

A STEP TOWARDS ENERGY SAVING BY “TRANSFORMING BEHAVIOR”

Sonia Bajwa¹, Gurpreet Kaur²

¹Management, Desh Bhagat Foundation Group of Institutions, Moga, (India)

²CSE, Desh Bhagat Foundation Group of Institutions, Moga, (India)

ABSTRACT

We live in an age where energy is an absolute necessity to maintain our lifestyle. we normally talk about several aspects in our day to day life like cost of living going up, inflation rates, sports, in fact even about the stock market at times. However, have you ever given a thought to energy conservation? With the increase in population and advancement in technology, the demand of energy is all time high these days. Each one of us uses energy in some form or the other all day long, throughout the year. Almost every small thing we do requires energy right from cooking to transportation to lighting, cooling and even entertainment. Energy conservation is definitely not an issue that will take a significant place in our day to day lives; however it is one of the most important topics that need to be discussed.

Keywords: Behavior, Energy Conservation, Factor Analysis, Feedback, Technology

I. INTRODUCTION

Over the past few decades we are continuing conferences on various topics like social responsibility of business, corporate social responsibility, corporate governance, ethics, morality, behavioral change, group dynamics etc. For smoothening the functions of the organizations. These issues have become common in every entity right from government departments to private organizations such as hospitals, restaurants, and retail shops, malls including educational institutions, wherever an activity is going on and somebody is paying to a number of employees. Have we ever given a thought why such seminars are always oriented towards the owners or designated authorities for making them responsible towards society? Whereas society or employees do have some responsibility towards the organizations (where they are being paid or earn livelihood) apart from the services they render that we might call social responsibility of employees towards the organization. The paper throws light on some common issues which can bring a positive behavioral change amongst staff members and other employees who really assume themselves to be a part of the organization.

Everyone seems to be talking about energy conservation. But what do we mean by energy conservation? “Energy conservation means making an effort to reduce the consumption of natural energy sources like electricity, water and so on”[1,6]. Energy conservation" means to reduce the quantity of energy that is used for

different purposes. This practice may result in increase of financial capital, environmental value, national and personal security, and human comfort[2]. Therefore keeping in view the importance of energy saving, the present research work entitled “A step towards energy saving by transforming behavior” a lead to change was undertaken in the institute in the month of January 2016 with the following specific objectives:

II. OBJECTIVES

- i) To make the people consciously aware about energy saving.
- ii) To reduce the cost : A lead to personal growth as well as organization’s growth
- iii) Economic example among its counterparts
- iv) Promote economic, political and environmental sustainability
- v) Create learning environment in the campus

III. RESEARCH METHODOLOGY

The study was focused in moga city at Dbfgi campus in Punjab state. Various faculty members from including teaching as well as non teaching were randomly selected for the study. Further stratification has been done with different departments (IT, Management, B.tech, Fashion technology, Office staff). 100 staff members including all departments were personally interviewed with the help of specially structured questionnaire.

The data was depicted with the help of the tables. A step towards energy saving was also analyzed with the likert scale attributes, rating scales and Various Dichotomous questions with yes/no answers (with reasons) and multiple choice based questions were also used[3,4]. Before going in for analysis, likert scale attributes were assigned weight as under:

Not important at all-----moderately unimportant----- undecided-----moderately important-----
----- Extremely Important-----

Always=2; Often=1; occasionally=0; rarely= -1; never= -2

The results arrived at by analyzing the data have been discussed in the paper.

3.1 Questionnaire

Please fill the following particulars honestly. You might become a great contributor in a social welfare activity.

Department:

Age: 20-30 ----- 30-40 ----- 40-50 ----- 50 & Above -----

Gender: Male..... Female.....

Designation: Management member----- HOD -----

Q.1. Have you ever gone through any electricity saving seminar at any place?

Yes ----- If yes, where-----

No -----

- Q.2. Do you choose star rated energy appliances while purchasing electronic equipments for home?
Yes -----
Reason: (i) Status Consciousness -----
(ii) Highly rational buyer -----
No -----
Reason (i) Unaware about star rating-----
(ii) Irrational buyer-----
- Q.3. Is there any difference in the electricity consumption at home or in the campus?
Yes----- Reason:
No----- Reason:
- Q.4. How many times you notice the equipments are on while the space is unoccupied?
Always----- Often----- Occasionally ----- rarely----- never-----
- Q.5. Have you ever seen your colleagues unplugging unused electronics and appliances while not in use?
Always----- Often----- Occasionally ----- rarely----- never-----
- Q.6. What do you do if there are repeated fluctuations in the electricity?
a. Switch off main meter-----
b. Switch off big equipments-----
c. Sit idle or Don't bother-----
- Q.7. Choose from the following:
Energy saving is the sole duty of:
a. Management/Owners-----
b. Every individual who is a part of the organization-----
c. No need to save power-----
- Q.8. Where do you rate yourself to be in this context?
a. Energy saver-----
b. Energy waster-----
c. Indifferent towards the issue-----
- Q.9. What practice will be proved fruitful incase some student caught gossiping on phone with all fans working when there is no electricity?
a. Verbal warning
b. Written warning
c. Aware him/her as amoral duty
- Q.10. At the end of the exam day, whose duty is this to switch off concerned class equipments?
a. Exam coordinator
b. Students
c. Management
d. Concerned duty teacher

- Q.11. Charging own personal gadgets and leaving switches on with chargers. What practice is this?
 a. Unethical-----
 b. Habitual (Unconsciousness) -----
 c. Deliberative (Consciously done)-----
- Q.12. What measure will be proved best for reducing energy consumption on peak days in the summer?
 a. Awareness campaign-----
 b. Assigning duties to staff for maintaining their wards or departments-----
 c. Management’s action -----
- Q.13. Apart from above mentioned ones, can some other indirect measures be there for saving energy. Please indicate how strongly you agree or disagree with the following statements?
 a. Accurate usage of water purifiers
 b. Fruitful usage of personal gadgets
 c. Usage of time with the books not Pc’s only
 d. By making efficient use of library also
- Q.14. Which is the mandatory key to success in an organization on faculty and other staff’s part?
 a. Technological Change-----
 b. Behavioral Change-----
 c. Organizational Change-----
- Q.15. How would the student feel if the college penalizes him/her with a fine if caught offended in case of misuse of electricity?
 Not important at all-----moderately unimportant----- undecided-----moderately important-----
 ----- Extremely Important-----
- Q.16. How important do you feel if an in charge is rewarded for his/her ‘Sincerity with responsibility’ towards the campus in this regard?
 Not important at all-----moderately unimportant----- undecided-----moderately important--
 ----- Extremely Important-----
- Q.17. Rate the importance of coming up with a ‘Green Team’ in each department?
 Green team: A group of persons in the campus itself who takes care of the welfare activities for the development of self and others & the organization as well.
 Not important at all-----moderately unimportant----- undecided-----moderately important
 ----- Extremely Important-----
- Q.18. How important it is for you to take part in green team?
 Not important at all-----moderately unimportant----- undecided-----moderately important-----
 ----- Extremely Important-----
- Q.19. Rate the importance of the information accessibility to you about energy efficiency developments going on in your campus?

Not important at all-----moderately unimportant----- undecided-----
 moderately important-----Extremely Important-----

Q.20. How important do you think your actions are in promoting sustainability?

Not important at all-----moderately unimportant----- undecided-----moderately important
 ----- Extremely Important-----

Q.21. Mark these statements as True (T) or False (F)

- a) Is this really true that staff and students are not responsible for paying energy bills because they feel a lack of ownership over their energy use?
- b) Habit develops as no one ever stops you, so no one ever thinks about the monetary cost of it.
- c) As college premises are used by so many people: people still never feel that they have control over it.
- d) Energy use is always less prioritized, majority is stressed upon personal growth
- e) People have the attitude of relying others for doing their job and they think I can just go.

IV. RESULTS AND DISCUSSION

The Research work shows there are twenty major factors which are used for measuring the consciousness level which influences the behavior of the respondents for generating the awareness among them. These factors are depicted with the help of the following tables:

Table1. Demographic Characteristics of the Respondents

Demographics	Number of respondents	Percentage
Male	55	55%
Females	45	45%
AGE		
25-35	35	35
35-45	50	50
45-50	15	15
Employment type		
Faculty	80	80
office	20	20

The total numbers of respondents were 100, out of 100 respondents, 55 were males and 45 were females as shown in Table1. The data in the table shows that half of the respondents belonged to the age group of 35-45. Major proportion of the respondents constitutes males and middle aged. In employment category, the major portion constitutes the faculty members and a few were the office persons[5]. From every department a number of respondents were taken for the analysis of the data.

Table2. Percentage of Respondents Awareness Level on Energy Saving

Questions	Yes	No
Ever gone through any electricity saving seminar	12%	88%
choose star rated energy appliances	93%	7%
difference in the electricity consumption at home/campus	40%	60%

The data given in the Table 2 shows that out of 100 only 12% were already aware about this energy conservation as they were either studied from abroad or the high universities of the Punjab which conduct various social welfare programs for the awareness of the society. 88% of the respondents had never gone through any seminar due to less awareness and commitment toward energy saving[1]. The highest proportion i.e. 93% of the respondents purchase only star rated or ISI marked products as they assume themselves to be highly rational and status conscious who wanted every latest feature in their product only 7% were unaware and had no information about star rating[2]. After analyzing the data 60% of the respondents believe there was no difference in the electricity consumption at home or campus they believed we should save electricity at both places, while 40% believe that there was a difference and were more conscious to save energy at home than college campus due to direct involvement in paying energy bill from their pockets[2].

Table3. Percentage of Agreement on Moral Behavior of Respondents in the Campus

Behavior	Always	Often	Occasionally	Rarely	Never
Equipments are on while the space is unoccupied	22%	52%	19%	7%	0%
Ever seen your colleagues unplugging unused electronics	20%	25%	45%	10%	0%

Table 3 demonstrates that the highest proportion i.e. 52% of the respondents noticed that the equipments were often ON and space was unoccupied whereas 45% of the respondents occasionally noticed the practice of unplugging equipments when not in use reason being lack of responsibility and commitment of all people in the organization.

Table4. Extracted Factors Having a Great Bearing on the Usual Behavior of the Respondents

Factor numbers	Name of Dimension	Factors	Percentage	Significance
F1	action during repeated fluctuations	Switch off main meter Switch off big equipments Sit idle or Don't bother	0% 83% 17%	2ND
F2	Energy saving is the sole duty of	mgt./owners Every individual Nobody	0% 100% 0%	1ST
F3	you rate yourself	Energy saver Energy waster Indifferent	76% 14% 10%	4TH
F4	fruitful practice in case of misuse of electricity	verbal warning Written warning Aware as a moral duty	12% 5% 83%	2ND
F5	exam day, duty to switch off concerned class equipments	Exam Coordinator Management Concerned duty teacher	17% 0% 83%	2ND
F6	Charging own personal gadgets and leaving switches on	Habitual Deliberative unethical	52% 7% 41%	6TH
F7	measure proved best for reducing energy consumption	Awareness campaign Assigning duties to staff Strict action	48% 43% 7%	7TH
F8	other indirect measures help in energy saving	Accurate usage of water purifiers Only necessary usage of personal gadgets By making efficient use of library	40% 40% 20%	8TH
F9	mandatory key to success in an organization on faculty	Technological change Behavioral change Organizational change	26% 64% 10%	5TH

The Table 4 was formulated from the various variables that were having a great bearing in molding respondents behavior[4]. A perusal of table – leads to the fact that , 100% of the respondents assume energy saving as everybody’s duty, followed by 83% that switching off the big equipments incase of repeated fluctuations, and to check class equipments by concerned duty teacher after the exam is over. Same percentage i.e. 83% viewed that making every member aware about saving energy as their moral duty will be a quiet fruitful practice. Moreover 76% think that they are the energy savers and 64% believed that charging gadgets and leaving switches ON was a habitual practice as well as unethical too. 48% believed awareness campaign at any place will really bring fruitful results. In case of indirect measures, efficient use of water purifiers and personal gadgets score least but equal importance at 40%.

Table5. Importance of Factors Considered by Respondents in Terms of Their Efforts

Factors	Most important	Important	Neutral	Unimportant	Most unimportant	Overall Importance
College penalizes incase of misuse of electricity	26%	19%	19%	19%	17%	5th
Rewarded for his/her ‘Sincerity with responsibility’ towards campus	69%	31%	0%	0%	0%	1st
We should come up with a ‘Green Team’	48%	38%	12%	5%	5%	4th
Importance of taking part in green team	52%	36%	5%	5%	2%	3rd
Importance of information accessibility	64%	24%	16%	0%	0%	2nd
Importance of your actions in promoting sustainability	52%	31%	7%	7%	3%	3rd

The Table 5 reveals that Some factors were identified that influence the psychology of the respondents in terms of their effort. The highest proportion, i.e. 69% of the respondents considered the reward for sincerity with responsibility as most important, followed by 64% in favor of information availability whereas taking part in green team and their own actions were equally important for promoting sustainability in the campus. Penalty was considered to be the least important factor with 26%.

Table6. Importance of the Factors Considered by the Staff as their Responsible Actions

Factors	TRUE	FALSE
staff and students felt a lack of ownership because of not paying energy bills	50%	50%
nobody ever tells you, so nobody ever thinks about monetary cost	62%	38%
building is used by so many people; people don’t necessarily feel they have control	64%	36%
Energy use comes behind almost every other priority, emphasis is on personal growth	69%	31%
‘oh they’ll turn off everything so I can just go’ ATTITUDE	40%	60%

Table 6 presents the responsible actions of the individuals over various utility aspects in terms of true/false and it shows that the highest proportion, i.e. 69% of the respondents agreed upon personal growth as more important than energy saving issue, followed by 64% with feeling of no control on campus premises whereas they used all

the time, 62% believed nobody says them so they don't care, 50% feel lack of ownership and 40% have attitude of others will do my job[5].

V. CONCLUSION

The findings of the study conclude that majority of the respondents were not aware about such issues due to information unavailability or unconsciousness of the behavior. From consciousness point of view, most of the respondents are committing such mistakes due to their habitual behavior or ignorance. While amongst most influential factors, awareness campaign, moral duties towards campus and behavioral change gain more importance. From the effort point of view, everybody in the campus is ready to put their contribution in these campaigns. Keeping in view the above findings of the study, it may be suggested that educational institutions must develop some strategies of awareness for staff, students and other wards. They should also develop some committees in the campus to organize some seminars or awareness campaigns on every common issue which enhances the moral aspect of every member.

The institutions gave priority to the subject knowledge and personal growth. These organizations must lay emphasis on moral behavior of the members. Energy saving at institute campus is extremely important task which needs collective action, discipline and awareness. The entire staff members must realize its importance and show their willingness to contribute in energy saving goals so it is necessary that management and staff members should lead from the front to educate themselves and students about saving energy in the campus. Some of the necessary measures can be adopted such as to turn off the appliances when not in use. Use good amount of sunlight by opening windows. Try to weatherize your classroom in winters or monsoons. Put up the posters with energy and water savings tips and rewarding building users who achieve the most energy savings. Students can also defy the 'hotel mentality' kept in them because of not paying from their pockets.

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