

STUDENTS' UTILIZATION OF THE OUTDOOR SPACE: A CASE STUDY OF TERTIARY INSTITUTION IN SOUTH WEST, NIGERIA

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ABSTRACT

This research work investigates the utilization of outdoor spaces in the institutional environment. Studies have revealed that a strong relationship existed between the people's physical and functional attachment to outdoor spaces. The main objective of the study is to examine the significant interrelationships among the characteristics of four outdoor space utilization variables such as the place identity; dependence; and familiarity across outdoor spaces within the tertiary institution in Nigeria. Consequently, this study adopts the parametric SmartPLS3.0 in the analysis of the three outdoor spaces situated within the campus of Osun State College of Technology, (OSCOTECH), Esa-Oke, Osun state, in Nigeria. The opinions of 220 respondents who are active users of the three selected institutional outdoor spaces were obtained through purposive distributed survey questionnaires. The respondents were undergraduates of the three faculties in the institution, namely: Faculty of Environmental Studies, Faculty of Science / Management Studies, and Faculty of Engineering. The outcome of the study revealed there are positive and significant relationships between users' familiarity with the tertiary institution outdoor spaces (PLF). Their dependence with the outdoor space (PLD), identity with the outdoor space (PID) and lastly the outdoor space' utilization (OSU); Implications for designers; planners, and managers in the built environment include advocacy on the enhancement of quality of the institutional outdoor spaces, through proper planning and design strategies.

Keywords: Outdoor space, users' attachment, tertiary institution, Smart pls, Nigeria

1.0 INTRODUCTION

Outdoor space is a term used by landscape planners and landscape architects that indicate land areas that are intentionally left unbuilt while adjoining areas are developed to incorporate buildings. Outdoor space typically assumes a changed structure of remnant corridors, nodes, and patches of the pre-existing landscape matrix. The spatial configuration of these unused open spaces typically reflects a response to land use controls in connection to landscape structure and function. Landscape structure describes the spatial configuration of the open and developed elements of the landscape at various scales (Kato, et.al 2009).

The university/college campus comprises the physical environment, such as public spaces within the various institutional buildings. According to Gehl, (1987) outdoor space is a combination of buildings and landscaped open spaces between such

buildings that function as an organized whole with a distinctive identity. In a related development, Rapoport (2004) opined that these environments are structured and composed of [i] fixed infrastructure and buildings, [ii] half-fixed outdoor components such as lighting elements, benches and [iii] non-fixed such as user actions and vehicles.

Outdoor spaces and their related components are important determinants and influence users' attitudes (Aydin and Ter, 2008; Lefebvre, 1991; Abu-Ghazze, 1999; Dober, 2000). The quality of the outdoor spaces formed by the components coming together is a type of life quality determinant. Construction of quality gathering spaces for students is capable of impacting positively on the social, cognitive and affective characteristics of the students (Adedeji and Fadamiro, 2011). Meanwhile, series of investigations into outdoor space and concepts are on-going in the people-place

studies. It is pertinent to note that few published research works are far-fetched on the exploration roles of place dependence; users' identity and outdoor space utilization in the context of the Nigerian institutions of Higher Learning. Hence, this study aims at exploring the interrelationships among the various variables of outdoor space using the attachment theory. The attachment theory enables proper understanding from the field of environmental psychology and landscape perception studies. The objective of this study explores the relationships among the four attachment variables to the outdoor space of an institution of higher learning in Osun state, Nigeria. The outdoor spaces in the Osun State College of Technology, (OSCOTECH) Esa Oke campus were often used by the three faculties such as Faculty of Environmental, Faculty of Engineering, and Faculty of Science / Management studies.

1.1 Review of Literatures

1.01. Human and outdoor space relationships

Place attachment refers to person-place relationships that emanate from specifiable conditions of place and characteristics of people (Shumaker and Taylor, 1983). *Place attachment* defines the ways in which people connect to various places, and the effects of such bonds on identity development, place-making, perception, and practice (Low et al, 1992). On the other hand, *place identity* is coined as peoples' attachment in terms of emotional or symbolic meanings that are assigned by an individual. The physical environment of landscape forms part of a person's self-identity (Proshansky, et al., 1983; Warzecha, and Lime, 2001). In the same vein, place identity is a sub-structure of a person's self-identity consisting of knowledge and feelings developed through everyday experiences of physical spaces.

A sense of place identity derives from the multiple ways in which place functions to provide a sense of belonging, construct meaning, foster attachments, and mediate change. The place identity of a person can inform their experiences, behaviors, and attitudes about other places. *Place dependence* refers to an attachment based on users' function and permissible activities. In other words, the value of a specific place depends on its ability to satisfy the needs or behavioral goals of an individual or group as

compared to other place alternatives (Stokols, and Shumaker, 1981). *Place meaning* is a relationship to place based on cognition; as a person associates significance, purpose, symbolic role, or value with a physical setting (Stedman, 2002; 2003). Familiarity with a place undoubtedly could increase the peoples' strength of attachment (Ahlbrandt, 1984; Brown, et al., 2003; Lalli, 1992).

Studies have revealed that individuals experience a reduction in stress when they recreate in settings where they feel most at home (Adevi and Grahn 2011). The effective utilization of outdoor space relied on its planning and provision of essential amenities capable of enhancing social bonding. Agboola et al., (2014; 2015; 2016) noted that the use of outdoor space depends on individuals or collective actions that create a cultural sense of place and time. Hence, the utilization affords opportunities for residents to explore the environment for their social, economic and environmental needs. The relationship between the human and the environment through attachment and place theory is depicted in Figure 1.

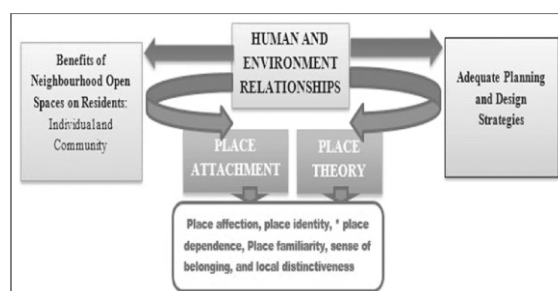


Figure 1: Relationship between people and the environment. (Source: Author's intuition)

1.02. Diverse Activities in Outdoor space

Gehl, (1996) and Gehl, & Gemzøe, (2003) explained that the success of outdoor space depends on the level of users' involvements in optional and social activity. Meanwhile, everyday activities in outdoor place are in three folds namely: necessary, optional and social activities. Necessary activities are initiated on everyday routines; such as people going to work or shopping. Optional activities are those initiated and conducted during leisure time; it reflects people's walking to do exercise or to obtain good fresh air or to recreate at a restaurant or bar. And lastly, social activities occurred based on social behavior and relationships among people, it includes various kinds of passive

contacts, communal activities, and conversations. Attachment to outdoor space as urban open space is a reflection of people involved in various activities performed in the space. In the context of the academic environment, people use outdoor spaces for learning, discovering, examining and researching. This is an indication, that outdoor activity is evaluated as the learning opportunities. According (Marcus and Wischemann, 1990). The outdoor spaces on campus relieve stress stemming from the boredom or density of the lessons and provide a place for the academic community to relax.

2.0 METHODOLOGY

2.01. Sampling survey administration and Study area

The data was collected via on-site questionnaires based on a stratified random sampling of the respondents from the outdoor spaces situated within the campus of OSCOTECH, Esa-oke South-west, Nigeria. Stratified random sampling which requires stratifying a given population before applying random sampling across the stratum was adopted for effective data collection (Creswell, 2012). The respondents' experiences and perceptions were sought through survey sections that hinged on their personal characteristics, outdoor space's identity, dependence, familiarity, and utilization. Osun State College of Technology, Esa-Oke took off from the erstwhile Esa-Oke Satellite Campus of The Polytechnic, Ibadan which was founded in 1981. The College became autonomous as Osun State College of Technology, Esa-Oke in 1992. It was established with the Osun State Law No. 6 of 1992.

Presently, the College has four faculties: Applied Sciences, Engineering, Environmental Studies, and Management Science. Also, there are 17 departments with over 23 programs fully accredited by the National Board for Technical Education, Kaduna and other relevant bodies. The existing OSCOTECH campus site of 267,800 Hectares had been put under intensive use especially for the cultivation of crops and economic trees. The land use for the College include: Academic/Administrative Use (13.73%), Communal Uses (4.66%), Open Space/ Recreational areas (10.75%), Industry (10.75%), Circulation (3.30%). The total

land area covered by the tertiary institution is 267.80 hectares (Figure 2). The total developed area is 89,169 hectares representing 33.29% of the total area. The remaining undeveloped area is 178, 64 hectares of land representing 66.71% (Master plan:2019-2028, Osun State College of Technology, Esa-Oke). For the purpose of this research work, three outdoor areas were identified within the campus.

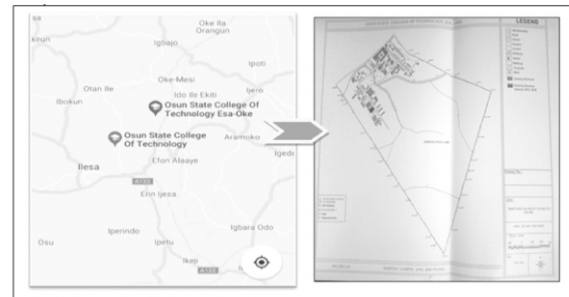


Figure 3: Base map of the existing OSCOTECH Campus (1912-2018). Source: (Master plan: 2019-2028, Osun State College of Technology, Esa-Oke).

2.02. Variables measurements and analysis

Past research has shown that place attachment affects a variety of dependent variables (Bricker and Kerstetter 2000; Budruk et al., 2008; Kyle et al., 2003; Kyle et al., 2004; Vaske and Korbin 2001; Warzecha and Lime 2001). In the same vein, Kyle et al., (2003) examined the relationship between place attachment and visitors' attitudes towards recreational use. In conclusion, four variables of outdoor space's identity (PID), dependence (PLD), familiarity (PLF), and Outdoor Space utilization (OSU) were involved in this study. The respondents were asked to rate their responses on the Likert scale ranges from Strongly agree (SA) "5"; Agree (AG) "4"; Neutral (NE) "3" to Disagree (DA) of "2" (points); strongly disagree (SD) "1", respectively. In affirmation of the respondents' deep understanding of the institutional outdoor space (especially for those outside Faculties of Environmental Studies and Engineering); the term "institutional outdoor space" was clearly defined and its activities highlighted in the questionnaire. Principal components analysis (PCA), Exploratory factor analyses (EFA), and structural equation modeling using Smart Partial Least Square (SmartPLS version 3.0) statistical tool was conducted to explore hypotheses

assumptions.

The place attachment construct has undergone adequate theoretical specification, conceptualization, and operationalization. Thereafter, a factor analysis used to create latent constructs for each dimension (place identity, place dependence, place familiarity, and public space utilization), each with multiple (observed) indicators. There has not been

adequate research on the measurement of perceptions of outdoor space users in Nigerian tertiary institutions context and thus this study adopted principal components factor analysis to reduce the number of items and identify underlying dimensions. Items were retained in the factors if Eigenvalues were 1.0, individual and item factor loadings and all inter-item correlations were 0.40. However, Table 1 described the codes and instrument utilized for this study.

Table 1: Codes and instrument utilized for this study.

No	Instruments	Code
	Place identity	(PID)
Independent	Outdoor space of my institution means a lot to me	PID1
	I am attached to the outdoor space areas of my institution	PID2
	I identify strongly with the outdoor space of my institution	PID3
	I have a lot of memories about the outdoor space of my institution	PID4
	Place dependence	(PLD)
Mediator	I enjoy various activities in the outdoor space than any other areas in the institution	PLD 1
	I get more satisfaction in visiting outdoor space more than any other areas in the outdoor spaces of my institution	PLD 2
	Activities in the outdoor space are more important than activities in any other areas in the outdoor spaces of my institution	PLD 3
	I would not substitute any place for the type of activities I do have in the outdoor space of my institution	PLD 4
	Place familiarity	(PLF)
Independent	I am quite familiar with the outdoor space within the institutions	PLF1
	I know the outdoor space within my institution like the back of my hand	PLF2
	I have many memories of visiting outdoor space within my institution	PLF3
	I recognize most of the outdoor space surrounding and interiors areas within my institution	PLF4
	Outdoor Space Utilization	(OSU)
Independent	Outdoor Space is important for economic related activities	OSU1
	Outdoor Space is important for social related activities	OSU2
	Outdoor Space is important for religious related activities	OSU3
	Outdoor Space is important for cultural heritage related activities	OSU4

2.03 Internal Reliability and validity of measurements

Internal consistency reliability denotes the extent to which all items on a particular subscale are measuring the same model. Cronbach alpha coefficient and composite reliability are universally adopted estimators of the internal consistency reliability of an instrument in research as such, composite reliability coefficient was selected to establish the internal consistency and the reliability of measures was used. A threshold of 0.7 was used as the cut-off point for a latent construct to be considered reliable. Figure 3 presents Cronbach alpha

coefficients for the latent constructs. It depicts that P-identity (0.763); P-dependence (0.855); P-familiarity (0.815), Open space utilization (0.832).

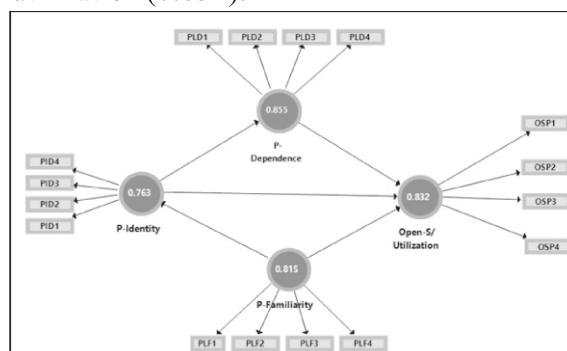


Figure 3. Cronbach alpha coefficients for the latent constructs

3.0 RESULT AND DISCUSSION

3.01 Respondents' demographical characteristics

Overall, a total of 250 questionnaires were administered to all students recreating at the three identified outdoor spaces out of which two hundred and twenty (220) dutifully filled surveys were returned by the respondents. Survey achieved an 88.0 % response rate resulting in a total of 220 completed questionnaires with 75 (34.09%) respondents from outdoor space located at the faculty of Environmental; 60 (27.27%) respondents outdoor space located at the Faculty of Engineering; and 85 (38.64%) respondents were from outdoor area located at the Faculty of Management / Science (Figure 4). Other details of the demographical characteristics of the respondents are presented in Figure 5, 6 and 7.

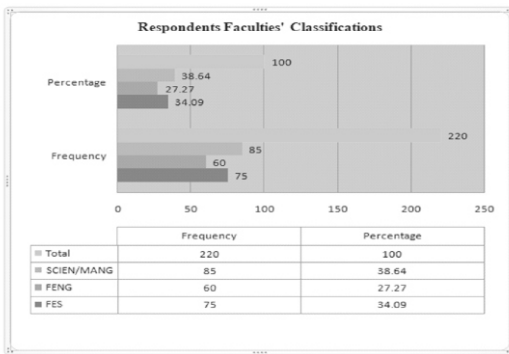


Figure 4: Respondents faculties' classifications

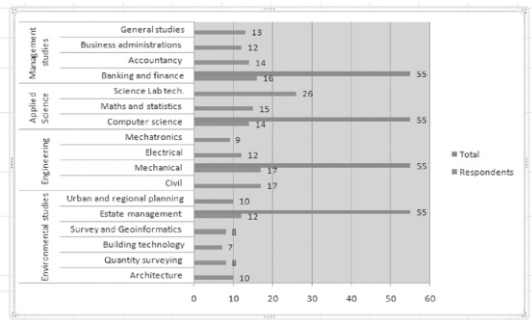


Figure 5: Discipline of respondents

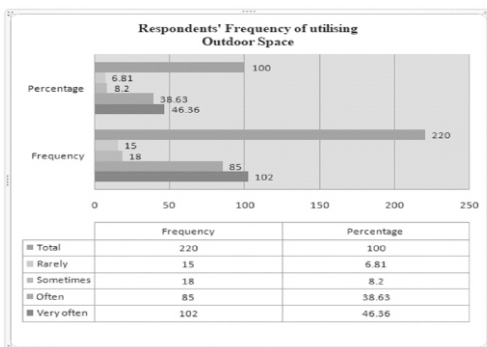


Figure 6: Respondents' Frequency of utilizing Outdoor Space within the campus

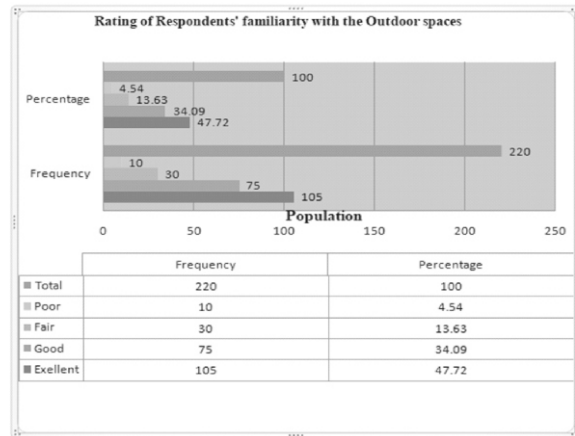


Figure 7: Respondents rating of familiarity

3.02. Structural equation modeling (General relationship among the variables)

In achieving the research objective, this study presents the research model in accordance with Figure 8. The proposed model and hypothesis testing were conducted using Partial Least Squares (PLS) analysis with the Smart PLS M2 software as previously used by Ringle et al., (2005). PLS allows specifying both the relationships between the latent constructs and the relationships among the measures underlying each construct. Therefore, this research suggests the relationships between the variables of outdoor space dependence (PLD), outdoor space identity (PID), outdoor space familiarity (PLF) and outdoor space utilization (OSU) among the 220 respondents across the three institutional outdoor case studies.

As shown in Figure 8, outdoor space's dependence represents (P-Dependence), outdoor space's identity (P-Identity), and outdoor space's familiarity (P-Familiarity) positioned as the independent variables, while, outdoor space's utilization (Open-S/Utilization) indicated as the dependent variable for this study.

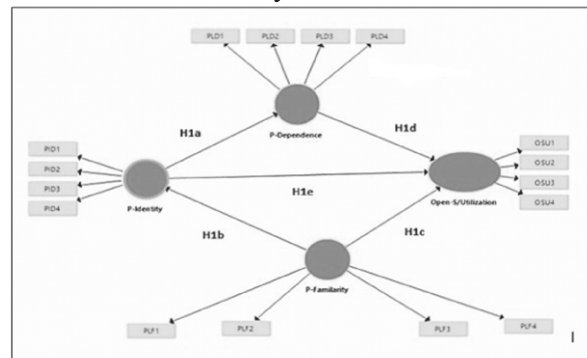


Figure 8: Hypothetical dimension for each of the three institutional outdoor spaces

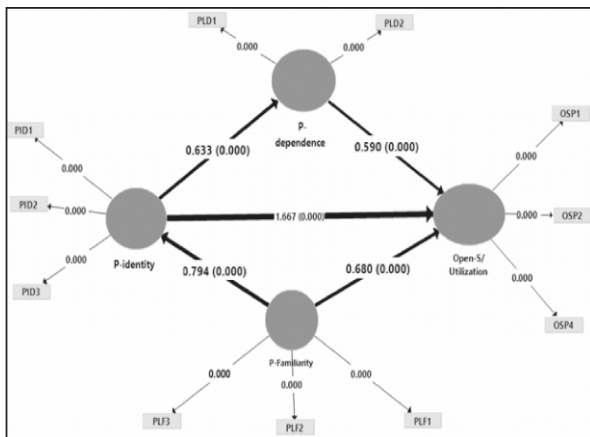


Figure 9: Results of the hypothesized construct dimension for the institution's outdoor spaces

Based on Figure 9, the general neighborhood algorithm indicated that PID path towards PLD is significant ($\beta= 0.633, p<0.000$), while, PLF ($\beta= 0.794, p<0.000$) on PID is also significant. Similarly, PLF ($\beta= 0.680, p<0.000$) and PLD ($\beta= 1.667, p<0.000$) significant on the OSU respectively. Lastly, PLD ($\beta= 0.590, p<0.000$) remain significant on OSU. Conclusively, the main hypothesis (H1) and all other 5 sub-hypotheses (H1a, H1b, H1c, H1d, H1e) are supported in this study.

3.03. Summary of findings

In term of relationships between the College undergraduates; students and outdoor space study, this research statistically established the significance of outdoor space's familiarity (PLF), outdoor space's identity (PID), outdoor space's dependence (PLD) and the outdoor space's utilization (OSU) in the OSCOTECH environment, in South-west, Nigeria. Conclusively, students' familiarity, dependence, identity, contributed positively to the utilization of the institution outdoor space. All the variance explained in each outdoor spaces are above 80 percent Square correlation (R^2) which a justified good prediction of each outdoor spaces of this study. This study widens the body of knowledge via appropriate understandings of utilization variables of the tertiary institution outdoor space in relation to the sustainability of neighborhood development. The outcome affirmed the bonds between users of outdoor spaces social formations, knowledge development, and academic performance.

4.0 CONCLUSION, RECOMMENDATION, AND FUTURE RESEARCH

Outdoor spaces have been adjudged as a veritable tool that helps in promoting sustainability in terms of design, planning, and development. The institutional outdoor spaces support the relationships between students and increase the quality of university life. Hence, appreciable efforts should be geared towards appropriate outdoor space's conservation and sustainability of the environment in a bid to foster students' attachment and utilization drives; if challenges in creating a sustainable society are to be summoned. In view of this, professionals such as city planners, architects, landscape and architects among others have a role to play in future design and planning of institutional outdoor space. It is, recommended that a fair distribution and establishment of outdoor spaces in an institution of higher learning needs to be encouraged. The encouragement gives rooms for adequate attachment and utilization characteristics for institution sustainability.

Suggestions then focus on a need for a holistic and more complex approach to design and planning of outdoor spaces in tertiary institutions in Nigeria. The implications of the research findings are worthy of adoption by the stakeholders such as environmentalists and landscapers as well as the local, state and national levels of government of Nigeria. Future research could consider [i] examining the mediating role of outdoor space dependence (PLD) between the constructs of outdoor space identity (PID) and outdoor spaces' utilization (OSU), [ii] examining the mediating role of outdoor space dependence (PLD) between the construct of outdoor space identity (PLD) and outdoor spaces' utilization (OSU), [iii] examining the mediating role of outdoor space dependence (PLD) between the construct of outdoor space identity (PLD) and outdoor spaces' utilization (OSU).

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