

Users' Perception of Landscape Design Elements in Selected Public Secondary Schools in Osogbo, Nigeria

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Abstract- *The quality of school environments extends beyond indoor spaces to include landscape elements that influence students' comfort, safety, well-being and outdoor experience. However, limited empirical attention has been given to users' perception of landscape design elements in Nigerian public secondary schools. This study therefore evaluated users' perception of existing landscape elements in selected public secondary schools in Osogbo, Osun State, Nigeria. A survey research design supported by field observation was adopted. Five public secondary schools were purposively and randomly selected, and data were obtained from 291 respondents using structured questionnaires. Descriptive statistics and Mean Weighted Values (MWVs) were used to assess users' perceptions of landscape elements in terms of accessibility, safety, maintenance and satisfaction. Findings revealed that trees and vegetation (92.8%), sports/open play areas (89.3%), walkways/pathways (82.5%) and outdoor assembly spaces (77.3%) were the most prevalent landscape elements, while gardens/relaxation spaces (51.5%) and seating areas (56.7%) were less provided. Users rated walkways/pathways highest for accessibility (MWV = 3.91), while trees and vegetation recorded high ratings for safety (3.78) and satisfaction (3.77). Sports/open play areas also recorded consistently favourable ratings (MWV = 3.71). In contrast, drainage effectiveness recorded the lowest overall perception (MWV = 2.99), while seating, ornamental planting and waste-management facilities received comparatively lower ratings. The study concludes that existing school landscapes perform relatively well in supporting circulation, recreation and vegetation but require improvement in environmental management, comfort and supportive outdoor facilities. Improved drainage, seating, shading, ornamental planting and waste-management facilities, supported by regular maintenance and user-informed landscape planning, are recommended for more functional and responsive school environments.*

Keywords: *school landscape, landscape design, users' perception, public secondary schools, accessibility, maintenance, Osogbo, Nigeria*

I. INTRODUCTION

The quality of educational environments extends beyond classroom buildings to include outdoor landscape spaces that influence users' comfort, well-being, social interaction and overall school experience (van Dijk-Wesselius et al., 2018). Well-designed school landscapes combine hardscape and softscape elements such as walkways, seating, lighting, trees, lawns and gardens to provide functional, safe and attractive environments (Akande et al., 2023; Khan et al., 2025). These environments can also support concentration, physical activity, emotional well-being and students' sense of belonging (Chawla et al., 2014; Bikomeye et al., 2021; Barenie et al., 2023). Landscape design also contributes to accessibility, safety, environmental comfort and usability. Vegetation provides shade and microclimatic benefits, while walkways, seating, lighting and drainage support functional and safe outdoor spaces (Lanza et al., 2021; Adegun et al., 2021; Bohnert et al., 2022).

However, landscape development in many Nigerian public schools receives limited attention compared with building infrastructure, resulting in poorly maintained outdoor spaces, inadequate vegetation and deteriorating walkways (Akande et al., 2023; Isyaku et al., 2026). Users' perception is important in determining whether landscape elements are accessible, safe, functional and satisfactory. The quality and usability of green spaces can influence users' comfort, psychological well-being, attention and overall experience (Zhang et al., 2022; Jiménez-Bescós et al., 2023; van den Bogerd & Maas, 2024; Ayejuyo et al., 2025). However, empirical research on users' perceptions of landscape design elements in Nigerian public secondary schools remains limited,

particularly regarding accessibility, safety, maintenance and satisfaction.

This study therefore evaluates users' perception of landscape design elements in selected public secondary schools in Osogbo. It identifies existing landscape design elements and their characteristics and examines users' perceptions in terms of accessibility, safety, maintenance and satisfaction. The findings provide evidence for improving the functionality, safety and user responsiveness of school landscapes in Nigerian public secondary schools.

1.1 Study Area: Osogbo, Osun State
Osogbo, the capital of Osun State in Southwestern Nigeria, is an administrative, cultural and educational

centre located between latitudes $7^{\circ}45' - 7^{\circ}49'N$ and longitudes $4^{\circ}30' - 4^{\circ}35'E$. The city hosts numerous public secondary schools (Osun State Bureau of Statistics, 2021).

Osogbo has a tropical climate with distinct wet and dry seasons, annual rainfall of approximately 1,200–1,400 mm, and temperatures ranging from about $22^{\circ}C$ to $32^{\circ}C$ (NIMET, 2020). These climatic conditions, coupled with variations in the provision, condition and maintenance of school landscapes, make Osogbo a suitable setting for assessing users' perceptions of landscape design in public secondary schools.

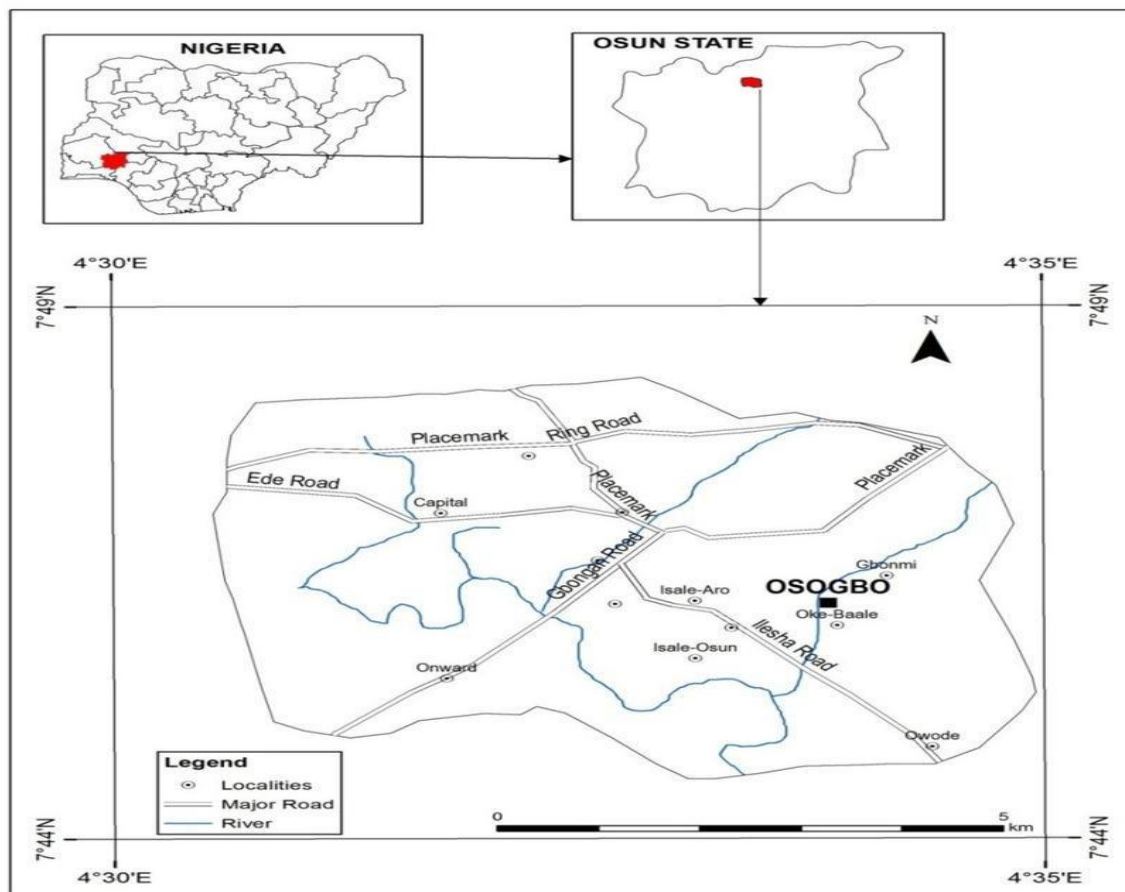


Figure 1: Location of Osogbo in Osun State, Nigeria
Source: Ibitoye and Okende (2016).

II. LITERATURE REVIEW

The quality of the school environment has attracted increasing attention because of its influence on students' learning experience, comfort, well-being, and social interaction. The school environment extends beyond classrooms and buildings to include outdoor spaces and landscape elements that support recreation, circulation, relaxation, safety, and contact with nature. Akande et al. (2023) noted that landscape elements are important components of school design because of their contribution to students' learning experiences and well-being. Landscape design involves the planned arrangement of natural and built elements within outdoor spaces to achieve functional, environmental, and aesthetic objectives. In school environments, these elements include trees, vegetation, lawns, walkways, seating areas, recreational spaces, shading features, fences, and other hardscape and softscape components.

Their proper arrangement can improve the usability, attractiveness, environmental quality, and functionality of school grounds. Well-designed and varied school landscapes can also provide opportunities for recreation, outdoor learning, social interaction, and contact with nature. The relationship between landscape and human well-being is supported by the concept of biophilia, which suggests that humans possess an inherent tendency to connect with nature (Fromm, 1973; Wilson, 1984). In the built environment, natural elements such as vegetation, trees, water, and natural views can provide restorative and environmental benefits (Kellert, 2008). Within schools, vegetation and trees can provide shade and visual relief, while green spaces and gardens can create opportunities for relaxation, recreation, and outdoor learning. Thus, landscape design can contribute to both the physical and psychological quality of the school environment. However, the presence of landscape elements does not necessarily indicate that a school landscape is effective. Their value depends largely on their availability, functionality, accessibility, safety, attractiveness, comfort, and maintenance. Users may therefore perceive the same landscape differently depending on how well it meets their needs. User perception provides an important means of evaluating

these qualities because students and staff interact directly with the landscape and can assess its usefulness and performance from their everyday experiences. Recent studies in Nigeria have continued to demonstrate the importance of school landscape environments. Akande et al. (2023) established the relevance of landscape elements to students' learning experience and well-being, while Lawal and Babamboni (2026) reported that green spaces, shaded areas, and multifunctional outdoor environments can support learning, well-being, and social interaction in public secondary schools. However, limited attention has been given to users' perception of specific landscape design elements in public secondary schools within Osogbo. This study therefore evaluates users' perception of landscape design elements in selected public secondary schools in Osogbo. It focuses on how users perceive the availability, functionality, accessibility, comfort, safety, aesthetics, and maintenance of existing landscape elements. The study seeks to provide empirical evidence on the performance of school landscapes and identify areas requiring improvement for more functional, attractive, and user-responsive secondary school environments.

III. METHODOLOGY

The study adopted a survey research design supported by observation and case studies. A reconnaissance survey identified twenty (20) public secondary schools in Osogbo, from which five (5) schools were selected using purposive and random sampling techniques: A.D.S. Grammar School, Iludun; Ataoja School of Science; Nawarudeen Grammar School; Baptist Girls High School; and Christ Africa Grammar School, Gbodofon. The study involved JSS3 and SSS3 students and school principals, with a population of 1,301 from which 306 respondents were determined using the Slovin formula at 5% precision. Structured questionnaires were administered to assess users' perceptions of landscape elements in terms of accessibility, safety, maintenance, functionality, comfort, aesthetics, and satisfaction, while observation and case studies assessed existing hard and soft landscape elements, including walkways, seating, paved courts, lighting, trees, shrubs, lawns, gardens, and shading elements.

Secondary data were obtained from relevant literature, government publications, institutional reports, and educational guidelines. Data were analysed using SPSS through frequencies, percentages, mean values, and a five-point Likert scale, while observation and case study findings were compared with questionnaire results to evaluate the existing landscape design elements and provide a basis for the proposed model secondary school landscape.

IV. RESULTS AND FINDINGS

i. Existing Landscape Elements in the Selected Schools

Table i. Available Landscape Elements in Selected Schools in Osogbo n = 291.

S/N	Landscape Element	Available n (%)	Not Available n (%)
i	Trees / Vegetation	270 (92.8)	21 (7.2)
ii	Flower beds / Ornamental plants	180 (61.9)	111 (38.1)
iii	Lawns / Grass areas	210 (72.2)	81 (27.8)
iv	Seating areas / Benches	165 (56.7)	126 (43.3)
v	Walkways / Pedestrian paths	240 (82.5)	51 (17.5)
vi	Gardens / Relaxation spaces	150 (51.5)	141 (48.5)
vii	Sports fields / Open play areas	260 (89.3)	31 (10.7)
viii	Drainage channels	200 (68.7)	91 (31.3)
ix	Outdoor assembly spaces	225 (77.3)	66 (22.7)
x	Waste bins / Waste management facilities	190 (65.3)	101 (34.7)
xi	Other landscape elements	35 (12.0)	256 (88.0)

The findings further show that landscape elements associated with relaxation, social interaction, and aesthetic enhancement were comparatively less prevalent. Gardens and relaxation spaces recorded the lowest major provision (51.5%), followed by seating areas (56.7%) and flower beds/ornamental plants (61.9%). This pattern suggests that greater attention has been given to basic functional and recreational elements than to spaces that support relaxation and social interaction. The finding is consistent with Alabi (2021), who identified inadequate aesthetic

The findings revealed that trees and vegetation (92.8%) were the most prevalent landscape elements in the selected schools, followed by sports fields/open play areas (89.3%), walkways/pedestrian paths (82.5%), and outdoor assembly spaces (77.3%). Lawns/grass areas (72.2%), drainage channels (68.7%), and waste management facilities (65.3%) were also relatively common. These findings indicate that the existing school landscapes are predominantly characterised by elements that support movement, recreation, shade, environmental comfort, and routine outdoor school activities.

landscaping in public secondary schools. Similarly, Lawal and Babamboni (2026) emphasised the contribution of vegetation and green spaces to school environmental quality and outdoor learning experiences. The results therefore highlight the need for a more balanced integration of functional, recreational, aesthetic, and restorative landscape elements in public secondary schools (Isyaku et al., 2026).

ii Users' Perception of Existing Landscape Elements
Users' perception of the existing landscape elements in the selected secondary schools in Osogbo was assessed across four dimensions: accessibility, safety, maintenance and satisfaction. Mean Weighted Values

(MWVs) were used to summarise users' responses and to provide a comparative assessment of the perceived performance of the existing landscape elements. The results are presented in Table 2.

Table 2. Users' Perception of Existing Landscape Elements in Selected Schools in Osogbo

S/N	Landscape Element	Accessibility MWV	Safety MWV	Maintenance MWV	Satisfaction MWV
i	Trees and vegetation	3.74	3.78	3.70	3.77
ii	Flower beds / ornamental plants	3.12	3.20	3.11	3.11
iii	Lawns / grass areas	3.48	3.48	3.47	3.47
iv	Walkways / pathways	3.91	3.77	3.75	3.79
v	Shaded outdoor spaces	3.41	3.43	3.43	3.43
vi	Seating areas	3.20	3.20	3.20	3.20
vii	Sports / open play areas	3.71	3.71	3.71	3.71
viii	Drainage effectiveness	2.99	2.99	2.99	2.99
ix	Outdoor assembly spaces	3.43	3.43	3.41	3.41
x	Waste bins / waste-management facilities	2.94	2.93	2.89	2.89

Note: MWV = Mean Weighted Value;

Discussion

As shown in Table 2, users' perceptions of the existing landscape elements varied across the four dimensions assessed. The results indicate that walkways and pathways, trees and vegetation, and sports/open play areas were the most positively perceived landscape elements, recording consistently high MWVs across accessibility, safety, maintenance and satisfaction. Walkways and pathways recorded the highest accessibility rating (MWV = 3.91) and also received high ratings for safety (3.77), maintenance (3.75) and satisfaction (3.79). This indicates that circulation spaces constitute one of the strongest aspects of the existing school landscape. Their relatively favourable perception may be associated with their direct functional importance in connecting classrooms, administrative facilities, recreational areas and other parts of the school environment.

Trees and vegetation also recorded consistently high ratings, with MWVs of 3.74 for accessibility, 3.78 for

safety, 3.70 for maintenance and 3.77 for satisfaction. The relatively high satisfaction score suggests that users value vegetation as an important component of the school landscape. Its contribution extends beyond visual enhancement to include shade, environmental comfort and improvement of the outdoor setting. The consistency of the ratings further suggests that vegetation is generally perceived as both functional and beneficial within the school environment. Sports and open play areas recorded an identical MWV of 3.71 across all four dimensions, indicating a consistently favourable perception. This suggests that recreational spaces are relatively accessible, safe and adequately maintained, while also meeting users' expectations. The result highlights the importance of recreational landscape provision in supporting students' physical activity, interaction and outdoor experience.

Conversely, flower beds and ornamental plants recorded relatively lower MWVs, particularly for accessibility (3.12), maintenance (3.11) and satisfaction (3.11). This suggests that aesthetic

landscape elements receive comparatively less favourable perceptions than functional landscape components. The finding may reflect limitations in their provision, distribution or maintenance within the selected schools. Similarly, seating areas recorded an MWV of 3.20 across all four dimensions. This relatively modest rating suggests that outdoor seating may be insufficient in quantity, location or quality to adequately support relaxation, social interaction and informal outdoor activities. Shaded outdoor spaces, with MWVs ranging from 3.41 to 3.43, also recorded moderate ratings, indicating that opportunities for comfortable outdoor use could be improved.

The lowest perception was associated with drainage effectiveness, which recorded an MWV of 2.99 across all four dimensions. This comparatively low rating indicates that drainage constitutes a notable weakness within the existing school landscape. Inadequate drainage can affect the usability of outdoor spaces, particularly during periods of rainfall, and may contribute to waterlogging, deterioration of landscape surfaces and reduced opportunities for outdoor activities. Lawns and grass areas, with MWVs ranging from 3.47 to 3.48, and outdoor assembly spaces, with values between 3.41 and 3.43, occupied an intermediate position. These results indicate that such spaces are reasonably perceived by users but do not perform as strongly as walkways, vegetation and recreational areas.

Overall, the findings demonstrate that users' perceptions are more favourable towards landscape elements that provide direct functional, recreational and environmental benefits, particularly walkways, vegetation and sports/open play areas. In contrast, drainage, ornamental planting and seating areas received comparatively weaker perceptions. This suggests that the existing school landscapes provide some important functional components but require greater integration of comfort, aesthetics, environmental management and social-use facilities. The findings therefore imply that improving school landscape quality should not be limited to increasing the number of landscape elements. Rather, greater attention should be given to the quality, accessibility, safety, maintenance and user satisfaction associated with existing elements.

Particular attention should be directed towards lower-rated components such as drainage, seating, ornamental planting and waste-management facilities. This provides a clear basis for subsequent recommendations for improving the landscape quality of secondary schools in Osogbo

V. CONCLUSION AND RECOMMENDATIONS

Findings revealed that the selected schools were predominantly characterised by trees and vegetation (92.8%), sports/open play areas (89.3%), walkways/pathways (82.5%), and outdoor assembly spaces (77.3%), while gardens, seating areas and ornamental plants were less provided. Users' perception showed that walkways/pathways, trees and vegetation, and sports/open play areas were the best-performing landscape elements, with high ratings across accessibility, safety, maintenance and satisfaction (Table 11). Walkways recorded the highest accessibility rating (MWV = 3.91), while trees and vegetation recorded high ratings for safety (3.78) and satisfaction (3.77). However, drainage effectiveness recorded the lowest rating (MWV = 2.99), with seating, ornamental plants, shaded spaces and waste-management facilities also receiving relatively lower ratings. The findings therefore indicate that existing school landscapes are stronger in basic circulation, recreation and vegetation but weaker in comfort, environmental management and supportive outdoor facilities.

Accordingly, drainage systems should be improved; seating and shaded spaces increased; vegetation and lawns regularly maintained; and ornamental planting and waste-management facilities enhanced. Future school landscape design should integrate functional, recreational, aesthetic and environmental elements to improve accessibility, safety, comfort, maintenance and user satisfaction. User feedback should also be incorporated into landscape planning and upgrading to ensure that improvements respond to the actual needs of students and school staff.

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