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A Case Study Of Silver Hall Of Residence At Bells University Of Technology Ota, Ogun State, Nigeria, Discusses The Relationship Between Architecture And Users' Perspectives On The Influence Of Colors In Interior Spaces

Titilayo ANIFOWOSE

Lecturer & Student, Bells University of Technology, Ota

Gandu Istifanus Aaron

Department of architecture Bells University of Technology Ota, Nigeria

Abstract: ***Nigerian architecture has always complemented the nation's culture and traditions, which is a sign of vernacular design. Architecture is a medium for the three-dimensional, organizational, and mandated interpretation of meaning. Two crucial visual components for the creation and understanding of architectural works are light and color. Unless perceived via a design, when it becomes the starting point of the piece and interferes with its sense of space, color does not manifest on its own. Different hues have different meanings, and all colors share characteristics with the essence of existence. Colors give things personality and distinguish them from one another. The choice of a certain hue for the interior areas of student residential halls has a purpose. A key element of an occupant's comfortable work environment is the color scheme required for the activities that take place in the rooms. Both the usage of color and the activities that take place are significantly influenced by the design of the residence halls for students. To determine the best color for students' well-being, this study investigates the relationship between architecture and users' perceptions of the influence of colors in interior spaces of the Silver Hall of Residence at the Bells University of Technology Ota, Ogun State, Nigeria. The strategy used was a descriptive survey with the application of questionnaires, and the data gathering method used was a well-structured observation schedule. Findings***

Keywords: Colors, Interior spaces, Color Psychology, Hues, Hall of Residence.

I. INTRODUCTION

A "live-in" residential college, boarding house, or other specially constructed building with student units and other associated ancillary services including study areas, communal lounges, laundry rooms, restrooms, and kitchens is referred to as a "students hall of residence" (Sharma, 2012). This planned structure is classified as a boarding house or a dorm for students. The purpose of the residence hall is to provide students with a distraction-free environment where they may concentrate on their studies. The majority of the university's constructed environment was said to be made up of student accommodation on-campus. Students at universities, especially those that are private, are accustomed to living in resident halls. Multiple students share apartments in buildings called halls of residence for the duration of their academic careers and other activities. The residence hall is anticipated to be secure for residents to conduct activities in a calm setting (Kilicaslan, 2013). The provision of a constructed environment capable of supporting inhabitants' or occupiers' psychological wellbeing is one of the many roles played by architecture. 2019 (Aleksandar, Dusan, & Ana). More than 70% of people's lives are spent indoors, according to research by Akram (2013), which emphasizes the importance of architecture in modern society. He concluded that interior design is a significant aspect that affects a space's users in functional, aesthetically pleasing, and psychological dimensions. According to Yildirim, Akalin-Baskaya, and

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Hidayetoglu (2017), the three elements that make up atmospheric qualities attributed to interior spaces are design factors (architecture, color, materials, pattern, texture, and building layout), ambient factors (temperature, noise, scent, and lighting), and social factors (customers and employees). Color is an essential component of interior design, and how people use that space to perceive color is crucial. Therefore, it is crucial to research colors and how they affect interior design. This study attempts to investigate how users' perceptions of color influence interior spaces to relate to architecture. The composition's surfaces and volumes are defined and intensified by color, which also reinforces or obfuscates spatial boundaries (Jain, 2017).

Diverse hues can be utilized to create a variety of moods in the same architectural space. They can also be detrimental to people's physical and psychological health (Jain, 2017). The building's interior is identified by a particular hue for the walls, ceiling, and floor both in common spaces and student rooms. Hue, saturation, and lightness are the three primary perceptual properties of colors (Hunt & Pointer, 2011). Although evidence-based study on chromatic preference in architecture and the psychological effects of color as a consequence of a space's architectural design is still uncommon in Nigeria, color is a universal quality of some architectural surfaces. (2018) (Theme and Sadiq; Mojirola, Yohanna, & Garba). The focus of certain studies on color perception and preferences was on industrialized nations, it was found (Kuller, et.al., 2006; Sorokowski, 2014; Palmer & Schloss, 2010). There is a need for additional research on the interaction between architecture and users' opinions on the effects of colors in interior spaces in Nigeria because their conclusions may not be applicable in the Nigerian setting due to variances in climatic circumstances. The current study aims to analyze the relationship between the user's perception of the effects of colors in interior spaces with a focus on the Silver Hall in the Bells' University of Technology Ota, Ogun State, Nigeria to close this gap and advance the frontier of knowledge.

A. JUSTIFICATION OF THE STUDY

The practical and empirical relevance of colors in Silver Hall's interior spaces at Bells University of Technology, Ota, is the foundation of this study. Based on how crucial architecture is to how students perceive color and how interior designers use color, this study has significant implications (for architects). This study will inform both the students and the management of Bells University's residence hall about the differences in gender preferences for interior design colors as well as the nature and color composition of the residence's interior design as well as the architectural idea of the hall. This research will be helpful for architects, interior designers, and other professionals who are looking for strategies to increase workplace productivity and worker satisfaction while taking technical color scheme criteria into account. The atypical research of color preferences and interior design in Nigeria serves as the foundation for the study's empirical significance. This research will advance the frontier of knowledge in addition to adding to the body of work already done on color preferences.

B. SCOPE OF THE STUDY

This study focuses on the interaction between the Silver Hall Bells University of Technology Ota's architecture and people's perceptions of the impact of color on interior spaces. Due to its proximity to the research site and the presence of numerous buildings with a high density of users nearby, the university living hall was selected.

II. LITERATURE REVIEW

Interior design is the art and science of improving a building's interior is more beautiful ways to give users of the space a healthier, more enjoyable, and pleasing environment. According to Jain's (2017) research, color is one of the most influential factors in a space when it comes to how people convey their emotions. According to Aleksandra et al. (2019), color is a unique perception in the eye brought on by how objects reflect or emit light. Because it is a flexible and effective design element that may be used to communicate between individuals and their environment, color is employed in interior design for a variety of purposes (Holtzschue, 2016). When communicating the aesthetic, symbolic, or cultural qualities of a place, it's critical to use color combinations as a design tool effectively (Smith, 2013). On the other side, choosing a color may be influenced by your emotional reactions to certain hues. If a favorable emotional state is experienced, the pleasantness is indirectly transmitted to the color. For example, energetic, light, and cold colors are favored over passive, heavy, and warm colors (Ou et al., 2014). According to Palmer et al. (2013), yellow is preferred at high lightness levels, red and green at medium lightness levels, and blue and purple at low lightness levels because saturation interacts with preferences for lightness. In general, more vibrant and saturated colors are preferred over less intense hues. Regardless of how differently colored things affect people's behavior, people still recognized colors by separate semantic clusters (Sutton and Altarriba, 2016). Dark colors like black and brown are usually connected with negative emotions, while good emotions are frequently connected with bright colors like white and pink (Sutton and Altarriba, 2016). The color wheel in Figure 1 is a useful visual aid for illustrating the distinctions between primary, secondary, and tertiary colors. The color wheel demonstrates the circular arrangement of hues.

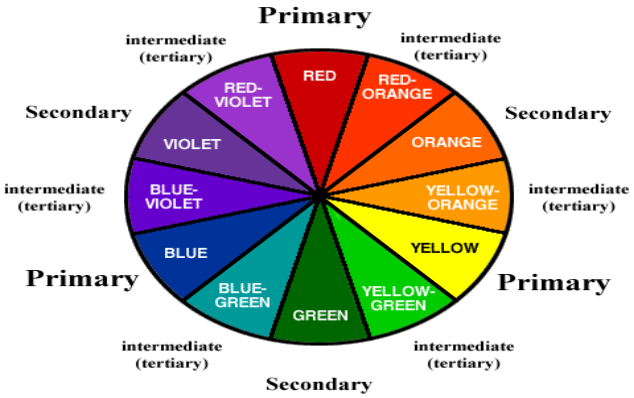

Figure 1: color wheel source: Google images/Color (2021)

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A. COLOR PSYCHOLOGY/ PSYCHOLOGICAL EFFECTS OF COLORS

Because they directly affect a man's mood, colors are important in his life. Each man has a favorite color scheme that embodies his individuality (Krstic & Radelovic, 2013). Following is a list of some of the primary colors utilized in the design, along with references to their emotional meanings and symbols. Johnson and Smith, both from 2007;

The color wheel's most dazzling and alluring hue is red. Because of its profound impact on the autonomic nervous system, it communicates feelings like passion, love, warmth, excitement, power, and energy. The rapid attention-grabbing color red helps bring images or objects into sharp focus. Since it is the most intense of the warm colors, it might give the impression that a space is smaller and more crowded. Although blue is often associated with harmony and calm, it may also be seen as aloof, unfriendly, and emotionless. The color blue has long been associated with loyalty, hope, and faith. It has a soothing impact on the central nervous system, to put it physiologically. Concentration is improved while the blood pressure and pulse are lowered. Yellow is associated with warmth, joy, and optimism. The visible spectrum's happiest color is thought to be this one. Yellow is a color that promotes focus and attention. Additionally, it promotes frightened breathing, raises blood pressure and pulse rate, and calms the nervous system.

A vibrant color, orange mixes the ferocity of red with the happiness of yellow. It has to do with foods that are hydrating and the sun. The heart is stimulated by orange, which also increases hunger and has antidepressant properties. Green is a natural color that is calming and energizing. It has a potent healing effect, making it the color most frequently utilized in hospital design. Greenlight reduces blood pressure, widens capillaries, activates endocrine glands, and stimulates endocrine glands to treat sleeplessness. Pale green is the hue that is the most tranquil. This blue-red color scheme is considered to be a representation of compassion and inventiveness. The brain is cleansed, revitalized, and sanitized by violet light waves. Additionally, it lessens hunger and regulates metabolism. Indigo light waves are used to treat skin conditions and high fevers. White and black. All the hues that have been absorbed together to up the color black. Due to its aggressive nature, which could generate abasements and mood swings as well as create an undesirable environment, it is a sign of strength, mystery, and death. White, on the other hand, stands for truth, innocence, and purity. It creates a calm environment and is hygienic, clean, and antiseptic. White is a mixture of all the hues in the spectrum in an equal amount, expressing both the advantages and disadvantages of each color. Understanding colors, their emotional connotations, and their symbolic meanings are essential. All colors have varied meanings and representations and must be taken into account when it comes to using colors in interior spaces (Johnson 2007).

Many people characterize purple as being an odd color.

With an emphasis on color and light, designers may create, embellish, and regulate interior design environments and decide their transparency through architectural elements like walls, floors, ceilings, stairs, and furniture, among others (Eisner, 2011). Because they define how useful a room is and have a huge impact on human life, colors are important in architecture (Krstic & Radelovic, 2013). According to Krstic and Radelovic's 2013 research, translating abstract color schemes, ideas, and meanings into real-world materials, surfaces, experiences, and uses in interior spaces is a study that frequently relies on experience and imagination. According to the ecological valence hypothesis, color preferences are developed from people's typical affective reactions to color-associated things (EVT). According to Palmer and Schloss (2010), people favor colors that are connected to objects they like and detest colors that are connected to objects they like. In the same way that rotting food is bad for human health and tends to be greenish-yellow, rotten food is vital for survival and tends to be that color because blue is so greatly valued.

The EVT can explain both universal patterns and minor variations: blue is likely to be admired in all cultures, but red is often disliked. Palmer and Schloss, 2010 discovered that the affective valence relationship might account for 80% of the difference in color preference ratings among 32 different colors. One of Faber Birren's color beliefs was that human beings utilize color daily to express themselves, communicate their thoughts and feelings, and aid in self-identification. Rather than claiming that colors have a direct impact on emotions, Birren's theory postulates that some evoked emotions can be attributed to culture, environment, gender, or religion while some can be from the person's psychological makeup (wonderfulcolour.org, 2012). The EVT can explain both universal trends and subtle differences: whereas red is frequently despised, blue is probably valued across all cultures. According to Palmer and Schloss' 2010 research, the affective valence relationship may be responsible for 80% of the variation in color preference ratings among 32 different hues. One of Faber Birren's color theories was that people use color daily to express themselves, share their thoughts and feelings, and help them identify with who they are. Birren's hypothesis proposes that certain evoked emotions might be linked to culture, environment, gender, or religion, while some can be from the individual's psychological makeup, rather than asserting that colors have a direct effect on emotions (wonderfulcolour.org, 2012). In their 2018 study of residence hall interior color and psychological effects, Coata, Frumento, Nese, and Predieri found that blue interiors were most popular, followed by green, violet, orange, yellow, and red. Using an experimental research methodology, Aleksandra, Aleksandra, Dusan, and Ana (2019) investigated the effect of color on interior design and found that colors play a crucial role in the realm of design and architecture since both have a substantial impact on human life. In conclusion, all of the studied literature revealed that there is still little research on color and user preferences in Nigeria as compared to those that are available on color and user viewpoints in industrialized nations. Therefore, the vacuum in the research on the demographic impacts of color in Nigeria that this study aimed to fill.

III. CONTEXT OF THE STUDY

impression of the interior color of halls in housing complexes. The Benja village, Ota, Ogun State, Nigeria (6.6855° N, 3.1702° E) is home to the Bells University of Technology (BUT), also known as Bellstech. It is the first private technological university in Nigeria. Former president of Nigeria Olusegun Obasanjo launched it in 2004. The Bells University of Technology has 35 departments and 7 colleges. Three hostels are for male students and three are for female students are available at Bells University of Technology. Male Silver Hostel is one of the residence halls at the Bells University of Technology in Ota for male students.

Figure 1: Silver Hall at Bells University Field Survey (2021)

Figure 2: interior space is Silver hall; Source: Field Survey (2021)

A. METHODOLOGY

This study used a descriptive survey as its method of data collection, applying questionnaires and a carefully planned sequence of observations. The undergraduate students who were residing in Silver Hall at the time of this study make up the study's homogeneous population. The 200-level and 300-level students were specifically chosen. 150 pupils are in the 200 level, while 106 are in the 300 level. Consequently, there were 256 students in total in levels 200 and 300. (Bells University of Technology Library, 2021). As sample strategies, stratified sampling and random sampling were used. In stratified sampling, the population was separated into strata, and sampling was carried out independently for each stratum. To choose the sample size from each level of study, Bells University undergraduate students representing diverse strata from the 200 level and 300 levels were taken into consideration. Each stratum's sample size was proportional to the size of its population with the total population when employing the proportional stratified technique. According to the stated criteria for stratified sampling procedures, this means that the sampling fraction for each stratum is equal to 50% of the population at each level and was chosen from the study's sample size at a proportional rate. As can be seen in Table 1, the sample size is 128.

Level of study	Population	Sampling Ratio	Sample Size
200 Level	150	0.5	75
300 Level	106	0.5	53
Total	**256**		**128**

Source: Researcher's Compilation (2021)

Table 1: Sample Size Distribution for this Study

RESEARCH INSTRUMENT

The study tool utilized to collect data from respondents was a questionnaire. The questionnaires were split into the following three sections:

A: The Introduction; B: The Demographic Data; C: The Factual 5-point questions about the research variables Strongly Agree (SA) = 5, Agree (A) = 4, Undecided (UN) = 3, Disagree (D) = 2, and Strongly Disagree (SD) = 1 on a Likert scale.

DATA ANALYSIS TECHNIQUES

Both descriptive and inferential statistics were used to analyze the data. The descriptive test statistics (frequency and simple percentage) were used to assess the demographic data, and the inferential test statistics (simple linear regression) were applied to achieve the research goals in Table 2.

SN	Research Objectives	Data Analysis Techniques
1.	To understand what is meant by color psychology.	Content Analysis
2	To investigate the effects of color, area and height on space perception	Simple Linear Regression
3	To determine the importance of color in interior spaces	Content Analysis
4	To examine the effect of users' perspective on colors in interior spaces in the study area	Simple Linear Regression

Source: Researcher's Compilation (2021)

Table 2: Research objectives and data analysis technique

B. RESULTS AND DISCUSSIONS

This chapter is divided into three sections: the first focuses on the response rate of the administered questionnaire, the second gives demographic data on the respondents, and the third gives an analysis of the responses based on the study's research topics.

RESPONSE RATE OF THE ADMINISTERED QUESTIONNAIRES

The ratio of the questionnaires returned from respondents to the total number of administered questionnaires is known as the response rate of the administered questionnaires (Adedokun, 2011). To prevent a poor response rate for this study, the researcher called the respondents as a reminder in addition to administering the respondents through the Google Form application. Table 3 displays the survey's response rate.

Responses	Frequency	Percentage (100%)
Returned	**180**	**81**
Un-returned	**41**	**19**
Total	**221**	**100%**

Source: Researcher's Computation (2021)

Table 3: Response Rate

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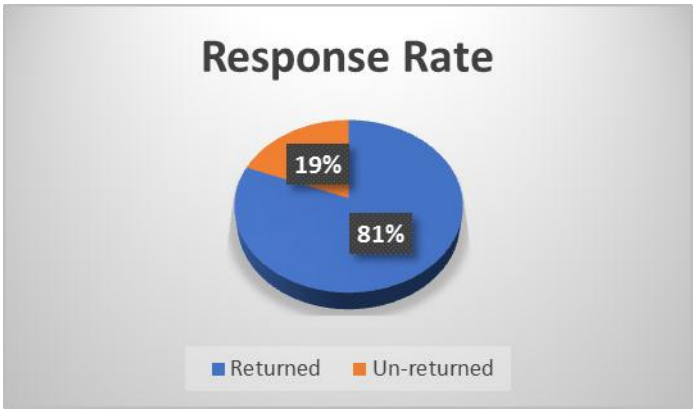


Source: Adapted from Table 3

Figure 3: A pie chart showing the response rate of Administered questionnaire

One hundred and eighty questionnaires (180), or 81 percent, of the two hundred and twenty-one and twenty-one (221) administered questionnaires were returned, as shown in both Table 3 and Figure 3. Due to respondent scheduling, the final 90 respondents (19%) could not be contacted. Mugenda & Mugenda (2003) state that a response rate of 50% is sufficient for data analysis and reporting; a response rate of 60% is good; and a response rate of 70% or higher is outstanding. This suggests that the approximate 81 percent response rate for this study was adequate for data analysis and reporting.

DEMOGRAPHIC INFORMATION

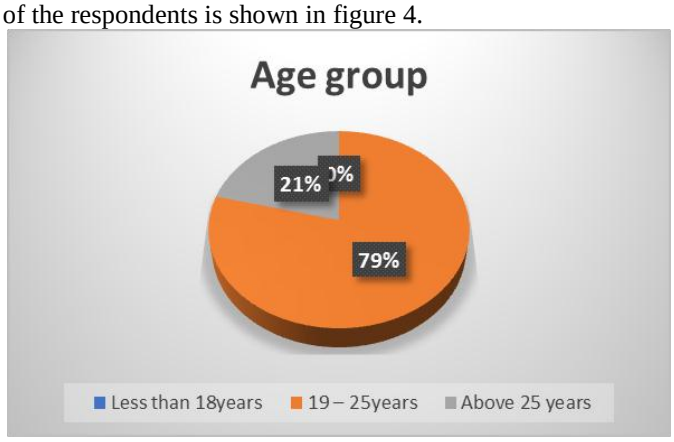
Tables 4 to Table 5 provide the findings from an analysis of the demographic variables using descriptive statistics (Table and frequency).

Age Group	Frequency	Percentage (100%)
Less than 18years	**00**	**00**
19 – 25years	**143**	**79**
Above 25 years	**37**	**21**
Total	**180**	**100%**

Source: Researcher's Computation (2021)

Table 4: Age Distribution of the respondents

The corresponding response rate showing the age group of the respondents is shown in figure 4.



Source: Adapted from Table 2

Figure 4: Age group of the respondents

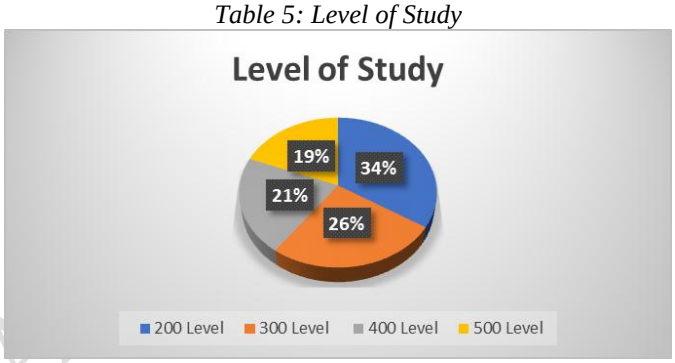
According to Table 2 and figure 2, the respondents' age distribution was as follows: 0% were under the age of 18, 79% were between the ages of 19 and 25, and 21% were over the age of 25. According to the results of the age distribution analysis, 79 percent of the population is between the ages of 19 and 25, while only 21 percent is over the age of 25.

To determine the respondents' familiarity with the interior color of the resident hall under consideration, the respondents were asked to indicate their degree of academic study.

Level of Study	Frequency	Percentage (100%)
200 Level	62	34
300 Level	46	26
400 Level	38	21
500 Level	34	19
Total	**180**	**100%**

Source: Researcher's Computation (2021)

Table 5: Level of Study



Source: Adapted from Table 5

Figure 5: Level of Study in a pie chart

The degree of education of the respondents is displayed in Table 3, and figure 3 shows that 26% are in the 300 level and 34% are in the 200 level. While 21% are at the 400 level, only 19% are at the 500 level. Inferentially, the sample size includes more than 200 level pupils. According to the study's findings, the sample size is made up of more than 200 level pupils.

AVAILABLE COLOR PREFERENCE

The determination of the available color preferences was a further emphasis of this study. The use of content analysis and literature reviews. The blue-yellow system reacts to the distinction between short-wavelength-sensitive cone responses and middle-wavelength-sensitive cone responses, while the red-green system reacts to both. The blue-yellow system, which explains the biggest difference in people's preferences for colors, shows that blue colors are preferred above yellow tones. Contrarily, the red-green system is primarily responsible for sex differences, with women favoring colors with a "reddish" contrast against the backdrop as opposed to men. We can infer that people's preferences for the various colors vary and that they each have their effects and meanings. Some people might choose the blue-yellow combo while others would think of various pairings for their interior design. According to people's perspectives and preferred color schemes, interior decorations can thus be seen in a variety of color combinations.

USERS' PERSPECTIVES ON COLORS IN INTERIOR SPACES

Mean Items score was used as the data analysis technique and the analysis is shown in Table 4.

	Items	Mean	Rank
i.	The colour scheme of the residence hall is appropriate	4.21	2nd
ii.	The interior elements in the residence hall are not attractive	3.72	6th
iii.	Colour selection in the interior design influence students' attitudes	3.87	4th
iv.	The light colour scheme enhances students' excitements	4.01	3rd
v.	In the residence hall, there is a balance between colour in the interior design	3.42	7th
vi.	Blues and green colours have a soothing effect.	3.76	5th
vii.	Creation and preservation of an interior space increase sense of well-being.	4.62	1st

Source: Researcher's Computation (2021)

Table 6: Users' perspectives on colors in interior spaces

The opinions of the study area's users regarding the colors used in interior spaces are shown in Table 6. The viewpoints of the users on the colors employed in the hostel's interior spaces were investigated using A- 7 items. A higher mean value of 4.62 was therefore deduced from the findings for item 7, "Creation and preservation of an interior space boost sense of well-being." This suggests that the students have a taste for interior color; the phenomenon may be explained by the students' prior exposure to interior color in their own homes. The average score for item 1, "The color scheme of the residence hall is appropriate," is 4.21. By implications, it suggests that the respondents thought the study area's interior hue was adequate. The mean value of item 4, which contains the statement "The light color scheme improves students' excitement," is 4.10. This suggests that the pupils are enthusiastic about the study area's interior hue. On this point, it is evident that users' perceptions of color are influenced by the construction and preservation of interior space, the enhancement of psychological well-being, the right color scheme of the residence hall, and the use of light colors.

IV. CONCLUSION

The Bells' University Silver residence hall in Ota, Ogun State was the center of this study, which examined how users perceived the impact of color in interior spaces. This study looked at the demographic factors (age and gender) of the students in the study area, as well as the available color preferences and users' thoughts on colors. This paper showed that the age distribution of the sample size was spread among students, with 79 percent of respondents being between the ages of 19 and 25 and 21 percent being over the age of 25. More than 200 level students make up the sample population, and it would seem that they would be better qualified to assess the interior hue of the study space. The availability of various color combinations for use in interior spaces leads one to the conclusion that different users have varying preferences for colors. In parallel with the completion of the statistical analysis, comparison results based on the survey replies were generated. The participants in this study speak persuasively about their preferences for spatial colors, which translates to an improvement in feelings of well-being. According to the respondent, the residence hall's light color scheme is adequate.

REFERENCES

[1] Aleksandra, A.C., Aleksandra, K, Dusan, R. & Ana, M (2019). Effects of Color in Interior Design. Contemporary Achievements in Civil Engineering, 23 -24, 7th International Conference, 867 – 877.
[2] Birren F. Principles of Color (2007). A Review of Past Traditions and Modern Theories of Color Harmony. Schiffer Publishing. Amazon Books, 2007, 224-247.
[3] Costa, M., Sergio, F., Nesse & Predieri, (2018). Interior Color and Psychological Functioning in a University Residence Hall. Frontiers in Psychology, 9, 1 – 13.
[4] Hunt, R. W. G., & Pointer, M. R. (2011). Measuring Color, 4th Edn. Chichester: Wiley.
[5] Hurlbert, A. C., and Ling, Y. (2007). Biological components of sex differences in color preference. Curr. Biol. 17, 623–625.
[6] Jain, A. (2017). Psychology of Colors in Building Design. Research Article, 7(4), 1-5
[7] Kilieaslan, H. (2013). Design of Living Spaces in Dormitories. Procedia Social and Behavioral Sciences, 92, 445 -451.
[8] Krstic H. & Rađelovic, D. (2013). A color is a powerful tool in interior design. Proceeding Third international science conference Balkan color, 568-575.'
[9] Kuller, R., Ballal, S., Laike, T., Mikellides, B., and Tonello, G. (2006). The impact of light and color on psychological mood: a cross-cultural study of indoor work environments. Ergonomics 49, 1496–1507.
[10] Mojirola, F. I., Yohanna, O. E & Garba, R. S. (2018). Gender influences on color preference: Implication for designers in North-Eastern Nigeria. International Journal of Multidisciplinary Research and Development, 5(11), 4 -15.
[11] Ou, L.-C., Luo, M. R., Woodcock, A., & Wright, A. (2014). A study of color emotion and color preference. Part I: Color emotions for single colors. Color Res, 232–240.
[12] Schloss, K. B., Strauss, E. D., and Palmer, S. E. (2013). Object color preferences. Color Res. Appl. 38, 393–411.
[13] Smith, D. (2013). Environmental coloration and/or the design process, Color Research and Application, 28(5): 360-365.
[14] Sorokowski, P., Sorokowska, A., and Witzel, C. (2014). Sex differences in color preferences transcend extreme differences in culture and ecology. Psychon. Bull. Rev. 21, 1195–1201.

ISSN: 2394-4404

[15] Spence, C. (2011). Cross-modal correspondences: a tutorial review. Atten. Percept. Psychophysics. 73, 971–995.
[16] Sutton, T. M., and Altarriba, J. (2016). Color associations to emotion and emotion-laden words: a collection of norms for stimulus construction and selection. Behavioral Research. Methods 48, 686–728.
[17] Wardono, P., Hibino, H., & Koyama, S. (2012) Effects of Interior Colors, Lighting and Decors on Perceived Sociability, Emotion and Behavior Related to Social Dining. Procedia – Social and Behavioral Sciences, 38, 362 -372.
[18] Yidirim, A., Akalin-Baskaya, A. & Hidayetoglu, M.L. (2017). Effects of indoor color on mood and cognitive performance. Building and Environment, 42, 3233 – 3240.
[19] Zahra, P., Devi, N.R., & Lewlyn, L.R. R. (2016). Evaluation of color and lighting preferences in Architects' offices for enhancing productivity.