

**ASSESSMENT AND IMPACT OF OUTDOOR SEATING AREA IN CAMPUS
ENVIRONMENT: A CASE STUDY OF FACULTY OF ENVIRONMENTAL SCIENCES,
UNIVERSITY OF BENIN**

BY

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CANDIDATE'S CERTIFICATION

This is to certify that I, **Dele Junior OYE** with the Matric Number **ENV1704565** carried out this study which is adequate in content and scope in partial fulfillment of the requirements for the award of Bachelor of Science (B.Sc) degree in Architecture in the Department of Architecture, University of Benin, Benin City.

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SUPERVISORS'S CERTIFICATION

This is to certify that **Dele Junior OYE** carried out this study which is adequate in content and scope in partial fulfillment of the requirements for the award of Bachelor of Science (B.Sc) degree in Architecture in the Department of Architecture, University of Benin, Benin City.

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DEDICATION

This research work is dedicated to God Almighty, the author and the finisher of our faith who has seen me through my DEGREE program successfully.

ACKNOWLEDGEMENT

The Researcher wishes to express his sincere appreciation to God Almighty for the life and grace He gave to him to accomplish this great work.

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It is fitting for the researcher to end his acknowledgment by sending appreciation to his siblings and course mates. God bless you all abundantly.

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ABSTRACT

This study was carried out to examine the assessment and impact of outdoor seating area in campus environment using the Faculty of Environmental Sciences, University of Benin as case study.

To guide the study, three questions were raised and descriptive research design was used for the research work. The population of the study was students from the Faculty of Environmental Sciences, University of Benin from which a sample size of 50 random respondents was taken. The reliability of the research instrument was determined using the test retest reliability measure and simple percentage technique was used for data analysis.

Findings from the survey conducted reveals that larger percentage of respondents strongly agreed that outdoor seating area has impact on students academics, physical and mental health, and social interactions. Most of the respondents agreed that infrastructures such as outdoor seats, lightings, green areas etc. are inadequate and also agreed with the need to construct new outdoor seating areas and renovate existing ones in the campus.

CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

Outdoor seating area is an outdoor space generally used for social and recreational activities. It can be integrated into virtually all building types namely - residential buildings, commercial buildings, public buildings, institutional buildings, religious buildings - where its design is often tailored towards the activities within these building types. For Instance, within the residential building the outdoor seating area either takes the form of transitional spaces like deck, patio, terrace, veranda etc where it serves as dining and other in-house activities or designed exclusively for outdoor operations. In commercial and public buildings, it is often used as a rendezvous while for religious buildings, it serves as a venue for mediation and several other activities associated with the religion.

Outdoor seating areas in institutional buildings are platforms for activities that may be formal or informal and within the campus environment, their use transcend academic exercises i.e beyond their use as place for teaching and learning they are also an outlet for socializing among other non academic activities. They are the ideal locations for interaction, social norms and connection among students, staff and other members of the university community. They give face-lift to the physical environment of the university campuses and provide an appropriate context and catalyst for learning and social interactions. These interactions have the vital role in contributing students in building their society, and lively university campuses, in turn, contribute to the student's physical and mental well-being.

Within the campus environment of University of Benin exists open spaces between and within buildings that work as joints of surrounding environments and within these spaces are seating areas where social and cultural activities occur every day. These outdoor seating areas give a feeling of life to the environment by integrating and organizing different places and elements and also enhance their surroundings aesthetic quality by creating visual surprises. They are the starting point for students in the university to interact with the world and to have real relationships with others. In addition, many creative and innovative ideas occur here, away from formal classes and discussions.

Also, previous studies on campus outdoor space use shows that the outdoor seating are of immense values go the student physical and mental health and these values include: relieve of stress stemming from the boredom or density of the lessons and provide a place for the academic community to relax, support the relationships between people and increase the quality of university life, behavioral and psychological benefits to campus students, provision of healthy and responsive working and learning environment, promotion of the comfort, convenience and well-being of the students and members of staff with adequate access to natural, calming, beautiful and reposeful sights, among others (Ulrich, 1979; Biddulph, 1999; Abu-Ghazzeh, 1979; Tzoulas et al., 2007; Fadamiro, 2010).

In reference to the effect of outdoor seating areas, this study seeks to examine the impact of outdoor seating area on the sociability and mental well-being of the students within the campus environment and also assess quality of the seating out area with the overall goal of improvement for better satisfaction of users.

1.2 Statement of Research Problem

Many papers in contemporary literature analyze data series related to how well-being could be effectively improved by exposure to natural landscapes (see Coles and Millman, 2013). From architecture and the humanities to medicine and ecology, the evidence reported highlights the fact that well-being, health and natural landscape are intertwined.

The academic environment in particular is a place where the outdoor seating area is a vital part of the students' activities including learning and teaching that occurs outside the classrooms. In addition, the institution is not only concerned with academic purposes but also have the aim of helping students to improve and develop their social lives and create their personality which is enhanced by the utilization of outdoor seating area.

However, from observation the outdoor seating areas in University of Benin are not given sufficient attention in terms of quality and quantity. The lack of outdoor seating in The Faculty of Environmental Science for instance may have adversely contributed to the poor social interaction among students and a decline in their mental health. Based on this scenario, the paper

is an attempt to know how these seating affect and support students' outdoor activities, and whether they are achieving students' satisfaction.

1.3 Justification for the Study

The following are the significance of this study:

Findings from this study will educate the general public on impact and relevance of outdoor seating areas to the social and mental well-being of students within the campus environment of University of Benin.

The results of this study will also sensitize the government, school management and other stakeholders on the need to strategize and implement plans to make improvements on the quality of existing seating areas in the campus and also install new ones at the Faculty of Environmental Science and other strategic places within the campus. Furthermore, this research will also serve as a resource base to other scholars and researchers interested in carrying out further research in this field.

1.4 Research Questions

The aim and objectives of this research are addressed through the following research questions;

- (1) Do the outdoor seating areas have an impact on students' academics, physical and mental health and social interaction?
- (2) Are the outdoor seating areas in the campus of good quality?
- (3) Are outdoor seating areas and the infrastructures in the campus adequate?
- (4) What effective measures are needed for improving outdoor seating areas in the campus?

1.5 Aim and Objectives of the Study

1.5.1 The Research Aim

This study aims to identify how outdoor seating areas can affect the social-effectiveness of campus environment. 'In terms of social-effectiveness, seating within public spaces has the potential to benefit community health and wellness by creating safe spaces where people can de-stress through relaxation and physical activity' (Chen, Liu and Liu 2016). The researcher's goal is to verify the role of seating areas as invaluable place-making tools for socializing in campus environment.

1.5.2 Objectives of Research

The research intends to achieve the highlighted objectives below;

- (1) To assess the effect and impact of outdoor seating areas on the students' academics, physical and mental health and social interaction.
- (2) To evaluate the quality of existing outdoor seating areas in the campus.
- (3) To evaluate the adequacy of campus outdoor seating area and its infrastructures.
- (4) To examine the effective measures for improving outdoor seating area in campus.

1.6 Research Hypotheses

The researcher deduced the following outlined hypotheses from observation;

- (1) Outdoor seating area has an impact on students' academics, physical and mental health and social interaction.
- (2) The campus lacks quality outdoor areas.
- (3) Outdoor seating area and its infrastructures within the campus are inadequate.
- (4) Effective measures can improve outdoor seating areas in campus.

1.7 Scope of the Study

The disciplinary scope of this study is the assessment of the impact of outdoor seating area on the campus environment. The case study approach which was selected as the most suitable approach in this research will explore the outdoor seating area of the Faculty of Environmental Science and the characteristics of the seating design that encourage social behavior, and the usage activities which promote social interaction.

1.8 The Study Area

The study area or the spatial scope of this research is narrowed to the University of Benin, Benin city. However, the case study for this research will specifically focus on the Faculty of Environmental Science, one of the faculties within the university.

1.9 Limitation of the Research

With regards to this study, the researcher in the process of finding out the impact of outdoor seating area on campus environment had financial constraints and problems with time constraints in combining academic work with project writing.

CHAPTER 2: LITERATURE REVIEW AND FRAMEWORKS

2.1 Literature Review

2.1.1 Overview of the Outdoor Seating Area

The broad literature on environment-behavior studies is an undeniable bundle of scientific evidence that affirms the affective, perceptive and cognitive interaction between man and his environment at all spatial scales, often to achieve necessary adaptations (Moore, 1979). Indeed, human beings have an amazing ability to adapt and these myriad of possible adaptations is the reason for the survival of human race through outdoor and green values (Indraganti, 2010).

There are four groups of outdoor seating area that can be identified in contemporary western cities. The first one includes private outdoor seating area reachable only to the owners, or those invited onto their land. In this group, there would be yards of private estates and private homes, so on. The second group comprises what is generally called as public space, areas such as streets and neighborhood parks which are accessible to all and publicly owned. The third group consists of spaces such as a university campus or corporate plazas, which are privately owned but reachable to the general public. The final group is shared outdoor seating areas usually accessible only to members of that group owning the space. Examples of these would be the landscaped areas of community gardens, assisted living facilities, clustered housing, as well as historical precedents and co-housing University campuses are similar to urban patterns in that both consist of buildings, spaces and roads. As elements of the physical environment, when these components are considered in terms of the concept of structured environment and space, they may be distinct as the environment's utility for individual and social uses. The quality of campus is known by the activities occurring within it and its scenes of place.

2.1.2 Outdoor Seating Area in Campus Environment.

Campus physical environment plays an essential role in influencing students' life quality, thus, increasing their attraction towards the higher institution. Establishing campus environment of good performance and compatible with the current and future needs of campus community has become an urgent requirement for the majority of universities. This is based on the fact that

universities nowadays represent the main centers of knowledge for societies (Abd-Razak et al., 2012). Moreover, the creation of successful outdoor environment on campus contributes to providing opportunities for higher education institutions to perfectly meet their objectives in learning, displaying progress principles as well as be as models for wider communities (Franklin et al., 2003). This obviously discloses the importance of paying greater attention to enhance campus environment to achieve those objectives.

The quality of campus is known by the activities occurring within it and its scenes of place. Although, it can be argued that literature on campus planning is somewhat rich, little has been said about designing campus outdoor seating areas as well as the correlation between campus physical structure and its performance (Al-Akkam, 2015, Salama, 2008). Whether a campus has an effective physical character mainly depends on design quality, where a successful campus design represents a procedure to create functional and efficient environment that meets the diverse needs of the academic institution. Thus, drawing upon good design, planning and outdoor space management is the only way for a university to possess a campus that has the potential to provide a successful learning space, with all accompanying required activities.

In this context, principles of urban design arise as crucial features that determine the quality and performance of the built environment. A campus as a microcosm of the city, needs to distinguish the value and prestige that architecture can provide as an outward symbol of educational body (Al-Akkam, 2015). It can be said that creating a well-ordered, functional and aesthetical outdoor environment is the main goal of campus design process. Well designed outdoor seating areas of the campus can be described as not merely leftover spaces between campus buildings, but a series of designed places forming an environment comprised of outdoor spaces. Resulting spaces are supposed to lend a sense of safety, encourage the participation with the community supporting social interaction and pleases everyone at all levels (Abdulsahib and Alkhuzae, 2008). Based on the mentioned above, design features can determine to what extent the outdoor spaces on campus are capable to perform well and accommodate successful learning, living and working activities. Therefore, assessing the current output of campus design should be the base to put suitable design insights for the future development that is supposed to achieve a successful campus environment with better performance.

2.1.3 Effect of Outdoor Seating Area on Campus Environment

Many studies have been conducted to evaluate the effect of outdoor spaces on campuses and education buildings; Abu-Ghazze worked on "the environmental quality of the campus outdoor spaces at the University of Jordan" and found three major components including aesthetic and visual quality, behavioral/functional quality and physical/ecological quality. Aydin and Ter conducted a study to evaluate the quality of the outdoor space at Plaza University. The results regarding behavioral and functional quality indicated "how frequently the optional and the social activities will be carried out in the plaza. The quality of the elements constituting the plaza is a reason why users prefer to sit underneath the trees or on the green". McFarland et al. found that students who used the campus green spaces more frequently, when compared with those students who used green spaces less frequently, perceived their quality of life as higher when studied the relationship between students' use of campus green space and perceptions of quality life at Texas State University-San Marcos.

Hanan studied open space as a meaningful place for students in ITB Campus Students ITB (Institut Teknologi Bandung, Indonesia). The findings reveal that the outdoor environment that maximizes collegial encounters and exchange of ideas will also maximize indoor learning process variety of open spaces in proximity and different departmental classrooms improve the likelihoods that a student will cross paths with other students. This condition will increase the likelihood of interdisciplinary communication and collegiality. The visually attractive and active outdoor environment can considerably affect the flourishing of sense of community.

2.1.4 Values of Outdoor Seating Area

2.1.4.1 Health and Psychological Value

In a rapidly ageing global society with diminishing resources, it is increasingly important to find cost-effective ways to promote and maintain health in campus environment. Having access to nature and the outdoor seating area is widely considered to be therapeutic for humans. Recently, research is beginning to confirm that people who spend time outdoors may derive health benefits such as better sleeping patterns, less pain, decreased urinary incontinence and verbal agitation,

better recovery from disability, and even increased longevity. Thus, given the stressful conditions of the campus environment, the importance of outdoor seating area cannot be overstated.

2.1.4.2 Socio-cultural Value.

The attitude and behavior of the interacting persons are changed by social interaction. It is a social association among at least two persons. It changes the societal conditions of people life. Interaction is the soul of relationship and social life. It yields a group which is the base of society. In sociology, social interaction is an active sequence of social actions between individuals who alter their actions and reactions due to actions by their interaction partners. The term "social" points to humans alive together in structured groups. The interaction displays different associations in different disciplines. It indicates vibrant action between individuals and others. In a similar topic, Emmanuel and Olufemi(2013) stated that the outdoor spaces and landscape of campus environment have the potential of supporting relationship among students, improve quality of university community, and enhance cultural and social behavioral values of students."The way people make a relationship with each other plays an important role in shaping the environment and directly influences interactions among human beings as well as interactions between human beings and the environment. The kind of spatial performance, position, spatial dimensions, and the way relationships take place can affect the enhancement of social interactions". From the research studies reviewed, it can be concluded that the topic of studying the impact of outdoor seating areas in university campuses is one of the issues that need to be addressed because of its importance in diagnosing its impact in stimulating students and creating an efficient atmosphere of social interaction among them.

2.1.4.3 Environmental Value

The importance of greenery as thermal modifier for indoor and outdoor climate in the built environment of the tropics cannot be over-emphasized. Trees and other vegetation shield people from direct sunlight, block radiant heat loss from buildings and people, protect soil and water quality, modify local climate, reduce noise and air pollution (Girling and Kellett, 2005). It has also been discovered that shading trees improves thermal comfort, the cooling function of tree canopy on parking lot microclimate reduces harmful air pollutants emitted by cars and increased

tree canopy can reduce asphalt temperature in parking lots by as much as 360 F (Shashu-Bar et al., 2010; Scott et al, 1999; Centre for Urban Forest Research, undated). Outdoor thermal environment is impacted by shading trees just as trees and green spaces are elements of the ecosystems that clean air and surface water and provide or renew potable water (Lin et al, 2009; Wolf, 2004). De Dear & Brager (1998) posits that thermal adaptation can be attributed to three processes of behavioral adjustment, physiological acclimatization and psychological habituation or expectation.

2.1.4.4 Economic Value

Outdoor seating areas can require fewer public amenities and municipal services than new land development, offering a Cost effective alternative. Their characteristic features allow them to be used as platform for rendezvous thus saving the cost of renting halls. They are ideal venue for organizing social gatherings and even official meetings when on tight budget and need to maximize the cost as much as possible.

2.1.5 Factors Affecting the Use of Outdoor Seating Area

In the canon of environment and behavior studies, a person's experience of a place is a multi-variety phenomenon. While current knowledge affirms the inevitability of the use of outdoor seating area and its associated greenery resources, certain factors often determines, preclude or limits its use. The qualities of the outdoor space like physical/ecological, behavioral/functional quality, aesthetic and visual quality are determinants of the use of outdoors (Abu-Ghazze, 1999). Aydin and Ter (2008) discovered that users' satisfaction, users' expectations, users' characteristics, distance from users' indoor activity areas, cleanliness, comfort, relaxing atmosphere, entertainment potential, proper landscaping and security influence outdoor use of campus environment. In this gamut, boundaries in particular increases territorial control and therefore regulate interaction with others in outdoor spaces (Taylor, 1988). Sufficient outdoor seating, diversified plant species, attractive water theme, busy work schedule, hot and humid weather, annoying bugs and mosquitoes, small space sizes and long distance was mix of factors in varying degrees that Yang and Stephen (2009) discovered hinders the use of green spaces of the University of Hong Kong. On the whole, "improvement of microclimatic conditions in urban spaces can enable people to spend more time outdoors" (Aijawabra & Nikolopoulou, (2010) and

the “use of outdoor spaces in a university campus is based on associated or anticipated behavior at a given locus, and the physical parameters of the setting in relation to global cognition of the campus arrangement (Abu-Ghazze, 1999, cited in Unlu et al, 2009).

2.1.6 The Need for Outdoor Seating Area

Nowadays the cities grow and grow more without necessary consideration to the social needs, especially for students. Many students suffer from lack of enough physical activities as well as lack of enough social relationship. Therefore improvement of the quality of these spaces has a significant impact on personal growth and social interaction. Campus students form an important social group within society. Understanding the perspectives about their environment is important and should be taken into consideration in research as well as in practice. It is noticeable that in the recent years, most of leisure time of students is spent on the phone screen and doing other non-physical activities. Hence, creating more recreational spaces is considered to prevent idleness, loss of awareness of one’s environment and lack of interaction with the environment. Unfortunately, it is in most cases observed those spaces are either nonexistent or have been designed without consideration of their real needs. For example, only little attention has been paid to their psychological characteristics such as a need for variety in color, color and texture. To actualize students’ creative abilities, it is crucial to pay special attention to the balance between the spaces designed for them and their developmental and social needs and abilities. This study examines the campus students' preferences of outdoor environment. The influence of the environment on students from the view point of developmental and educational psychology is studied and could be used in the designing process by architects and interior designers who design outdoor seating areas as designed space for environmental education can facilitate learning and create a more conducive and eco friendly atmosphere.

2.2 Theoretical Framework of Research

This study is to examine the impact of outdoor seating area in campus environment and so it shares notable characteristics with campus design. Campus design according to Dober (1992)

and Chan (2009) is defined as the process of careful site planning and three dimensional setting of physical components, encompassing the strategic placement of buildings, streets, walkways, gathering spaces, and green spaces as well as the spatial relationships between them. It also concerns the setting of both natural and artificial landscapes and describes the physical layout of campus and the features observed by people whether on foot or in vehicle. Whether a campus has an effective outdoor space mainly depends on design quality, where a successful campus design represents a procedure to create functional and efficient environment that meets the diverse needs of the academic institution which brings about the "concept of total environment".

2.2.1 The Total Environment Concept

A concept called "Total environment" was presented as a design principle for creating campus environment of efficient performance, which refers to the formation of an area of multi-functions by the implementation of space allocation system on campus (Burns, 2001). According to this idea, a mix of functions such as academic, residential, facilities, business and social uses are accommodated in one space. As a result, a livable environment can be achieved, where users can find most of their daily needs at the same place. Literature also indicated the design of circulation systems as a crucial factor to the quality of campus life, wherein they act as liaison of all campus parts and is necessary to support the activities on campus (Dober, 1992). For most campus users, landscape is also decisive in providing a visual milieu for campus life accordingly, campus design can contribute to expressing institutional identity through identifying meaningful places to students and pursuing to care for them, where distinctive lively spaces on campus are critical to institutional identity.

2.3 Conceptual Framework of Research

2.3.1 Designing a Quality Outdoor Seating Area

Hanan (2013) suggested that every day users' needs on campus should affect the way outdoor seating areas are designed. She also concluded a set of characteristics significant in designing successful open space:

- Be located where it is easily accessible to and can be seen by potential users.

- Clearly convey the message that the place is available for use and is meant to be used.
- Be beautiful and engaging on both the outside and the inside.
- Be furnished to support the most likely and desirable activities.
- Provide a feeling of security and safety to would be users.
- Encourage use by different subgroups of the likely user population, without any one group's activities disrupting the other's enjoyment.
- Offer an environment that is psychologically comfortable at peak use times, in regard to sunshade, windiness and the like.
- Allow users the option, either as individuals or as members of group, by using it for special events, or by temporarily claiming personal spaces within the setting.
- Be designed with equal attention paid to place as an expression of visual art and place as social setting.

This indicates that design considerations for making a good urban place are concentrated around responses to the urban conditions and people's presence in the urban environment. When elements of the physical environment are taken into consideration in terms of the concept of space and structured environment, they may be defined as the environment's helpfulness for individual and social uses. Thus, outdoor seating areas needs to generate a sense of place, provide focal points, allow a plentiful variety of seating and include natural elements(Chambers, 1998, Aydin and Ter, 2008). Therefore, examining to what extent the principles, elements, and concepts undertaken in the current design are able to make the environment embraces users' needs is crucial for insuring the success of next developments. University role for the society including spatial-aesthetic, social and cultural values make it imperative to take into account the importance of designing campus environment to be competent to conduct its tasks. The outdoor seating area of university campus should be designed according to criteria that have physical response to its varied functions and be as a paradigm of interconnection and confidence among students, faculty and visitors.

2.3.2. Outdoor Seating Area Design: The Sustainable Approach

The rise of industrialism led to the emergence of new building materials needed to fast track the construction process. Cement was introduced to speed up binding process of aggregates and facilitate mass housing while steel was introduced to provide structural reinforcement and cover spaces that span large areas. Also aluminum, plastic, glass etc. were introduced to enhance the building facade, maximize interior space, and lighten the building weight. Through these innovative materials several architectural feats were achieved but not without a cost. The Financial Times recently released report on world industrial pollution reveals that steel production alone accounts for 24 percent emission. Subsequently, the statistics shows 18 percent for cement, 6 percent for plastic, 3 percent for aluminum among others. When combined, they all account for more than half of the global industrial emission. The extensive use of these materials in the building industry contributes to the high rate of carbon and plastic waste in the world. Carbon for instance make up larger part of air pollutants while plastic constitute greatly to the waste in oceans. Thus, they are responsible for global warming the world is currently experiencing.

Over the years, the world has woken up to the realities of climate change and its negative effect. In an effort to reduce the green house effect and prevent further depletion of the ozone layers, there have been a constant push for hazardous industrial construction materials to be replaced with eco-friendly ones. Therefore, the objective of outdoor seating area design should be the creation of a comfortable yet energy efficient internal environment which can be realized by reducing our over reliance on industrial building materials and embrace the use of locally sourced materials. In addition, materials can be recycled or reused in the construction process of Outdoor seating area in response to the global call to combat climate change and thus reaching nearer to the goal to achieve sustainability.

CHAPTER THREE: METHODOLOGY

3.1 Introduction

This chapter deals with the research methods and procedures used to conduct the study. They are organized under the following sub-headings:

3.2 Data Types and Sources

The data type employed for the research is statistical data types. It takes into consideration measures such as sex and age of the respondents which are presented using descriptive statistical analysis method.

3.2.1 The Primary Sources

The researcher used statistical data sources gotten directly from questionnaire filled by random sampled of students from the faculty of Environmental Science.

3.2.2 The Secondary Sources

The researcher also used data sources gotten from articles, journals and other publications on outdoor seating area.

3.3 Research Data Matrix

Demographic Characteristics of Respondents

Table 1: Sex of the Respondents

Gender	Frequency	Percentage (%)
Male	25	50.00
Female	25	50.00
Total	50	100

Source: Field Survey, 2022

Table 1 reveals the sex of the respondents with 50.00% representing the male and 50.00% representing the female.

Table 2: Age of the Respondents

Age	Frequency	Percentage (%)
16-20	26	52.00
21-25	18	36.00
26-30	6	12.00
Total	50	100

Source: Field Survey, 2022

Table 2 reveals the years of the respondents with 52.00% of the respondents between 16-20yrs, 36.00% of the respondents between 21-25yrs, 12.00% of the respondents between 26-30yrs.

3.4 Research Population

The population of this study comprised of all the students in the Faculty of Environmental Sciences, University of Benin.

3.5 Sampling Frame

To obtain a balance and accurate result, the following sample frame was taken into consideration.

- Stratified selection of 10 students from each of the 5 departments in the Faculty of Environmental Sciences.
- Age range between 16 and 30 years.
- Sex comprises 25 males and 25 females.

3.6 Sample Size

A sample size of 50 students from the Faculty of Environmental Sciences, University of Benin was randomly selected for the research purposes.

3.7 Sampling Techniques

The simple random technique was adopted to randomly select 10 students in the faculty of Environmental Sciences, University of Benin. Consequently, 50 questionnaires were administered.

3.8 Data Collection Instrument

The instrument for data collection was a questionnaire which was developed by the researcher. The questionnaire consisted of two sections, A and B. section A measured general information on the demography of respondents e.g. age and sex. Section B was a structured questionnaire, which contains 12 items in all. These items are divided into three sections representing the three research questions in the study.

3.9 Procedure for Data Collection

The researcher collected data using the questionnaire. Copies of the questionnaire were administered by the researcher on the respondents. All the respondents were expected to give maximum co-operation, as the information on the questionnaire are all on things that revolve around their study environment. Hence, enough time was taken to explain how to tick or indicate their opinion on the items stated on the research questionnaire.

3.10 Method of Data Analysis

The method of data analysis applied in the research is the quantitative data analysis method. The research questions were answered using 4 points Likert scale, a closed ended ranking order questioning technique and interpreted using simple percentage analytical technique.

3.11 Data Processing and Analysis

The research was conducted, collated and computed using the following processes:

3.110 Data Requirements

Requirements for data gathering are prepared at this stage. The researcher took the sex and age of the respondents into consideration.

3.111 Data Collection

This is data gathering stage. The prepared questionnaires were distributed to respondents to fill, then collected and collated for analysis.

3.112 Data Editing

At this stage, the questionnaires were checked for duplicated records, multiple entries and other errors. Some of the data were edited while others were removed.

3.113 Data Validation

The edited data at this stage were checked for accuracy. Test-retest approach was adopted by the researcher in establishing the reliability of the data.

3.114 Data Coding

This is the stage where the validated raw data are computed and converted to concrete statistical figures. In this case, simple percentage technique was used.

3.115 Data Analysis

At this final stage, the processed data are interpreted. For this research, the result were interpreted and applied to the research and subsequent researches.

CHAPTER FOUR: ANALYSIS, FINDINGS AND DISCUSSION

4.1 Introduction

This chapter deals with the presentation of results and discussion of findings from the data collected.

4.10 Presentation of Result

Presentation of findings from the analysis of data obtained. These results are carefully interpreted and presented in tables. A total of fifty (50) questionnaires were administered out strictly to male and female respondents of which the researcher was able to retrieve all the instruments used and this represent 100% participation of the respondents based on the distributed questionnaire.

Hence, the data analysis was conducted using simple percentage (%) statistical techniques to test the frequency of the personal data of the respondents and the frequencies of their responses to the research questions. This was to ensure simplicity and clarity of the responses.

4.2 Objective One

To assess the effect and impact of outdoor seating areas on the students academics, physical and mental health and social interaction.

Research Question One:

Do outdoor seating areas have an impact on students' academics, physical and mental health and social interaction?

Table 4.2: Distribution of responses on the impact of outdoor seating areas on the students' academics, physical and mental health and social interaction.

S/N	Response	SA	%	A	%	D	%	SD	%	Total	%
1	Academics	30	60.00	12	24.00	6	12.00	2	4.00	50	100
2	Physical and mental health	36	72.00	12	24.00	1	2.00	1	2.00	50	100
3	Social Interaction	42	84.00	8	16.00	-	-	-	-	50	100

Source: Field survey 2022.

The first table above revealed responses to the items listed in the questionnaire.

For research item one which states that outdoor seating areas have impact on students' academics, 60.00% of the respondents strongly agreed, 24.00% of the respondents agreed, 12.00% of the respondents disagreed while 4.00% strongly disagreed.

For research item two which states that outdoor seating areas have impact on students' physical and mental health, 72.00% of the respondents strongly agreed, 24.00% of the respondents agreed, 2.00% of the respondents disagreed while 2.00% strongly disagreed.

For research item three which states that outdoor seating areas have impact on students' social interactions, 84.00% of the respondents strongly agreed, 16.00% of the respondents agreed while none of the respondents disagreed or strongly disagreed.

4.3 Objective Two

To evaluate the quality of existing outdoor seating areas in the campus.

Research Question Two:

Are these features of outdoor seating area in the campus of good quality?

Table 4.3: Distribution of responses on the quality of existing outdoor seating areas in the campus.

S/N	Response	SA	%	A	%	D	%	SD	%	Total	%
4	Formal and spatial layouts	15	30.00	23	46.00	9	18.00	3	6.00	50	100
5	Functional spaces	10	20.00	7	14.00	21	42.00	12	24.00	50	100
6	Aesthetics	11	22.00	15	30.00	18	36.00	6	12.00	50	100

Source: Field survey 2022.

The second table above revealed responses to the items listed in the questionnaire.

For research item four which states that the formal and spatial layouts of outdoor seating areas in the campus are of good quality, 30.00% of the respondents strongly agreed, 46.00% of the respondents agreed, 18.00% of the respondents disagreed while 6.00% strongly disagreed.

For research item five which states that the formal and spatial layouts of outdoor seating areas in the campus are of good quality, 20.00% of the respondents strongly agreed, 14.00% of the respondents agreed, 42.00% of the respondents disagreed while 24.00% strongly disagreed.

For research item six which states that the formal and spatial layouts of outdoor seating areas in the campus are of good quality, 22.00% of the respondents strongly agreed, 30.00% of the respondents agreed, 36.00% of the respondents disagreed while 12.00% strongly disagreed.

4.4 Objective Three

To evaluate the adequacy of campus outdoor seating area and its infrastructures.

Research Question Three:

Are these infrastructures of outdoor seating areas in the campus adequate?

Table 4.4: Distribution of responses on the adequacy of campus outdoor seating area and its infrastructures.

S/N	Response	SA	%	A	%	D	%	SD	%	Total	%
7	Seats	13	26.00	13	26.00	16	32.00	8	16.00	50	100
8	Green areas	9	18.00	18	36.00	11	22.00	10	20.00	50	100
9	Lightings	7	14.00	11	22.00	15	30.00	17	34.00	50	100

Source: Field survey 2022.

The third table above revealed responses to the items listed in the questionnaire.

For research item seven which states that the seats of outdoor seating areas in the campus are of good quality, 26.00% of the respondents strongly agreed, 26.00% of the respondents agreed, 32.00% of the respondents disagreed while 16.00% strongly disagreed.

For research item eight which states that the green areas of outdoor seating areas in the campus are of good quality, 18.00% of the respondents strongly agreed, 36.00% of the respondents agreed, 22.00% of the respondents disagreed while 20.00% strongly disagreed.

For research item nine which states that the seats of outdoor seating areas in the campus are of good quality, 14.00% of the respondents strongly agreed, 22.00% of the respondents agreed, 30.00% of the respondents disagreed while 34.00% strongly disagreed.

4.5 Objective Four

To examine the effective measures for improving outdoor seating area in campus.

Research Question Three:

What effective measures are needed for improving outdoor seating areas in the campus?

Table 4.5: Distribution of responses on the effective measures for improving outdoor seating area in campus.

S/N	Response	SA	%	A	%	D	%	SD	%	Total	%
10	Construction of new outdoor seating areas	34	68.00	16	32.00	-	-	-	-	50	100
11	Renovation of existing ones	25	50.00	19	38.00	6	12.00	-	-	50	100
12	Maintain status quo	-	-	-	-	23	46.00	27	54.00	50	100

Source: Field survey 2022.

The fourth table above revealed responses to the items listed in the questionnaire.

For research item ten which states that construction of new outdoor areas is an effective measure of improving outdoor seating areas in the campus, 68.00% of the respondents strongly agreed, 32.00% of the respondents agreed while none of the respondents disagreed or strongly disagreed.

For research item eleven which states that renovation of existing ones is an effective measure of improving outdoor seating areas in the campus, 50.00% of the respondents strongly agreed, 38.00% of the respondents agreed, 12.00% of the respondents disagreed while none of the respondents strongly disagreed.

For research item twelve which states that status quo should be maintained, none of the respondents strongly agreed or agreed, 46.00% of the respondents disagreed while 54.00% strongly disagreed.

4.6 Discussion of Findings

The findings in tables 4.2, 4.3, 4.4 and 4.5 above revealed responses to the items listed in the questionnaire.

From the findings in research item one, most respondents strongly agreed that outdoor seating areas have an impact on students' academics.

From the findings in research item two, most respondents strongly agreed that outdoor seating areas have an impact on students' physical and mental health.

From the findings in research item three, most respondents strongly agreed that outdoor seating areas have an impact on students' social interactions.

From the findings in research item four, most respondents agreed that the formal and spatial layouts of outdoor seating areas in the campus are of good quality.

From the findings in research item five, most respondents disagreed that the functional spaces of outdoor seating areas in the campus are of good quality.

From the findings in research item six, most respondents disagreed that the aesthetics of outdoor seating areas in the campus are of good quality.

From the findings in research item seven, most respondents disagreed that the seats of outdoor seating areas in the campus are adequate.

From the findings in research item eight, most respondents agreed that the green areas of outdoor seating areas in the campus are adequate.

From the findings in research item nine, most respondents strongly disagreed that the lightings of outdoor seating areas in the campus are adequate.

From the findings in research item ten, most respondents strongly agreed that construction of new outdoor seating areas is an effective measure for improving outdoor seating areas in the campus.

From the findings in research item eleven, most respondents strongly agreed that renovation of existing ones is an effective measure for improving outdoor seating areas in the campus.

From the findings in research item twelve, most respondents strongly disagreed with maintaining the status quo.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of Findings

The study examined the impact of outdoor seating area in campus environment. The Faculty of Environmental Sciences in Ugbowo Campus of the University of Benin, Nigeria was chosen as case study from which 50 students were used for the sample size.

Survey research design adopted for the study and a questionnaire titled " Assessment and Impact of Outdoor Seating Area in Campus Environment: A Case Study of Faculty of Environment Sciences, University Of Benin" was used for data collation. Simple percentage method of analysis was adopted for the data analysis.

In the results obtained, it was revealed that outdoor seating areas impacts student's academics, physical and mental health and social interaction, thus, they are important part of the campus environment.

5.2 Conclusion

From the information gathered, it can be concluded that the quality of integral elements of the outdoor seating areas in the campus such as functional spaces and aesthetics is poor. In addition, outdoor seating areas in the campus lack adequate infrastructures such as seats and lighting.

5.3 Recommendations

At the conclusion of the research, the following recommendations were made;

- Outdoor seating area should be given priority in planning of campus environment.
- Integral elements such as formal and spatial layout, functional spaces and aesthetics should be prioritized in the design of outdoor seating areas.
- Green areas should be given consideration in the design of outdoor seating area.
- Outdoor seating areas should be equipped with adequate infrastructures such as seats and lightings.

- Poor existing outdoor seating areas should be renovated for improved comfort.
- New outdoor seating areas should be constructed in locations where they will be most effective such as the courtyard of the Faculty of Environmental Sciences building.

5.4 Contribution to Knowledge

The findings from the research provide the researcher an insight into students' perception of outdoor seating areas in the campus, the quality of their design elements and the adequacy of their infrastructures.

5.5 Areas for Further Research

Further research should be focused towards cost and energy efficient outdoor seating areas and suitable sustainable innovative materials.

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APPENDIX

**DEPARTMENT OF ARCHITECTURE
FACULTY OF ENVIRONMENTAL SCIENCES
UNIVERSITY OF BENIN
BENIN CITY
QUESTIONNAIRE**

TOPIC:

**ASSESSMENT AND IMPACT OF OUTDOOR SEATING AREA IN CAMPUS
ENVIRONMENT: A CASE STUDY OF FACULTY OF ENVIRONMENT SCIENCES,
UNIVERSITY OF BENIN**

Dear Respondent,

I am a final year (400) level of the above-named institution and department. I am conducting a research on the above topic and I request that you assist as one of my respondents by providing information on the following questions. The research is strictly for academic purpose and the information supplied will be a confidential one.

Yours Faithfully,

Dele Junior OYE (Researcher)

ENV1704565

SECTION A: BIO-DATA

INSTRUCTION: Please tick or mark (✓) in the boxes provided or fill where appropriate.

1. Sex: Male [] Female []
2. Age: 16-20yrs [] 21-25yrs [] 26-30yrs []

SECTION B: GENERAL QUESTIONS

Please indicate how you agree with the statement by ticking (✓) in the option available.

SA = Strongly agree

A = Agree

D = Disagree

SD = Strongly Disagree

Do outdoor seating areas have impact on the following aspects of students' life?

S/N	ITEM	SA	A	D	SD
1	Academics				
2	Physical and mental health				
3	Social interaction				

Are these features of outdoor seating area in the campus of good quality?

S/N	ITEM	SA	A	D	SD
4	Formal and spatial layouts				
5	Functional spaces				

6	Aesthetics				
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Are these infrastructures in outdoor seating areas in the campus adequate?

S/N	ITEM	SA	A	D	SD
7	Outdoor seats				
8	Green areas				
9	Lightings				

What effective measures are needed for improving outdoor seating areas in the campus?

S/N	ITEM	SA	A	D	SD
10	Construction of new outdoor seating areas				
11	Renovate existing ones				
12	Maintain status quo				