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UNIVERSITY STUDENTS' PERCEPTIONS AND USE OF CAMPUS GREEN SPACES AT GOMBE STATE UNIVERSITY, GOMBE STATE, NIGERIA

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ABSTRACT

Green spaces are essential areas in the university campuses. Attractive green space areas are considered as features which contribute positively not only to the student experience but the image of the university. The study generated data from undergraduate students at Gombe State University, it reveals understandings about students' perceptions and use of campus green spaces (CGS). The quantitative data collected via the questionnaires were digitalized and analyzed using MS Excel statistic package. Descriptive statistics, including measures of percentage and frequency to analyze the associations between perceptions and use of CGS and students' well-being on campus. Content analysis was used to analyze qualitative data generated. The study results indicate that majority of respondents (94%) both use and aware of campus green spaces, and CGS are important for the image of the university and also an integral component of the campus environment. The campus aesthetic quality and its design and management style have impact on the perception and use of its green spaces. The students (73%) preferred areas with manicured gardens, seats, and lawns over those areas without these facilities. The study recommends that a university campus needs manifold forms of green spaces to satisfy the needs of increasing number of student users.

Keywords: Gombe State University, Green spaces, Perception, Student use

INTRODUCTION

An integral environment is offered by the university campus for daily routine of learning, living and working for an increasing number and diversity of students. Students on campus are involved in activities that require their attention constantly and considerable amount of time (Felsten, 2009), A university environment should be suitable for learning in order to enhance social and personal development of students (Abercrombie, Gatrell & Thomas, 1998). An essential fragment of a university campus is the campus green space (CGS). University with eye-catching green space areas often highlight these as elements which contribute positively to the student experience and the image of the university. A study by Ewulo, Balogun, Okunlola and Agele, (2015), asserted that good landscaping contributes to the serenity and quality of the of the environment.

A number of researches have shown that experiences in green space benefit humans in divers ways, including increasing health and well-being, and also reducing stress (Hartig, Mitchell, de Vries, & Frumkin, 2014; Honold, Lakes, Beyer & van der Meer, 2015; Ewulo et ai., 2015; Kuo, 2015; PHE, 2020), improve attention, increase happiness (Capaldi et al., 2014), salvage from concentration fatigue (Hartig, Evans, Jamner, Davis, & Gärling, 2003); provide spiritual and scientific inspiration (Díaz et al., 2018), inspire creativity, enhance learning (Kuo, Barnes & Jordan, 2019; Salazar, Monroe, Jordan, Ardoin & Beery, 2021), It can combat loneliness and bind communities together (PHE, 2020), and nurture environmental stewardship values (Kellert, 2012; Chawla & Derr, 2012). Involvements in greenspace can also help develop critical and creative thinking skills and can facilitate social and emotional learning (Chawla, 2015; Kuo et al., 2019). These involvements help define the relationship people have with greenspace which is often interrelated with a person's level of environmental concern as well as their engagement in pro-environmental behaviors. A more informed understanding of the ways in which interactions with the natural environment can foster connection to nature requires that we are able to understand our perceived relationship to the environment (Otto & Pensini, 2017; Salazar et al., 2021).

University students often have more access to green spaces which make available different opportunities for interactions that could maintain and improve health and well-being. At present, many universities are striving to design or improve their campuses, creating the features and functions of an urban ecosystem, to gain a greener aesthetic look (Tuderie, Vallés-Planells, Gielen, Arroyo & Galiana, 2020). However, data describing the sort and rate of green space use and associated benefits discussed amongst university student population is inadequate. Higher quality of life has been reported amidst students who perceive their university campuses to have higher levels of "greenness" (Hipp, Gulwadi, Alves, & Sequeira, 2016), and amongst university students who report higher amount of overall time spent outdoors (McFarland, Waliczek & Zajicek, 2008). Though these studies provide initial data suggesting interactions with green spaces could positively impact students' quality of life, it is important to have detailed data on the varying types of green space use by university students.

Definitions of green space differs, and similar concepts can be described by different names within the literature, with terms such as 'natural environment', 'open space' and 'green infrastructure' often used interchangeably. For the purpose of this paper, campus greenspaces are considered multifunctional landscape services providers, which simultaneously offer a benefits, such as improving air quality, ensuring pleasant climatic conditions, habitats for biodiversity, offering outdoor spaces to play, do sport, relax, meet people and provide psychological benefits. Although "biodiversity" encompasses all kinds of species (including small animals) and also habitats, the aims and the scale of this study give priority to only the bigger plant vegetations, due to their apparent and easily recognizable structure in the campus (Bratman, Hamilton & Daily, 2012; Völker et al., 2018;

Tudorie et al., 2020 and Foellmer, Kistemann & Anthonj, 2021).

This research explores the green environment in university campus and student perceptions to discover more about how students react and respond to green spaces in their universities. This in turn have implications at the wider scale levels such as campus design, campus green spaces and quality of life (Gumprecht, 2007; McFarland et al., 2008). It was asserted by Gumprecht, (2007) that university campuses influence as well serve practical purposes in recruitment and funding of students. Research into student success found that university campus environment contributes significantly in enhancing students' academic life experience (Walsh et al., 2009 quoted in Speake, Edmondson & Nawaz, 2013; Ewulo et al., 2015). Campus green space is essential to many universities total material fabric and established the context for what the campus landscape is, mean and does (Habib & Ismail, 2008; Speake, Edmondson & Nawaz, 2013; Ewulo et al., 2015).

The literature on perceptions and use of CGS are situated within a wider range of studies on green spaces. These studies explore how green spaces describe communities, provide opportunities for recreation, relaxation and social interaction (Woolley, 2003). Green spaces likewise foster economic benefits (Woolley, 2003); ecological benefits (Alvey, 2006, Gill et al., 2007) and health (Frumkin, 2001). Similarly, Sanesi & Chiarello (2006) and Bonnes et al., (2011) reported green spaces in term of resultant effects of perceptions and behaviors. Students opportunity to experience nature and learn about environment will be restricted where green spaces are reduced. Therefore, it is paramount to understand how CGS affect students' life and their connection with green spaces within their immediate environments. There is an interconnection between green spaces and people which can be premised in affect and emotional responses and ultimately be reflected in people's perceptions and articulation of their environment.

Perception according to Schiffman and Kanuk (1987) means to become aware of something using external clues, or the process through which individuals see the world around them. To understand spaces and their use, considering perception dimensions and to explore will be of help, For instance, users place perceptions and preferences for places and landscape style (Van den Berg & van Winsum-Westra, 2010; Zheng et al., 2011). The exploration of green spaces and perception gives understanding into human-nature integration as contend by Bonnes et al., (20ll). They further provide the importance of insight into place-specific experience in green spaces through self-reported perception of use and quality of such space.

Within the background of exploring material and non-material behavioral and affective interconnectivities of campus green spaces, the study aims to discover the university students' perception and use of campus green spaces at GSU's campus. Its objectives are precisely to find out how campus green spaces are used by students, their awareness of, and satisfaction with, the quantity and quality of these places, their least and most preferred green spaces on campus, and their ideas on how to improve green spaces.

MATERIALS AND METHODS

Study Area

The study area is the campus of the Gombe State University, a state-owned institution located in Shamaki Ward, Tudun Wada, Gombe State. It lies in the northeastern Nigeria between Latitude 10^{o} 18' 1.54" North and Longitude 11o 10' 13.09" East GSU, (2020). Gombe State University, is an eye-catching, landscaped campus in the Northeastern Nigeria. The university as 'a mini educational village has places to live, study, work, eat and relax' and 'beautiful environments'. It was selected as the case study site because of its stated image as a 'green campus' and as a hub of activities that serves not only students and staff, but also people from the surrounding residential area.

Survey Tool

The study adopted mixed research technique to generate both qualitative and quantitative data using a questionnaire. This combination was considered most suitable to gain deeper insights into phenomena for example perceptions, emotions and feelings. Like the study carried out by Speake, Edmondson and Nawaz (2013), both spatial and behavioral extents of student contacts with green spaces and the actual space used in their immediate campus green environment were explored.

The sample used in this research was a random selection of students at Gombe State University. GSU consists of eight faculties, out of which 200 respondents were selected for data collection. That is, 25 respondents per faculty were selected. The respondents were within the age range of 18 - 41 years. The researchers were directly engaged on the research site for distribution of questionnaire. This procedure facilitated immediate assessment of the impacts of how CGS affect student's life and their connection with green spaces within their immediate environment more specifically and intuitively thanks to a direct visit to the research site (Völker and Kistemann, 2015). A standardized questionnaire was formulated containing open-ended questions and multiple-choice questions. The questionnaire was divided into two parts, the first is for respondents' characteristics and the second part is for the topical data.

The open-ended questions were included with the aim of complementing the quantitative data by in-depth subjective statements. Observation was also employed as a tool for data collection.

The quantitative data collected via the questionnaires were digitalized and analyzed using MS Excel statistic package. Descriptive statistics, including measures of percentage and frequency to analyze the associations between perceptions and use of CGS and students' well-being on campus. Content analysis was used to analyze qualitative data generated.

RESULTS AND DISCUSSIONS

The respondents for the study cut across male and female undergraduate students of Gombe State University. Ages ranged from 18 to 35 years. The survey instrument was to assess students use of their Campus Green Spaces (CGS). During the pilot survey, it was found that students were not familiar with the concept 'Green space". To give the participants better interpretation of the term green space, the definition by Bratman, Hamilton and Daily (2012) was quoted on the questionnaire as "Areas containing elements of living systems that include plants and animals across a range of scales and degrees of human management, from a small urban park through a relatively pristine wilderness". The definition was considered suitable because it covered all types of green space available to students.

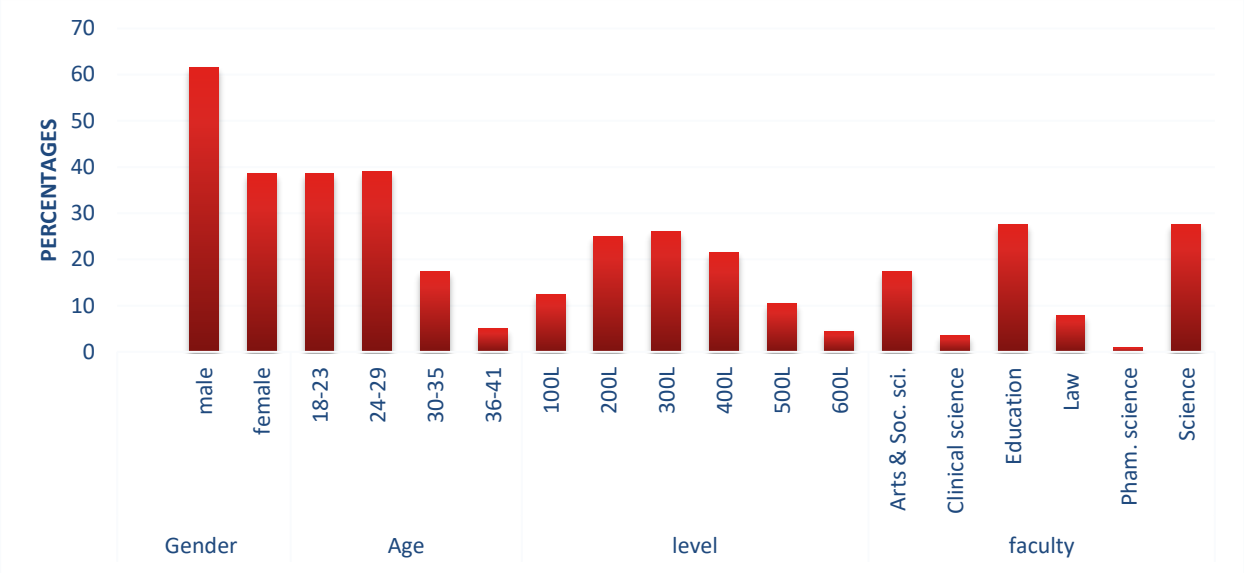


Figure 1: Respondents' Characteristics

Respondents' Characteristics

The respondents for the research were 200 undergraduate students which comprised of 61.5% males and 38.5% females. This agrees with Ewulo, et al., (2015) whose research indicated male as the majority. The age ranged from 18-41. Majority of the respondents are within age 24-29 with 39% and 18-23 with 38.5% range as indicated in figure 1. This means most respondents are within 19-29 age bracket. Figure 1 also shows that majority of these students are 200, 300 and 400 levels with 25%, 26% and 21.5 respectively. This indicates that most of the respondents have spent more than one year on campus. All faculties were engaged in data collection, the largest fraction was from education and science faculties with 27.5% both.

Respondents' Awareness and Use of Campus Green Spaces (CGS)

Participants were asked if they were aware and use the CGS. Almost all the respondents (94%) agreed to be awareness of the CGS and are using them as presented in figure 2. The exciting understanding were unveiled by the study on how undergraduate students view and use CGS. Awareness of CGS by students helps in influencing their perceptions of and responses to CGS. This agrees with Speake, Edmondson & Nawaz, (2013). Research by Gobster et al., (2007) states that awareness of a particular place assists in influencing individual perceptions and use of it.

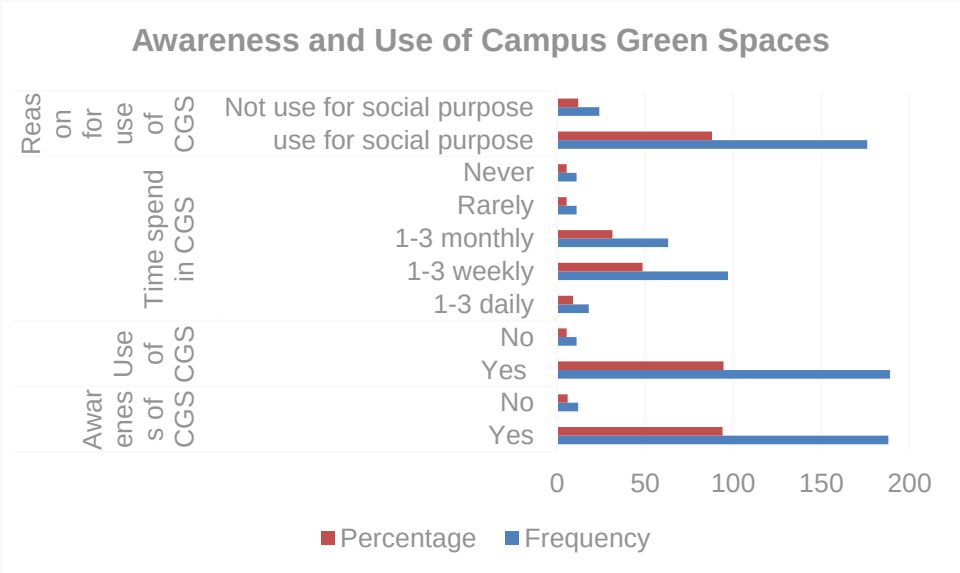


Figure 2: Respondents' Awareness and Use of Campus Green Spaces

Access to well-kept areas of CGS provided by many universities, provide students with sufficient opportunity to profit from the restorative properties of green spaces through usages.

The study shows that the students use of CGS varies due to heterogeneous services provided by the CGS. They use it either for social or non-social purposes. Figure 2 also shows that eighty-eight percent of the students are using the CGS for social purposes, while 12% of 200 participants use it for non-social purposes. The functions of the CGS as described by the students in the questionnaire include: waiting for lectures, reading, club meetings, relaxing, chatting with friends,

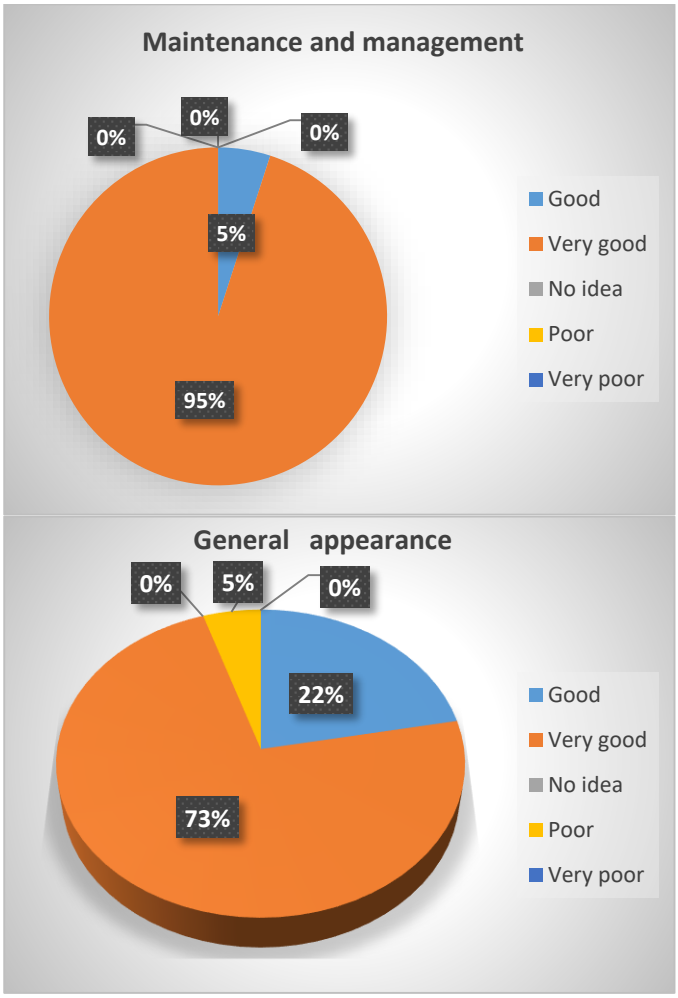
parking of vehicles, sports and get-together parties. This finding is in line with Foellmer, Kistemann & Anthonj (2021). These functions show that proximity of green spaces to students' lecture and residential areas, are probably to experience more usage compared to those far away. The students' awareness of CGS seems to contribute to green space level of usage (Gobster et al., 2007; Foellmer, Kistemann & Anthonj, 2021).

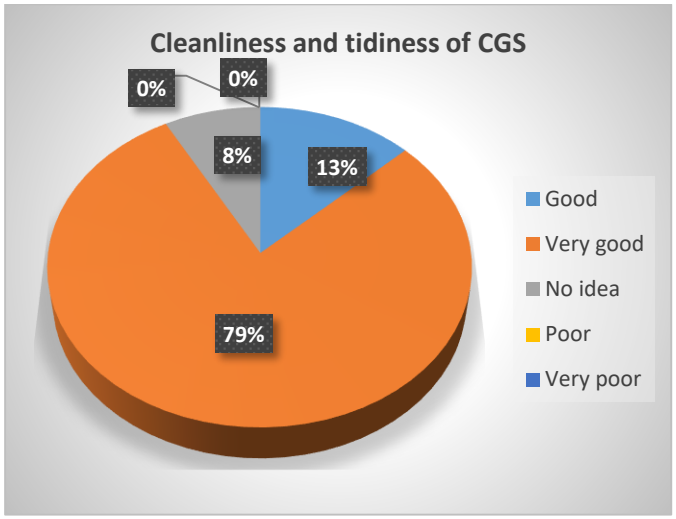
The primary drives for use of CGS were relaxing and socializing, thus agreeing with Gearin and Kahle (2006; and Foellmer, Kistemann & Anthonj, (2021). Researchers suggested that, use of the green spaces plays an important role in stress reduction (Kahn et al., 2008; Jim & Chen, 2006). The respondents using CGS as places for meeting and other social activities will lessen loneliness and increase social contact amidst themselves (Maas et al., 2009; Dyment & Bell, 2008). Students may not be permitted to benefit from the CGS when faced with too much stress due to academic pressure (Misra and McKean, 2000).

Proximity is an important factor in visiting CGS as unveiled by the study and agrees with (Giles-Corti et al., 2005 and Foellmer, Kistemann & Anthonj, 2021). The green spaces closer to learning environment are found to be mostly used by students for relaxing, meetings and waiting for lectures. The research result shows that size is insignificant in green spaces usage within the campus. This agrees with the finding of Speake, Edmondson and Nawaz (2013) but disagrees with Schipperijn et al., (2010).

How do students' Perception of Quality of Campus Green Spaces?

In rating the campus green spaces, students were asked to rate its maintenance and management; cleanliness and tidiness and its general appearance on five-point Likert scale from very good to very poor. Figure 3 shows that 95% of the respondents rated maintenance and management very good and others rated it good; cleanliness and tidiness were rated very good by 79% respondents, 13% good and 8% no idea. Likewise, general appearance of CGS was rated by 73% very good, and good was chosen by 22% respondents as indicated in figure 3.





	Good	Very good	No idea	Poor	Very poor
Maintenance and management	5%	95%	0%	0%	0%
Cleanliness and tidiness	13%	79%	8%	0%	0%
General appearance	22%	73%	0%	5%	0%

Figure 3: Students' Perception of quality of campus green spaces

From above one can deduce that, aesthetics value of CGS influences their use (Giles-Corti et al., 2005; Van Herzele & Wiedemann, 2003). Though, the CGS were reported to be of good quality by the respondents, hence poor quality was not considered as a hindrance to use the green spaces. Both the maintenance and management; cleanliness and tidiness and general appearance of CGS were neither rated very poor nor poor by the respondents.

Impressively, maintenance and management; cleanliness and tidiness and the general appearance of green spaces were reported by students to be good. It is a known fact that well-maintained green spaces are known to be perceived positively, this will lead to increase freedom for users. We

therefore found that both students that use green spaces and those do not agree with the campus landscape quality. It may be based on this fact that the students selected almost all the greenish areas as their favorites except areas lacking some facilities such as seat and those without green vegetation as their least favorite claiming those places do not give aesthetic looks. Study by PHE, (2020) revealed that inadequate maintenance of sites, such as litter, poor-quality footpaths and issues with cleanliness negatively affect the use of parks. Perceived safety, aesthetics and the social environment found within university play a vital role in people wanting to use it.

Where would you consider the most or the least favorite green spaces on campus?

The respondents were asked if they have any favorite areas on campus. Majority of the students (87%) answered yes. They were further asked to identify two most favorite green areas on campus and reasons for their selection.

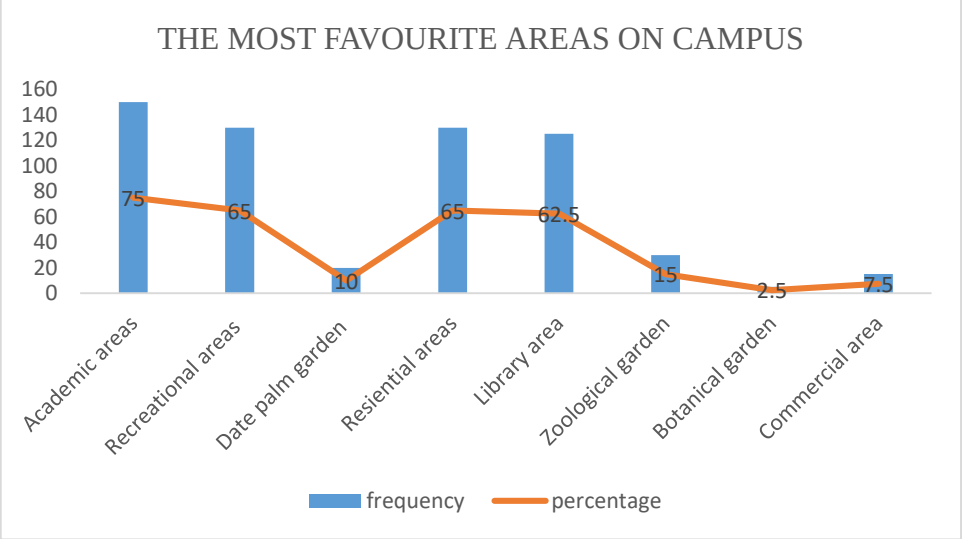


Figure 4: The most favorite green spaces on campus

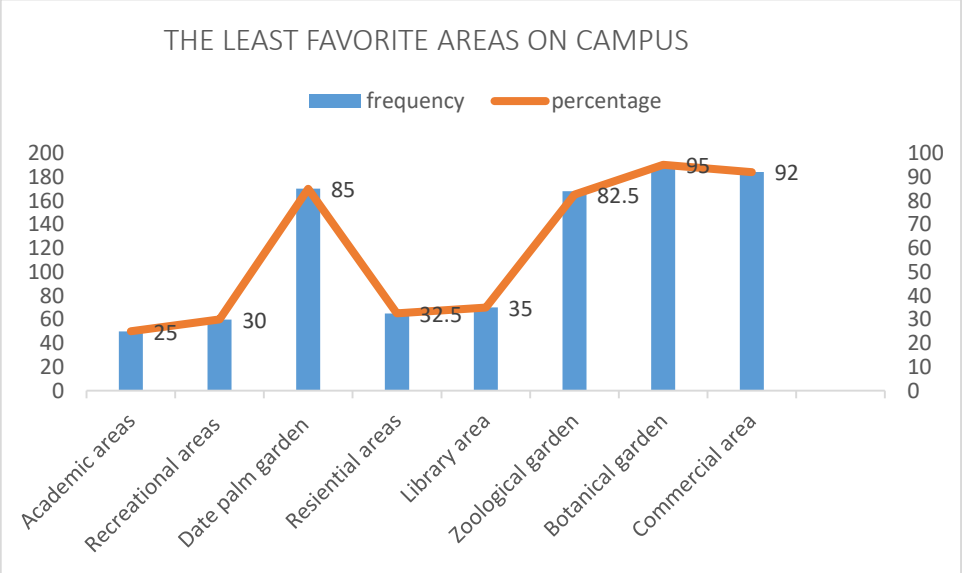


Figure 5: The least favorite green spaces on campus

The CGS selected by majority of the respondents as indicated in figure 4 were academic areas 75%, recreational areas 65%, residential areas 65%, and library area 62.5%. These are areas with species of plantations providing shade and have seats for students' relaxation, meeting and chatting and those with flowerbeds, beautiful structures and vehicles packing. The important reasons behind the selection of these areas were linked to functionality of the green spaces such as a place for relaxing, social gathering, place to eat and drink with colleagues, convenient, quiet place for study, have seats and good ventilation. The common reasons for the selection of these areas were aesthetic value, with descriptions such as eye-catching, pretty, looks perfect, nice, looks good. This agrees with Tudorie et al., (2020) they found over 80% respondents considered park and garden to be beautiful, natural, maintained, cheerful and useful for the management of environmental functions.

Surprisingly, Zoological park, Botanical Garden, Date palm garden and commercial area were selected by most of the respondents as their least favorite spaces. See figure 5. Reasons are: the areas are without seats (e.g. Date palm garden), students pay before entering Zoo, the Zoo and Botanical Garden are far and students are not permitted to touch date palm fruits and commercial area is too noisy.

It was found that aesthetic value placed on green spaces and the services provided by the CGS influences students' visitation and usage of it. This agrees with the findings of Giles-Corti et al., (2005). On the contrary, there are other factors that scare students away from visiting and using of CGS. These factors are: cost of visiting the green spaces, University policy on the use of green spaces, lack of shade/canopy and seats. This calls for further improvement on CGS in order to serve students better in future.

How can the campus green spaces be better improved and sustain for future use?

In view of further improvement of campus green spaces, the questionnaire respondents made their suggestions as follows: provision of outdoor seating, planting of more trees, watering of vegetation to increase aesthetic value. A research by Uduma-olugu, Olasupo & Adesina, (2019) found that majority of respondents wants more recreational facilities to be created by the university. Our study corroborated with this. Furthermore, they suggested that the management of CGS should be sustained. However, few of the students declined from making suggestions for further improvement, they show satisfaction with the CGS present standard. Seating is seen often as factor influencing use of green spaces if carefully located (Shaftoe, 2008). The reasons why students suggested more trees is because when seats are made available without trees for canopy, it may be difficult for such a space to be put to use during harsh weather. It's for this reason some participants perceive science complex as least favorite though with seat-out available in the complex frontage without trees to give that space shade. The seats are useless especially in the peak of the day. Planting of flowers and watering are also suggested as improvement of CGS is tied to diversity of species.

To what extent does the urban green spaces contribute to the image of the university?

Majority of the students (94%) are of the opinion that CGS play a very important role in the image of the university, this is in agreement with Ewulo et al., (2015), while six percent of the respondents gives opposite view. These opinions were related the usage of campus green spaces. Those who in one way or the other used the CGS believed that the green spaces were paramount for the university image. While those respondents with different opinion about green spaces making university, image did not use them. The respondents strongly agreed that green spaces on campus are disputably university image maker as well as a needed component of the campus. This finding agrees with Foellmer, Kistemann & Anthonj (2021) and Ewulo et al., (2015). Furthermore, they cherished the green areas regardless of their socio-demographic characteristics. The value and use of CGS by many respondents signify their role in the campus experience. Students may be more satisfied and happier due to availability and benefiting from the use of green spaces on campus (Lindholm, 1995). A campus that is beautiful can significantly enhance the positive image of a town, therefore has profits afar the sphere of educational (Gumprecht, 2007). Students choice of institution is influenced by their perception of the campus (Groen & White, 2003). The research findings pointed out some factors that clearly affect students' responses and perception of the green infrastructure of the university campus. For social, aesthetic, and relaxation functions, well maintained and managed, garden-style landscaping have been valued and appreciated (Tudorie et al., 2020). In respect of this significant factor, Gombe State University has been designed with high quality green landscaping.

The students' perception and appreciation of campus was based on management style and design of the campus green spaces Ewulo et al., (2015). Favorite areas within the campus were not selected based on size, rather good quality, design, distance and location. Therefore, the study findings suggested that the small amount of green spaces universities have, by good design and management style can meaningfully improve both their students experience and the image of those universities. However, a large campus on the other hand should make available spaces for more natural areas that are important for biodiversity and sustainability.

CONCLUSION AND RECOMMENDATIONS

The importance of CGS for students was revealed by the study. Multiple forms of green spaces are needed by university campuses to fulfil the desires of student users. Majority of the student expressed their appreciation and use campus green spaces, such as the planned areas. Green spaces are seen by students to be significant for the image of university and that they contain an essential element of the campus character.

The study recommends that a university campus needs manifold forms of green spaces to cater for increasing number of student users. The school should also provide enough seats in the spaces to allow students to study, relax and engage in social activities.

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