-being, and outdoor education, no methodical appraisal has focused on the relationship among open spaces, placemaking, and academic activities. Previous studies informed that open space and other green space interventions would boost learning achievement (Browning & Rigolon, 2019).

Well-being indices

Well-being is defined as the environmental factors that affect the state of good health, happiness, fulfilment, and living in perceptually healthy conditions physically, socially, and mentally. The World Health Organization (WHO, 1948) and research scholars agree that in improving the quality of life of residents, aspects impact the well-being, namely; the quality of the building and the quality of the close environment, and the quality of the larger site (Heidegger, 1971; Mohit, Ibrahim & Rashid, 2010). These factors are interrelated and central to understanding how architectural landscape can have significant effect in determining and enhancing users' well-being.

However, in establishing the relationship between the environment and students' physical well-being, research showed that a built environment can satisfy other intangible needs that are beyond the physical realm, such as social, emotional, psychological, spiritual, and financial requirements (Rapoport, 1977; Evans, 2003). The World Health Organization's conventional definition states that health is not merely the freedom from sickness, disease, or disability, but a favourable state of mental, social, and physical well-being (WHO, 1948; Evans, 2003). This assertion further confirms the need to examine the relationship between the physical environment and students' well-being (Altman, 1993; Smith, 1998; Ball, 2002; Smith, 2005). It is pertinent to understand that well-being comprises the totality of health advantages and benefits that are necessary to personal satisfaction derivable from the physical characteristics of open spaces through the architectural design that produced them. Wellbeing is also a state of being in complete health, happiness, and satisfaction derivable from the physical factors appropriated in the design of the environment (Canter,1977). Well-being is not a complete physical phenomenon, but people's health is known to be strongly connected to or affected by the physical characteristics and quality of their environment. An increasing body of literature points to the enticing prospect that green spaces around learning environment had therapeutic effects because of contact with nature, including attentional capacity and low stress levels. Views of green open spaces from classroom windows are known to improve concentration and reduce both self-reported stress and heart rate. Teaching in outdoors or in natural or agricultural areas also aid learning comprehension and retention. Also, learning in relatively green classrooms, in courtyards, gardens, and in natural contexts has been associated with high levels of student interest in learning in relaxing atmospheres (Stine, 1997; Davies *et al*., 2013; Browning & Rigolon, 2019).

Study Area

The study area is an open space within the premises of the Faculty of Engineering, where the Department of Architecture is situated. This area was selected amongst the 7 faculties of the university as the context for this research because this is a portion of the original core of the master plan designed and built from the inception of the university in 1962. The complex has a network of interconnected courtyard spaces with a 60-year history within the area. The open spaces are networks of courtyard spaces connected by paved walkways, lawns, concrete chairs,
and preserved predated natural trees designed around faculty lecture rooms and offices (See Plate A).

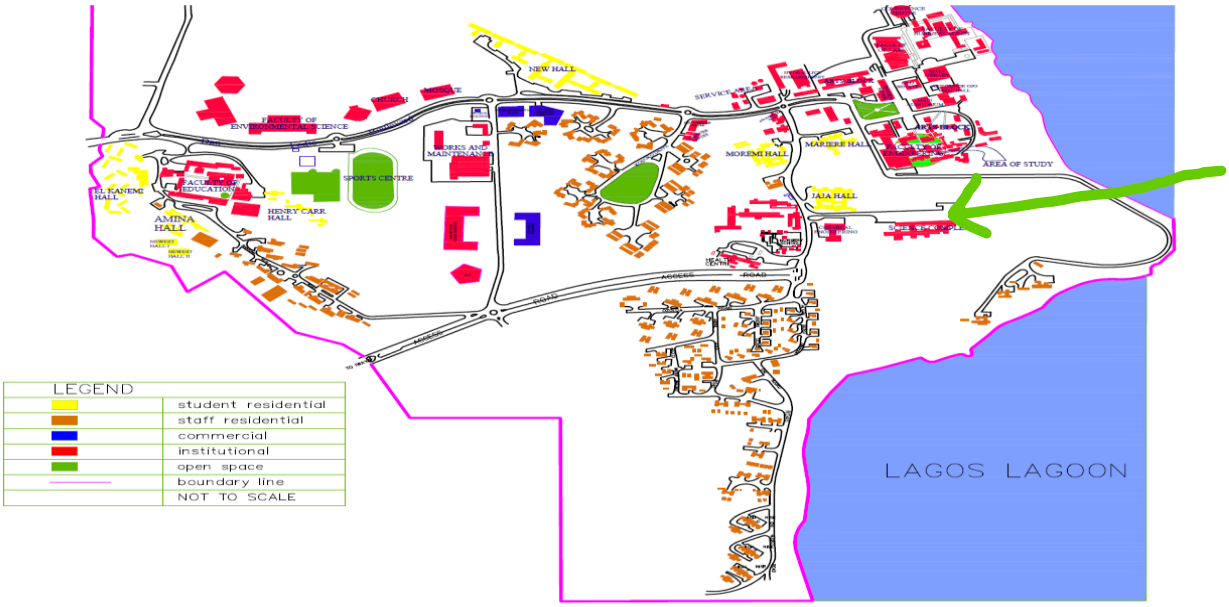

Plate A-Map of University of Lagos- source-authors 2021

Plate 1: Group tutorials as activity

Plate 2: lawns, hedges, and paved walkways

Plate 3: Multi-function Open space connecting the faculty to other buildings Source-authors 2020s

Research Methodology

Mixed methods approach was adopted to evaluate the physical quality and characteristics of open spaces within the precincts of the Faculty of Engineering, University of Lagos through direct observation over a two-year period and self-administration of structured questionnaires to users using 5-point Likert scale (strongly agree to strongly disagree). Quantitative survey method using student's frequency of activities in a particular open space as criteria or variable for evaluation.

This paper evaluated the concepts of place-making, the physical characteristics of open spaces, and the impact on students' learning experiences and well-being. One hundred (100) questionnaires were administered directly to students and other users of the open spaces as they perform any activity of choice randomly over time and space. The observations were further supported by the interpretation of the University masterplan in relation to the open spaces activities as described in mixed methods research design (Creswell, 2014).

Except for groups of students that used the spaces for tutorials, other user was spontaneous with other purposes such as siting under tree shades, social interaction and later adaptation during the COVID-19 era for staff and students. Observations were naturalistic observations of undergraduate's activities in their natural/informal setting (Greig & Taylor, 1999; Patton, 1990). It is participatory (Flick, 2006), meaning that the researcher was not visible and but an active player in the environment studied. An "immersive strategy" was adopted, so as not to distract users, but also participate in the space like the other users (Corsaro, 1985), to avoid undue influence by the researcher's presence. According to Berg (2007), this allowed observed subjects not to alter their normal behaviour when observed so as to get the full effect of user's actions and reactions. Former observational studies show that children relatively

quickly adapt to having a new observing adult in the kindergarten (Løkken, 2000). In this study, the researchers were present as activities occurred. The observations were informal/unstructured, open, and explorative while still asking responders the formal research questions (Patton, 1990). When conducting the observations, notes were also taken (Graue & Walsh, 1998) to identify and capture feelings, thoughts and questions concerning the perceptive wellbeing of users. Perceived wellbeing is here noted as 'happy to use the space', comfortability, and 'repeated use' over the period of research (See Tables 4&5).

Results and Discussion

Demographic information

The demographic variables of the students who participated in the survey are as described. The survey respondents represented 80 students at the University of Lagos. The analysis reveals that 64% of the students were male while the remaining 36% were female. More than half of the respondents (54%) were between the age group of 16-19years old, 28% were between 20-22years old, 13% between 23- 25 old, 3% between 26-28years old while 4% were above 29 years old. On the type of academic program, they were running, 89% of the respondent were undergraduate while 11% were post-graduate. 34% of respondents were from the architecture Department, 44% were from Engineering Department, 11% were from the science faculty while11% were Art/ Law/Political science students.

Accessibility, proximity, and physical characteristics

The location, distance, configuration, and physical characteristics of open spaces to the adjoining classroom is important factor for consideration in the assessment of the learning environment.

Table 1 presents analysis of physical features in the open spaces. The result of the analysis shows that the respondents' opinions were either moderately agreed or agree with all the physical features identified in the university. The ranking of nine physical features in the open spaces revealed that I can view the surrounding features from the open spaces was ranked first while the lighting of the open spaces is sufficient at night was ranked least that is 9th.

Table 1: Descriptive Statistics of Physical features in the open spaces

Physical features in the open spaces	Mean	Std. Deviation	Rank
I can view the surrounding features from the open spaces	3.60	0.92	1
I like the entire scenery of the open spaces	3.58	0.81	2
The display of architectural works on the walls adds colour to the open space	3.44	0.98	3
The open space is always kept clean and tidy	3.39	1.10	4
There are enough trees to shade the open space	3.38	1.11	5
The layout of the landscape makes the open space attractive	3.35	0.97	6
The concrete benches are comfortable for me to seat	3.04	1.12	7
There is enough seating arrangement in the open space	2.84	1.08	8
The lighting of the open spaces is sufficient at night	2.56	1.21	9

Table 2 depicts the activities in the open spaces. The result revealed that respondents agree with all the identified activities within the Architecture Department and Engineering Faculty with the least mean of 2.79 which implies moderately agree. Moreover, the ranking of eight activities in the open spaces shows that most students used the opens space for relaxation with the ranking of relation as first and second while reading of books was ranked 8th. It can be concluded that open spaces are used for many activities but, its primary design purpose is not for reading.

Table 2: Descriptive Statistics of Activities in the open spaces

Activities in the open spaces	Mean	Std. Deviation	Rank
The cool atmosphere in the open spaces is good for my relaxation	3.94	0.90	1
I find the open spaces very relaxing	3.66	0.98	2
The open spaces are good enough for physical exercise like dancing, drama, football, etc.	3.43	1.09	3
I come here to socialize with other students	3.41	1.17	4
Sometimes I just sit here to wait for the next lecture.	3.35	1.37	5
My classmates and I come here for group discussions	3.35	1.11	6
I prefer these open spaces to other open spaces on campus	3.03	1.17	7
I like to read my books while in the open spaces	2.79	1.17	8

Table 3 shows the result of the analysis of respondents on the learning experience. The result of the analysis revealed that the respondents' views were either moderately agreed or agree with all the learning experience variables identified. Moreover, the ranking of what qualities of the open spaces have contributed to their experience of the learning environment revealed that the open spaces within the study area are used for social activities. It's function as space for group discussions ranked first while Landscape was ranked least that is 8th.

Table 3: Descriptive Statistics of the Learning experience

Learning experience	Mean	Std. Deviation	Rank
Group discussions space	3.96	0.83	1
Accessibility from classrooms	3.78	0.84	2
Natural lighting	3.69	0.92	3
Natural Shading regulates temperature	3.54	0.91	4
Visual access	3.36	0.88	5
Environmental ambiance.	3.30	0.79	6
User-friendly seating arrangement.	3.14	0.72	7
Landscape scenarios	3.13	0.64	8

Table 4 presents the result of the analysis of respondent's opinions on well-being. The result of the analysis reveals that the respondents agreed to all the attributes of the open spaces have to contribute to their well-being within the learning environment. In addition, the ranking of what qualities of the open spaces have contributed to their well-being within the learning environment was carried out. The result revealed that the spaces that encourage social interaction were ranked first, the spaces are good for relaxation/leisure second, the spaces are user-friendly third, it is comfortable to use these open spaces fourth while landscape/scenery is good was ranked eight.

A further analysis was computed to compare responses across departments discovered that the students have the same opinion across the departments, year level, and gender.

Table 4: Descriptive Statistics of Well-being

Well-being	Mean	Std. Deviation	Rank
The spaces encourage social interaction	4.08	0.82	1
The spaces are good for relaxation/leisure	3.91	0.84	2
The spaces are user-friendly	3.81	0.83	3
It is Comfortable to use these open spaces	3.64	0.73	4
The spaces are useful for various activities/ uses	3.60	0.82	5
Open spaces can be used for physical exercises	3.54	0.99	6
The use of this space gives me some satisfaction	3.53	0.83	7
Landscape / scenery is good	3.49	0.80	8

Place-making, learning environments, and student's well-being

Table 5 presents the result of Spearmen correlation between activities in open space and learning experience. The study revealed that there is a significantly strong correlation between activities in the open spaces and learning experience on one hand and activities in the open spaces and the Well-being of the students on the other hand. The study noted that there is a strong relationship between activities in the open spaces and the learning experience as the well-being of the students.

Table 5: Relationship between activities in open space and learning experience

Variables	Learning experience	Well-being
Activities in the open spaces	.515**	.521**
Physical features in the open spaces	.267*	.369**

*Correlation is significant at the 0.05 level (2-tailed).

**Correlation is significant at the 0.01 level (2-tailed).

Green space concepts in learning environments

Researchers and policymakers have criticized public education in developed countries for perpetuating health and income disparities. Several studies have examined the linkages between green space and academic performance, hypothesizing that green space can boost performance, and, over time, help reduce such inequalities (Gilchrist, 2012). While several evaluations have scrutinized the connection between nature, landscape, and students' health, none have focused on academic achievement. Positive findings related to greenness, tree cover, and green land cover at distances up to 2000 m around schools (Browning & Rigolon, 2019). By extension, in this paper, the phrase "green space" describes areas of vegetation, such as forests, street trees and parks, and gardens. This is defined "within or around school campus" as the area describing students' experience of nature at school. This includes not only the faculty building but also the 25 m buffer around the precincts. The larger area up to the Lagoon Front represents the viewshed in which students visually or physically access green space during the school sessions (see Plate A).

COVID-19 adaptation of open spaces in learning environments

Open space as a physical element for the global coronavirus pandemic was a necessity in the light of physical and social distancing regulations. Architectural Studio presentations, focus group discussions, book presentations, and other social activities were some of the activities that took place in the interstitial spaces around traditional classroom buildings. The open spaces enabled mitigation measures especially in the aftermath of the coronavirus pandemic. Established knowledge posits that rural-urban populations of the Global South officially live in fragile healthcare systems couched in weak administrative and physical infrastructures. Informally, a school of thought attributed the low record of fatalities to the inability of the coronavirus to survive long in the heat of the hot-humid bioregion. This study compared this with the indigenous philosophical use of space/meaning in the Yoruba courtyard system. The application of this ideology enabled the convertibility of existing open spaces for pragmatic adaptations around learning environments. This situation is akin to the multipurpose use of the courtyard systems symbolic of indigenous architecture. It is recommended that stakeholders engage this concept for a practical preparedness towards healthy urban futures. The use of open-air spaces was also one of the remedial protocols to reduce the spread of coronavirus (Aina & Opeyemi, 2020; UN-Habitat, 2020).

Open space converted for Architectural Studio presentation in post-COVID times-source: authors, 2021

Discussion

The continuous supply and influence of technology on our physical and social environment has made our lifestyle more inactive. However, new devices to measure and motivate physical activity are promising and it is, therefore, important to integrate open space around learning environments from design and planning standpoints. It is vital to find appropriate methods for counteracting the decline in physical activity on the student population level expecting that this will elicit healthy lifestyles. Concerning the antisocial protocols recommended to combat the COVID-19 invasion, open spaces in the learning environment are now been converted to open-air classrooms while still sustaining the social distancing requirement (Gilchrist, 2012). Historically, the outcomes of the rapid globalization crisis are many, and it dated back to the Lagos bubonic epidemics of 1928. In this study, climbing was found to be a particularly popular activity among the children. The users of this space used the time for relaxation, informal activities, play, and group tutorials as often as possible. This is consistent with earlier research findings (Kaarby, 2004; Readdick & Park, 1998; Stephenson, 2003). According to the literature, the user's well-being is a key factor in the quest to provide built environments that are people-responsive, produced, and situated in a conducive physical environment to bring about satisfaction, quality of life, and health (Johnson *et al*., 2017; Davies *et al*., 2013).

Conclusion

The outcomes of this study established that intentionally designed open spaces such as parks, and interstitial spaces in educational environments are not only beneficial to the health and well-being of students and other users, they are known to enhance the recreative opportunities for student's extra-curricular interactions and learning experiences. There is a significant correlation between the physical characteristics of the open spaces and place attachments in learning environments. The open spaces around lecture room blocks are not just outdoor spaces, but functional extensions or annexes to the traditional pedagogical activities inside. The study space was also used for relaxation, entertainment, and social interaction by students for their overall well-being. The research established that place-making is achievable through the repeated use of the spaces, while student-centred design considerations, need to be reimagined and reinvented open spaces in learning environments as a real and virtual extension of traditional classrooms. The outcomes of this study also bring understanding and knowledge of place-making as a means to creating conducive learning places and spaces in adjacent environments, neighbourhoods, communities, or even city or regional scales. It should be noted that transforming the environment into a useful place is of significant importance to learning environments in diverse ways. It is pertinent to note that a place with a strong sense of usefulness creates community and provides a better platform for knowing how people interact in open spaces near a learning environment. This study advocates that open spaces and green areas should form integral components of the architectural design landscape of tertiary institutions for their developmental, cumulative, and collective benefits on students' learning experience and the promotion of users' well-being in learning environments.

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