International Journal of Builders in Academia (IJBA)
Volume 1, Issue 2; December 2025
E-SSN: 3115-5456
10.36108/ijba/5202.10.0230

Assessment of Energy–Saving Behaviours Among Occupants of Selected Office Buildings in Obafemi Awolowo University, Ile-Ife

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Abstract

Universities office buildings in Nigeria have significant energy consumption rate due to its constant use of electrical appliances and equipment. The high cost of energy consumption in Nigerian tertiary institutions' buildings is also a concern, as it puts strain on the finances of the institutions. This is why this study assessed the energy-saving behaviour among occupants of selected office buildings in Obafemi Awolowo University, Ile-Ife, Nigeria. The study assessed the awareness and knowledge of office occupants' on building energy consumption; examined energy saving behaviour of occupants in these buildings; examined socio-demographic and situational factors affecting energy saving behaviour with a view to determining strategies for enhancing their energy saving habits. The study adopts a convenience sampling from 113 offices for selected buildings through self-administered questionnaires. The data obtained was analyzed using IBM SPSS package. The results shows that majority of occupants have a positive perception of energy saving concepts (MS=3.61, SD=1.84), have a good understanding of energy-saving behaviour but somewhat having lesser understanding of their impact in energy cost reduction (MS=3.51, SD=1.60), the results of examination of energy saving behaviour and wasteful energy habits of occupants suggest that there may be some relationships between roles, energy conservation behaviour. The results of socio-demographical and situational factor influencing energy saving behaviour show that office occupants believes that situational factor such as the layout of their office can impact on their energy saving behaviour (MS=3.53, SD=1.23), agree that level of income influence on their energy saving behaviour (MS=3.22, SD=1.36). The study recommended that office occupants in the institution should be educated on the importance of energy saving behaviour in reducing energy cost. Management should also formulate policies that will enhance energy saving practices among office occupants of building energy users.

Keywords: Energy-saving, Electrical appliances, Equipment, Greenhouse Gas, Office Building, Occupants,

Introduction

Energy is significant to mankind and society, as it empowers the daily lives and fuels economic growth. Energy is used to power homes appliances and devices, drives technologies as well as others activities. More so, energy is one of the tools that keeps the society functioning; hence, the importance of energy cannot be over emphasized. Despite the importance of energy, the world's dependence on energy has also led to significant environmental challenges such as climate change, air pollution, and destruction of ecosystem (Veal, 2021). Reduction of electricity consumption in commercial buildings is significant target to limiting the growing demand for electricity and the efforts to reduce CO_2 emissions (Paterson & Fleming, 2021). Conserving energy can mitigate the negative impacts of energy use on the environment, promote economic growth, and improve energy security.

The consumption of energy resources has increased worldwide, and tertiary institutions is one of the sectors

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with most significant energy consumption. Tertiary institutions have experienced a significant trend in energy consumption pattern over the years in either developed or developing nations with Nigeria inclusive, where high degree of power outages are closely linked to peak period. Since, electricity is a non-storable commodity, which is expected to be supplied and used at the same period coupled with long gestation period for new capacity (Olanipekun & Iyiola, 2019). Similarly, emphasis on the impact of energy consumption in tertiary institutions is essential due to their large size and energy needs. As energy consumption continues to rise, it is essential to find ways to increase energy efficiency and reduce energy use in this sector.

Tertiary institutions, such as universities, polytechnics, colleges, and vocational schools, typically have high energy consumption due to the large number of students, staff, and facilities they host (Olanipekun & Iyiola, 2019). This energy consumption can be attributed to the use of electricity for lighting, heating, cooling, and running equipment, among other things (Explained, 2023; Harvey, 2009). Obviously, advancements in technology have changed the world over the last few years, suggesting the need for new methods for energy utilization. One major resource of effective energy management is the actions taken by the various institutions. In the past, there was little incentive to efficient energy use due to the availability of low-cost energy. However, the situation is changing and tertiary institutions have to adjust their energy use behavior in order to cope with the current situation of insufficient power supply as well as rising costs. Since energy demand is a choice, it could be assumed that system outages can be greatly minimized by the use of human aspect (Omer, 2008). In the recent past, one of the earliest efforts to reduce the impact of energy consumption in buildings was through efficient technological approach improvement (Noailly, 2012) such as design and features through better orientation of buildings, insulation, efficient lighting and appliances, and optimization of heating, ventilation, and air conditioning (HVAC) systems (Omer, 2014).

Studies have shown that “energy efficiency measures can significantly reduce energy consumption and its associated environmental impacts in buildings” (Allouhi et al., 2015; Heiselberg, 2010; Florides, 2002). This approach has really contributed to energy saving, but studies have also shown that, to achieve sustainable energy savings, energy users behaviour must be understood (Zhou, & Yang, 2016), since the occupants of a building determine the actual usage of energy irrespective of the technological measures put in place. While most of research was based on saving energy through improvement in performance of building or services, fewer researches have been conducted to study human behaviour aspect in relation to energy consumption. According to a study by (Kohl, 2019), the behavior of building occupants can result in energy use variations of up to 30%. Moreover, behavior-based programs can lead to sustained energy savings, as they focus on changing occupant habits and attitudes towards energy use rather than relying solely on technical solutions (Diamond et al, 2012). It is indeed a plausible option to move into more energy conservation practices with a view to reducing energy consumption. While, causes of over energy use are acknowledged to be primarily technical, users' behaviour, if effectively implemented, can also influence actions to reduce energy use (Karatasou, et al., 2014). Hence, understanding human behavior in the context of energy use requires interdisciplinary research, including social and behavioral sciences, engineering, and psychology (Paterson & Fleming, 2021)

Institutional buildings account for nearly 20% of the country's energy consumption and greenhouse gas emissions. In addition, the report notes that energy use in commercial buildings is expected to increase by 1.3% per year through 2030 (Paterson & Fleming, 2021). Therefore, there is a pressing need for effective energy management strategies particularly in public office buildings to reduce energy consumption and mitigate the environmental impact of these buildings. Energy saving in tertiary institutions can be a challenging task due to several factors. One of the major obstacles to achieving significant energy savings in

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tertiary institutions is "behavioral barriers such as lack of awareness and resistance to change among occupants in achieving energy savings" (Adegun et al., 2018). Various effort trying to mitigate these challenges in order to reduce consumption, such as improving design of building for optimality with little consumption of energy, for instance, energy consumption of lighting in building is a major contributor to carbon emissions, often estimated as 20-40% of the total building energy consumption (Adom et al., 2020). Similarly, the annual energy savings for lighting of 56-62% and a reduction in CO2 emissions of nearly 3 tones by using side windows in a typical 6-storey office building. Maintenance and operation of building systems and equipment have also been addressed through studies on predictive maintenance with automated control system (Behera, et al., 2017). All these efforts have had impacts of providing sustainable energy in buildings. Moreover, the absence of policies or regulations that mandates energy savings in tertiary institutions such as Obafemi Awolowo University can further make it challenging to achieve significant energy savings. Given these challenges, this is why this study investigated the energy-saving behaviour of selected office buildings in Obafemi Awolowo University, Ile-Ife, Nigeria. The study investigated the awareness and knowledge of public office occupants' impact of energy use in building energy consumption; examined energy saving behaviour of office occupants of these buildings; and examined socio-demographic and situational factors affecting energy saving behaviour of selected office buildings with a view to developing the strategies for overcoming their energy saving habits. The findings from this study will contribute to the development of effective energy-saving behaviour among office occupants in all tertiary institutions in Nigeria, with the benefits of significantly reducing energy consumption involving office occupants, and also bring about a change in their behaviour. The study will be of benefit t the universities management in saving electricity cost by channeling such resources to other economic sector of the institution.

Methodology

The study was conducted in three selected office buildings which includes the administrative block, faculty of environmental design and management and faculty of health sciences buildings in Obafemi Awolowo University, Ile-Ife, Osun state Nigeria. The institution is one of the foremost and prominent tertiary institutions in South West Nigeria. The population of the study includes male and female office occupants that are mainly involved in day-to-day activities in the offices. Convenience sampling method was used for the selection of the office occupants. The buildings were deliberately selected because of their energy consumption footprint, and these was attributed to high rate of usage old electrical appliances and equipment coupled with the building size (m^2) and height (m). A survey of the respondents from each of these three selected office buildings were conducted. Data for this study was collected between the months of July-August, 2024 through a survey of office building occupants using self-administered questionnaire. One hundred and fifty (150) questionnaires were administered to each of the selected office buildings in the university by the research team with the response rates comprising of one hundred and thirteen (113) respondents which represents (75%) and is considered adequate for the study. The analysis of the data collected was then coded, processed and analyzed using descriptive statistics in the form of tables, mean scores index, standard deviation and non-parametric (correlation analysis) using standard IBM SPSS package.

Results and Discussions

Demographic Characteristics of the Respondents

Table 1 discussed the demographical characteristics of respondents. The table presents the social demographic characteristics of 113 respondents. The academic qualification shows the most common qualification 43 (38.1%) had BSc. Degree, 34 (30.1%) had MSc degree and 11(9.7%) had PhD. Majority of respondents 87 (77%) were non-academic staff, compared to 26 (23%) academic staff. Over half of the respondents 60

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(53.1%) had 1-9 years' experience, 36 (31.9%) had 10-20years. Most respondents, 83 (73.5%) spent maximum of 8 hours daily in the office. The respondent sample was relatively balanced in gender, mostly married, middle-aged, education to at least bachelor's degree level, largely non-academic staff with under 10 years' experience, who spent at least 8 hour work day in the office. The majority reported moderate reliability in electricity supply.

Table 1: Social Demographic Characteristics of the Respondents

Factors	Respondents	Frequency	Percentage
Age group (years)	20-29	9	8
	30-39	13	11.5
	40-49	30	26.5
	50-59	45	39.8
	60-69	16	14.2
	Total	113	100.0
Academic Qualification	OND	10	8.8
	HND	11	9.7
	BSc	43	38.1
	M.Sc.	34	30.1
	Ph.D.	11	9.7
	Other	3	2.7
	Total	113	100.0
Job Role	Academic staff	26	23
	Non-academic staff	87	77
	Total	113	100.0
Years of Employment	1-9	60	53.1
	10-20	36	31.9
	21-30	8	7.1
	31-40	9	7.9
	Total	113	100.0
Hours Spent in the Office Daily	3 Hours	1	0.9
	4 Hours	2	1.7
	5 Hours	4	3.4
	6 Hours	3	2.7
	7 Hours	9	8
	8 Hours	83	73.5
	9 Hours	8	7.1
	10 Hours	1	0.9
	12 Hours	1	0.9
	Total	113	100.0
Mode of Electricity Supply	Rarely	5	4.4
	Moderately	79	70
	Constantly	29	25.6
	Total	113	100.0

Source: Adeleke et al., 2025

Level of Awareness of office Occupants on Building Energy Consumption

Table 2 measures the familiarity with energy-saving concepts. The frequency counts show the number of respondents who are aware or not aware for each category. The percentage indicates the proportion of the total sample that fell into each awareness level. Standard deviations provided a measure of how widely spread the responses were for each item. Over half of the participants reported being familiar with energy-saving behaviour (63.7%) and understanding individual impact (64.6%). However, few claimed knowledge of

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specific sources (69%) and effects (57.5%) of office energy use. Awareness of equipment features (50.4%) and conservation policies (37.2%) received even lower affirmative responses. Notably, over 40% lacked awareness that fossil fuel reduction benefits the environment (43.4%). The highest percentage unaware was for workplace policies (62.8%). Standard deviations ranged from 1.1231 to 1.5925, suggesting some variability but overall clustering of responses near the mean for most items. Findings further indicated that majority of the survey participants are acquainted with the idea of energy conservation practices within office buildings, with a standard deviation of 1.1431. Notably, 36.3% of the respondents were unaware of this concept, while 63.7% demonstrated awareness.

These statistics highlighted a substantial portion of the respondents lacking familiarity with energy-saving behaviour. For awareness that individual efforts make a difference, which has a standard deviation of 1.5925, it was evident that 64.6% of the survey participants recognized the impact of individual energy-saving efforts. Conversely, a smaller proportion, specifically 35.4%, lacked this awareness regarding the significance of individual energy-saving actions. On awareness of the impact of energy saving behaviour on reducing cost and green house emission, with a standard deviation of 1.1763, it's clear that 53.1% of the participants comprehended the correlation between energy-saving behaviour and their role in cost reduction and greenhouse gas emission mitigation. In contrast, a slightly smaller portion, specifically 46.9%, did not agree with this connection between energy-saving behaviour and the potential reduction of costs and greenhouse gas emissions. Awareness of various sources of energy consumption in the office, which has a standard deviation of 1.4318, it was evident that a significant majority, specifically 69% of the respondents, possessed awareness regarding the methods of energy consumption within their office buildings. In contrast, a smaller proportion, amounting to 31%, lacks this awareness when it comes to understanding the means of energy consumption within their office buildings. For awareness of office energy consumption and its effect, a standard deviation of 1.3496, revealed that 57.5% of the survey participants were cognizance of their office energy consumption and its corresponding effects. Notable 42.5% of the respondents lacked this awareness concerning their office energy consumption and its impact.

Occupants' knowledge about energy saving features of office equipment, a standard deviation of 1.2118, indicated that almost half of the respondents (49.6%) lack awareness regarding the energy saving features of their office equipment, which could potentially contribute to reducing energy consumption within their offices. Awareness of specific policies or guidelines that are related to energy conservation in the work place, with a standard deviation of 1.4386, it becomes apparent that 37.2% of the respondents possessed awareness of particular policies or guidelines associated with office energy conservation. In contrast, the majority, comprising 62.8% of the respondents, lacked knowledge about such specific policies or guidelines linked to energy conservation within the office. With a standard deviation of 1.2318, it was evident that 52.2% of the respondents are aware of the significant role played by office buildings in contributing to energy consumption within the university. Conversely, 47.8% of the respondents lack this awareness regarding the substantial contribution of office buildings to energy consumption in the university.

Awareness on energy saving behaviour in reducing consumption of fossil fuel and its impact on the environment, with a standard deviation of 1.3290, it can be observed that 43.4% of the respondents have an understanding of how energy saving behaviour can lead to cost reduction in energy consumption and greenhouse gas emissions. In contrast, 56.6% of the respondents lack this awareness regarding the connection between energy saving behaviour and the potential reduction of energy costs and greenhouse gas emissions. The study had consistently shown that lack of public awareness and knowledge regarding energy consumption patterns leads to wasteful behaviour, early study found that people generally have poor intuition about how

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much energy different appliances use. Without this basic information, it is difficult for individuals to identify opportunities to reduce waste. This lack of awareness has real consequences

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Table 2: Level of Awareness of Office Occupants on Building Energy Consumption

Level of Awareness		Frequency	Percentage (%)	Std. Deviation
Familiar with concept of energy saving behavior	Aware	72	63.7	1.1431
	Not Aware	41	36.3	
Individual energy-saving efforts can make a difference	Aware	73	64.6	1.5925
	Not Aware	40	35.4	
Energy saving behaviour can reduce energy cost and greenhouse gas emission	Aware	60	53.1	1.1763
	Not Aware	53	46.9	
Aware of the various sources of energy consumption in the office	Aware	78	69	1.4318
	Not Aware	35	31	
Aware of energy consumption and its effect	Aware	65	57.5	1.3496
	Not Aware	48	42.5	
Knowledgeable about energy saving features of office equipment	Aware	57	50.4	1.2118
	Not Aware	56	49.6	
Aware of specific policies or guidelines that are related to energy conservation in my workplace	Aware	42	37.2	1.4386
	Not Aware	71	62.8	
Aware that office buildings contribute to energy consumption	Aware	59	52.2	1.3290
	Not Aware	54	47.8	
Aware that energy savings behaviour can often impact on the environment	Aware	49	43.3	1.2320
	Not Aware	54	56.6	

Source: Adeleke et al., 2025

Mean Rank Level of Awareness for Selected Office Occupants

Table 3 provides valuable insights into respondents' perceptions and awareness of energy-saving behaviour. The study provided a deeper understanding of the central tendencies variability and distributions of these perceptions among the surveyed individuals. The result revealed certain relationships and trends among the different variables that measured individuals' awareness and knowledge of energy saving behaviour that were analyzed and ranked. The mean score for awareness of energy consumption sources stands out as the highest among all variables, averaging around 3.9 out of 4. This suggests a robust comprehension among respondents regarding the sources of energy consumption within the office. In terms of the concept of energy-saving behaviour and individual energy saving efforts, the mean score for both variables is notably elevated, ranging from approximately 3.5 to 3.8 on a scale of 4. This suggests that respondents, in general, possess a robust comprehension of energy saving behaviour and are conscious of their potential to make meaningful contributions through their individual efforts. The negative skewness values for both variables, hovering around -0.8, indicates a potential slight skewness toward higher scores in the data distribution. This suggests that a significant portion of respondents likely holds positive perceptions regarding these concepts, emphasizing a prevalent recognition of the importance of energy saving behaviour and individual contributions among the surveyed individuals.

On the other hand, the mean score for understanding the impact of energy saving behaviour is slightly lower, approximately 3.4 out of 4. This implies that while respondents seem to have a good grasp of energy saving behaviour, their understanding of the direct impact outcomes of this behaviour may not be comprehensive. It

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indicates that there might be room for improving awareness regarding the specific outcomes and benefits associated with energy-saving actions. Awareness of office's energy consumption and effects and knowledge of energy-saving features of office equipment, for both variables, with mean scores hovering around 3.4, it indicates that respondents hold a moderate level of awareness. Specifically, they are moderately aware of the office's energy consumption and its associated effects, as well as the energy-saving features of office equipment. The skewness values for both variables being relatively close suggested that the distribution of responses is relatively balanced and not heavily skewed towards extremely high or low scores. This implies that the awareness levels among respondents regarding these aspects appear to be evenly spread across the sample, with no significant bias towards extremely high or low levels of awareness. For awareness of energy conservation policies in workplace and awareness of office buildings' energy consumption, for both variables, with mean scores around 3.0, it suggested that respondents have a moderate level of awareness. Specifically, they are somewhat aware of energy conservation policies in the workplace and the energy consumption of office buildings in the university. The skewness values for both variables being relatively close to 0 indicate that the distribution of responses is balanced and not significantly skewed towards extremely high or low scores. This implies that the awareness levels among respondents concerning these aspects appear to be fairly evenly distributed across the samples without a pronounced bias towards very high or very low levels of awareness.

Table 3: Mean, Standard Deviation and Skewness of the Awareness Level

	N Statistic	Mean Statistic	Std. Deviation Statistic	Variance Statistic	kewness tatistic	Rank
Aware re of the various sources of energy consumption in the office	113	3.9645	1.4318	1.834	-.886	1st
Aware that individual energy saving effort can make a difference	113	3.8384	1.5925	1.425	-.804	2nd
Familiar with the concept of of energy savings	113	3.6115	1.1431	1.842	-.747	3rd
Understand the impact of energy saving behaviour in reducing cost and GHG	113	3.5093	1.1763	1.601	-.611	4th
Aware of the office's energy consump on and its effects	113	3.4761	1.3496	1.336	-,498	5th
Aware that office buildings contributes significantly to energy consumption	113	3.4216	1.2318	1.095	-,462	6th
Energy-saving behaviour can often reduce consumption of fossil and its impact on the environment.	113	3.3983	1.3290	1.214	-.377	7th
Knowledgeable about the energy savings Features of office equipment	113	3.2809	1.2118	1.218	-309	8th
Management often play a role in promoting energy-saving behaviour in the office	113	3.1265	1.16073	1.486	-.287	9th
Aware of specific policies or guidelines that related to energy conservation	113	2.7233	1.11110	1.210	-.196	10th

Source: Adeleke et al., 2025

Energy Saving Behaviour and Wasteful Habits of Office Occupants

This section examined energy saving behaviour and wasteful energy habits of office occupants in the university. Table 4 categorized measures such as turning off light when leaving the office, turning off air condition (AC) when not in the office, turning off computer when not at the desk, adjusting the AC thermostat

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to conserve energy. Also, the study established the association between office occupants' energy saving behaviour and socio-demographical information of occupants. Overall, 72.2%, report turning off lights when leaving the office, while fewer adjust AC temperature (37.1%) or turn off computers away from their desk (44.3%). About half use efficient equipment (49.5%) or unplug unused items (63.9%). Less prevalent are utilizing natural light (29.9%), receiving training (14.4%), or communicating ideas (30.9%). Participation in initiatives (42.3%), considering conservation important (49.5%), and perceiving colleagues as practicing it (41.2%) received moderate affirmation. Relatively low were involvement in meetings (17.5%) and satisfaction with building efficiency (44.3%). Tuning off AC away from the office obtained a higher 63.9% positive response. Standard deviations ranged from 1.12-5.22, indicating some variability except for conservation important. The means fell between 2.28-4.12 on the 5-point scale, with higher score for individual desktop behaviour and lower scores reflecting organizational or collaborative aspects. Certain behaviour like turning off lights require minimal effort, while others like adjusting temperature or utilizing natural light involve relinquishing some comfort control.

Table 4: Energy Saving Behaviour of Office Occupant

Energy Saving Behaviour	N(%) Yes	N(%) No	Mean	Standard Deviation
I turn off lights when leaving the office.	82 (72.6)	31 (27.4)	4.65	1.87
I adjust the AC (thermostat) to conserve energy	41 (36.3)	72 (63.7)	4.08	1.63
I turn off computer when I am not at the office	51 (45.1)	62 (54.9)	3.82	1.28
I actively participate in energy saving initiatives or programs in the office	45 (39.8)	68 (60.2)	3.78	1.97
I use energy-sufficient equipment or appliances in the office	54 (47.8)	59 (52.2)	3.95	1.32
I unplug gargets or other appliances when they are not in use.	74 (65.5)	39 (34.5)	4.10	1.79
I utilize natural light to reduce the need for artificial lighting.	29 (25.7)	84 (74.3)	3.01	1.87
I receive any training or information on energy-saving practices in the office.	17 (15.0)	96 (85.0)	2.85	1.32
My colleagues practice energy-saving behavior in the office.	48 (42,5)	65 (57.5)	3.90	5.04
I participate in meetings or discussions related to energy conservation.	23 (20.4)	90 (79.6)	3.07	1.30
I consider energy conservation important in my workplace.	55 (48.7)	58 (51.3)	4.04	1.72
I turn off AC when not in the office.	72 (63.7)	41 (36.3)	4.21	1.69
I am satisfied with the rate of overall energy	48 (42.5)	65 (57.5)	3.83	1.45
I communicate with colleagues or management about energy-saving ideas.	36 (31.9)	77 (68.1)	3.06	1.81

Source: Adeleke et al., 2025

Relationship between Level of Awareness and Energy Saving Behaviour

The study examined the relationship between awareness levels of concept of energy saving behaviour of office occupants. The pearson correlation shows that there exist a relationship between key specific energy saving behaviour and the level of awareness among office occupants. Pearson correlation is a statistical method commonly employed to measure the strength and direction of linear relationships between two continuous variables. It helps to assess whether there is a significant connection between awareness levels and energy-saving behaviour. Table 5 shows the relationship between familiarity with energy-saving behaviour and turning off lights when leaving the office. A Pearson's correlation coefficient of 537 was observed, significant at the .00evel based on a two-tailed test. This moderate, positive correlation indicates respondents who reported greater familiarity with energy-saving concepts were more likely to engage in this

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resource-saving behaviour. For familiarity between unplugging chargers or other appliances when they are not in use", the correlation was slightly lower at .20, but remained statistically at 0.05 significant level based on a two-tailed test. While this relationship was weaker, the positive direction suggests familiarity may still influence unplugging behaviour to some extent. By presenting each correlation analysis separately and objectively stating the correlation values and significance levels, this data offers insight into the link between familiarity and discrete energy-saving actions in an informative manner without bias or unsupported interpretations

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Table 5: Correlation Analysis between Awareness Level and Energy Saving Behaviour

		Familiarity with the concept of Energy Saving behaviour	Turning off lights when leaving the office.
Familiarity with the concept of snergy saving behaviour	Pearson Correlation	1	.537
	Sig.(2-tailed)		.000
	N	113	113
Turning off lights when leaving the office.	Pearson Correlation	.537	1
	Sig.(2-tailed)	.000	
	N	113	113
	Familiarity with the concept of Energy-Saving behaviour	Unplugging chargers or other pliances when they are not in use.	
Familiarity with the concept of energy-saving behaviour	Pearson Correlation	1	.200
	Sig.(2-tailed)		.050
	N	113	113
Unplugging chargers or other appliances when they are not in use.	Pearson Correlation	.200	1
	Sig.(2-tailed)	.050	
	N	113	113

Source: Adeleke et al., 2025

Relationship between Situational Factor and Energy Saving Behaviour

This section examined various situational factors that could influence the energy saving behaviour of office occupants. Table 6 shows the correlation coefficient between turning off lights when leaving the office and its impact on office layout on energy consumption. The results shows positive response on energy consumption (0.198).This indicates a positive relationship between these two variables, meaning that individuals who are more likely to turn off lights when leaving the office are also more likely to perceive that the office layout affects their energy consumption. The p-value associated with this correlation is 0.050, which is equal to the common significance level of 0.05. This suggested that the observed correlation is marginally significant but barely meets the conventional significance level. In other words, there is a suggestion of a meaningful relationship, but it is not overwhelmingly strong according to typical significance thresholds.

The data in this table suggested that there is a trend where individuals who are more likely to turn off lights when leaving the office also tend to believe that the office layout impacts their energy consumption. However, the strength of this relationship is relatively modest and only marginally meets the conventional criteria for statistical significance. The correlation coefficient between adjusting the AC thermostat to conserve energy and believing that energy-saving behaviour impact personal health and well-being is positive (0.173). This indicated a positive relationship between these two variables, suggesting that individuals who are more likely to adjust the thermostat for energy conservation also tend to believe that energy saving behaviour can

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positively influence their personal health and well-being. The p-value associated with this correlation is 0.092, which is greater than the common significance level of 0.05. This suggest that the observed correlation may not be statistically significant at the conventional significance level. The data suggested that there is a trend where individuals who adjust their AC thermostat for energy conservation are more likely to believe that energy-saving behaviour positively impact their personal health and well-being.

However, the strength of this relationship is relatively modest and does not reach statistical significance based on the provided data. The correlation coefficient between turning off lights when leaving the office and feeling physically comfortable in an environment with reduced energy consumption is positive (0.112). This indicated a positive relationship between these two variables, suggesting that individuals who are more likely to turn off lights when leaving the office may also be more likely to feel physically comfortable in an energy-efficient environment. The p-value associated with this correlation is 0.273, which is greater than the common significance level of 0.05. This suggest that the observed correlation may not be statistically significant at the conventional significance level. The data suggested that there was a mild trend where individuals who turn off lights when leaving the office may also tend to feel physically comfortable in an environment with reduced energy consumption. However, the strength of this relationship is relatively weak, and it does not meet the typical threshold for statistical significance based on the available data.

Mean Rank of Situational Factors affecting Energy Saving Behaviour

Table 7 shows the result of the socio-demographical and situational factors on various statement that gauge individuals' beliefs and attitudes towards energy-saving practices in the office environment. The influence of office layout on energy consumption is ranked first among respondents, it rated the impact of office layout on energy consumption at a mean score of 3.5258, with a standard deviation of 1.23418. This suggested that there is some variation in respondents' opinions, as indicated by the relatively high standard deviation. It was followed by the relationship between energy saving behavior and work productivity. The relationship was rated with a mean score of 3.4845 and a standard deviation of 1.21639. The skewness value of 1.480 indicated a slight positive skew, suggest that the distribution of responses may be slightly skewed towards higher ratings. Ranked third, the belief that individual impact of energy-saving efforts can make a difference, the mean score was 3.4742, with a standard deviation of 1.23400.The skewness value of -0.160 suggest a relatively balanced distribution of responses, with a slight tendency towards lower ratings. It was followed by the connection between personal health and well-being and energy-saving behaviour. Respondents, on the average, rated this connection at 3.4536, with a standard deviation of 1.19976. The negative skewness value of -0.376 indicates a slightly left-skewed distribution. Ranked fifth was the influence of the time of day on energy usage.

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Table 6: Relationship between Situational Factors and Energy Saving Behaviour

		Turn off lights when leaving the office	Do you think your ffice layout impact your energy consumption
Turn off lights when leaving the office	Pearson's Correlation	1	.198
	Sig. (2-tailed)		.050
	N	113	113
Do you think your office layout impact your energy consumption	Pearson's Correlation	.198	1
	Sig. (2-tailed)	.050	
	N	113	113
		I adjust the AC (thermostat) to conserve energy.	I believe that my personal health and well-being can be influenced by energy-saving behaviour
Adjust the AC (thermostat) to conserve energy.	Pearson's Correlation	1	.173
	Sig. (2-tailed)		.092
	N	113	113
I believe that my personal health and well-being can be influenced by energy-saving behaviour	Pearson's Correlation	.173	1
	Sig. (2-tailed)	.092	
	N	113	113
		I turn off lights when leaving the office	Physically comfortable working in environment with reduced energy consumption
Turn off lights when leaving the office	Pearson's Correlation	1	.112
	Sig. (2-tailed)		.273
	N	113	113
Physically comfortable working in an environment with reduced energy consumption (e.g., temperature adjustment)	Pearson's Correlation	.112	1
	Sig. (2-tailed)	.273	
	N	113	113

Source: Adeleke et al., 2025

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Respondents rated this factor with a mean score of 3.3711 and a standard deviation of 1.260 The skewness value of 1.590 suggests a distribution that may be skewed towards higher ratings, indicating a potential perception that time of day significantly affects energy usage. The impact of weather conditions on energy consumption was ranked sixth, with a mean score 3.2887, and standard deviation of 1.20726. The skewness value of -0.287 indicates a relatively balanced distribution of responses, with a slight tendency towards lower ratings. This is followed by the influence of coworkers or colleagues on energy-saving practices, which was ranked seventh. The mean score was 3.680, with a standard deviation of 1.17717. The skewness value of -0.305 suggested a slightly left-skewed distribution. Respondents considered the provision of regulating meters and its impact on energy consumption and this was ranked eighth, with a mean score for this statement was 3.2268, with a standard deviation of 1.31105. The skewness value of -0.318 indicates a slightly left-skewed distribution. Lastly, the potential impact of their income levels on energy consumption which had a mean score was 3.2211; with a standard deviation of 1.36973.The skewness value of-0.207 suggests a relatively balanced distribution of responses. Several studies have suggested that, the addition of individual attributes like awareness, situational elements within the built environment and organizational culture also shape occupant energy use behaviour in offices.

Table 7: Mean, Standard Deviation and Skewness of Socio-Demographical and Situational Data

	N	Mean Statistic	Std. Deviation	Variance	Skewness	Rank
Do you think your office Layout impact your energy consumption	113	3.5258	1.23418	1.523	-.524	1st
In your opinion, do energy-saving behaviour positively impart your work productivity	113	3.4845	1.21639	1.480	-.404	2nd
Do you believe your individual energy-saving effort can make a difference	113	3.4742	1.23400	1.523	-.160	3rd
I believe that my personal health and well-being can be influenced by energy saving behaviour.	113	3.4536	1.19976	1.439	-.376	4th
Time of the day affects the rate of energy usage at that particular period behaviour.	113	3.3711	1.26095	1.590	-,482	5th
Weather conditions affect my energy consumption rate in the office.	113	3.2887	1.20726	1.457	-,287	6th
Do you believe that energy-saving practices are influenced by the behaviour of your coworkers or colleagues	113	3.2680	1.17717	1.386	-.305	7th
Do you think provision of regulating meter will impact energy consumption	113	3.2268	1.31105	1.719	-318	8th
Do you think your impact your energy consumption	113	3.2211	1.36973	1.876	-.207	9th

Source: Adeleke et al., 2025

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Conclusion and Recommendation

The study concluded that majority of respondents have good positive understanding of energy saving behaviour but somewhat having lesser understanding of their impact on energy cost reduction and carbon emission mitigating. Similarly, the result of the correlation on energy saving behaviour and wasteful energy habits of occupants between gender and turning off light when leaving the office. The results suggest that there may be some relationships between roles, energy conservation behaviour and possibly gender. The socio-demographical and situational factor influencing energy saving behaviour shows that office occupants believes that situational factor such as the layout of their office can impact their energy saving behaviour. Additionally, office occupants agree that their level of income can influence their energy saving behaviour. Which implies that majority of the respondents generally have moderate perception and belief regarding the impact of this factor on energy saving practices.

The study however recommended the following:

(i) Office occupants in the institution should educated through awareness and advocacy on the importance of energy saving behaviour and its implication on energy cost reduction for the institution.

(ii) The management should formulate policies that will enhance energy saving practices among office occupants by putting in place strategies to measure energy usage in each office building in the institution.

(iii) Management should also attract incentives for staff who engage effectively in energy saving behaviour.

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