

A STUDY ON ATTITUDE TOWARDS SEGREGATION OF DOMESTIC WASTE DURING DISPOSAL

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ABSTRACT - The study aims to examine pro-environmental behavior in the context of TPB (Theory of Planned Behavior) and Schwartz theory of altruism. TPB was developed from the theory of reasoned action, which claims that when people evaluate a suggested behavior as positive (attitude), and if they think their significant others want them to perform the behavior (subjective norm), this results in a higher intention (motivation) to do so. Altruistic behavior is causally influenced by feelings of moral obligation to act on one's personally held norms.

INTRODUCTION

With rapid population growth and urbanization, industrialization and technology leads to exhaustion of natural resources. The 3 R's- reducing, reusing and recycling have been emerging as economically practical solutions for the growing quantity of waste associated with population growth and consumption, worldwide. It has the dual benefit of reducing the amount of solid waste to be disposed and also minimizes the exploitation of additional natural resources.

However for recycling to be effective and economically feasible, the waste should be segregated before disposal. Hence, public awareness and participation in segregation (plastic, food, paper, sanitary napkins, electronic waste, etc) is the first mandatory step for productivity in recycling. This factor varies across the globe in different countries, cities and communities.

The waste management systems are not fully effective in some places due to a lesser household participation and qualified manpower, irregular collection of garbage, lack of sufficient equipment for waste collection and insufficient legal infrastructure. (Ramayah et al., 2012: 141).

This paper attempts to identify the suitable treatment to prompt positive attitude in individuals for participation in segregation of waste, where waste management facilities are available.

LITERATURE REVIEW

There have been studies that claim that collectivistic value orientation was related to recycling behavior more than individualistic values. (McCarty & Shrum, 1994) Individualistic societies have minimal ties between individuals. Personal connections and liabilities are limited to self and very close significant others. Collective societies are more integrated in to strong, cohesive groups with a higher degree of loyalty. Value is defined as "a desirable trans-situational goal varying in importance, which serves as a guiding principle in the life of a person or other social entity" by Schwartz (1992)

The actual performed behavior of an individual depends on the attitude of that individual towards that behavior. (Lee et al., 2007). In case of gap between attitude and behavior, social dilemma theory explains this dissonance. (Gupta & Ogden, 2009; Pickett-Baker & Ozaki, 2008; Smith, Haugtvedt, & Petty, 1994). Social dilemma is termed as a situation where an individual, as a member of a group has to choose between self interest and sacrificing individual gains (to maximize benefits for the group). The optimal choice would be to defect from the perspective of that individual. However, if such an attitude is expressed by a significant number of group members, the entire group/ community will suffer.

In such a social dilemma situation, perceived effectiveness or one's perception of the degree to which the individual's effort will contribute to solving the given problem may help explain one's decision and behavior (Bandura, 1994; Ellen, Wiener, & Cobb-Walgren, 1991).

Searles (2010) finds that verbal cues based on enthusiasm appeals reinforce an individual's positive attitude toward efforts to protect the environment and positively influence participants' pro-environmental views. Anxiety appeals induce anti-environmental attitudes. However, verbal cues are not the only way to evoke emotional responses. (*Chowdhury, Olsen, and Pracejus (2008)*) show that a single dominant positive image might be sufficient to engender significantly positive affective responses.

(*Straughan and Roberts (1999)*), suggests that altruistic value orientation in people prompts them to view themselves capable of making difference to the environment by their individual actions.

METHODS AND PROCEDURES

1) Expert Interviews

Four in-depth interviews were conducted with waste management professionals.

Two of them operate in Kollam (South Kerala) and Kozhikode (North Kerala). Other two participants operate within a residential campus in Coimbatore, Tamilnadu.

Insights obtained:

Interview 1:

CEO, Private waste management firm, Green Worms, Kozhikode-

The firm started by collecting residential waste in some rural areas with a minimal fee. However, the participation of residents was minimal in spite of the low fee. People preferred to dispose the waste in remote areas, as space was available. (Optional participation not effective)

Now, their focus is on handling the waste produced in events with more than 10,000 participants. The steps were explained as waste reduction (eliminating paper/plastic containers) and recycling (composting bio-waste).

Future plan is to build an organized urban waste collection infrastructure, in association with local administration.

Recommends that planned social behavior works better than personal altruism.

Interview 2:

Waste management chief, Amritapuri, Kollam

Campus with permanent residents and varying tourist population.

Waste to be burned, has been reduced from 40% to 10%, in 5 years. This has been achieved by more segregation in the disposed waste and infrastructure to filter and treat the remaining waste. The resident population is being provided with centralized waste station and additional disposal points, with separate bins for different types of waste. However, the temporary moving crowd of foreign origin is more prompt in proper waste disposal.

This shows that cultural or habitual aspects and altruism works more effective than planned behavior, in this case.

Interview 3:

Waste manager, Amrita University, Coimbatore

Residential campus with fixed population.

Efficient daily collection, separation and recycling of waste, is done every day in this campus. Most residents live in for more than 2 years. (Students and teachers) It implies that they are aware of the system after having been part of it for a long time. Yet, the waste disposed is mostly mixed up, rendering a significant part of it, difficult to reuse or recycle.

Suggestion of the interviewed manager is that the rules should be made strict, so that each resident becomes accountable for the segregation of their domestic waste.

Interview 4:

Waste management staff, Amrita University, Coimbatore

This staff directly interacts with the waste collection laborers and residents. Multiple programs have been conducted over the years to raise awareness and promote segregation of waste. Amending the regulations to stricter version might not be welcomed by the residents who are familiar with the existing, lenient system and might draw resistance, affecting the present efficiency of the system.

He recommends that personal values and altruism shall work in favor of waste segregation, if inspired enough.

2) **Experiment:**

The setting of experiment is Amrita University, a residential campus with an average population of 5000. For more than a decade, daily waste collection and treatment infrastructure has been functional here. There are waste bins, every half kilometer, so littering is minimal.

In the residential areas for staff, separate bins have been provided for segregating and disposing. (Food, plastic, sanitary products, other waste including electronic materials) However, as a general long standing trend, residents tend to dispose all these varieties of waste in a mixed manner. Most of the waste can be found in the open bin meant for food waste.

The reasons for this vary between simple and complicated. Some reasons cited by residents have been listed below.

- Height of the bins.
- Language in which the segregation directions are given on the bins. (English- no regional language is used)
- The openings of the bins are not big enough for easy disposal.
- Reluctance to touch or open the lid, due to cleanliness concern.
- Presence of open box (usually food waste bin) so that other closed bins are ignored.
- Presence of wild pigs in some disposal sites.

In this system, residents are rarely motivated by campaigns to participate in waste management. After the initial positive effect, these campaigns are not followed up and the method of disposal stays the same. Hence, the waste is still separated by manual labor, but the quantity suitable for recycling gets significantly reduced. This is counter-productive in two ways:

- 1) Reduces income from recycled products and might affect the payment of labor.
(Available resource wastage)
- 2) The unused waste needs to be burned or landfilled. (Additional resource requirement)

Theory of planned behavior is more applicable in a stricter system with external motivation to follow a pattern of behavior. So, in this campus, we conduct an experiment to measure whether innate altruism affects the participation of people in waste management.

To check this, we assume the following factors in light of discussion with the residents.

- 1) When people dispose waste at the disposal sites, they do it in a mechanical way as a necessity.
- 2) There is no personal feeling involved.
- 3) The waste dumped on any day is cleared by next day, so that it is considered to be taken care by the system and eventually this service is taken for granted.
- 4) Disposal behavior of one person might seem insignificant in the bigger picture, for each person.

The interactive experiment attempts to involve a personal angle to this process, hence triggering altruistic tendencies. This was done by keeping visual and verbal stimuli at the disposal sites, to affect the behavior of residents as they dispose their domestic waste.

Visual stimulus includes:

- 1) Photo of accumulated waste in large quantities.
(Intended to remind that the average quantity of waste produced by each individual or household, per day, adds up to a large quantity)
- 2) Photo of a manual laborer separating the mixed up waste materials by hand.
(Intended to induce the personal feel, there by changing the subconscious concept of a waste handling system to waste handling human being.)

Verbal stimulus:

“Few minutes of your time to separate waste before disposing here, will reduce hours of manual separation by our fellow human beings and make their life better.”

This statement was printed in English and two regional languages (Malayalam and Tamil)

Two locations with different demographic segments were selected for identical treatment, to

identify similarities or differences in response.

Location 1:

Staff quarters of professors and teaching faculty.

- Average education level is higher.
- Household waste collection and disposal is done by servants.

Location 2:

Staff quarters of supervisory staff.

- Population is higher.
- Waste handling is directly done by members residing in the homes.

RESULT

The response during a period of 1 week:

- Previously empty waste bins were being used for disposal. (sanitary, plastic)
- Still, the open bin for food waste contained mixed waste.
- Result was similar in both locations.
- The result shows that the visual stimuli at point of disposal affects the behavior of some individuals, but not all.
- This supports the view that, if we are able to trigger the altruism of a significant section of the population, using visual or verbal cues, a positive change can be effected in favor of waste segregation.

RECOMMENDATIONS

The campaigns and activities aimed at promoting participation in waste management should be customized according to the locality and even personalized, if possible.

The theme should be resonating with the resident population of each location.

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