

# Behavioral Change

## A Component of Sustainable Management at Harvard University

By

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### Introduction

Campus sustainability programs are currently being introduced all over the United States. The Harvard Green Campus Initiative, which was founded in 2000, is one of the first institutionalized programs in the United States to be embedded in the central administration of a university. The program is also one of the first in the United States to make behavioral change a main ingredient in the recipe for sustainability.

Faculty and students in the fields of engineering and biology often drive sustainability programs at smaller colleges and universities. Occasionally the results of these research projects are used by the operations departments and utilized on campus (1). At Harvard University it was an alliance between one professor, one top-level administrator, a few staff members and a number of students who convinced the administration that with the amount of climate change research done at large universities these institutions have a moral obligation to take operational action with respect to greenhouse gas reductions. In addition this group also predicted large monetary savings from increased resource efficiency. In 2000 the new program was established and equipped with an annual core funding of \$100,000 and a revolving interest-free loan fund of \$3,000,000 (2). Normalized to the population of the University the core funding amounts to \$3.15 per person or \$5.15 per student annually or 0.005% of the operating budget of the University. The core funding provides for one full-time and two part-time employees. With the help of ingenuity, many volunteer hours, and a supportive steering committee the initial core employees have grown the program into a substantial operation with eight full-time employees, 16 part-time employees and a tight network of hundreds of interested engaged students and staff around campus. Most of the current programs are financed directly out of the operating budgets of the schools that benefit from them.

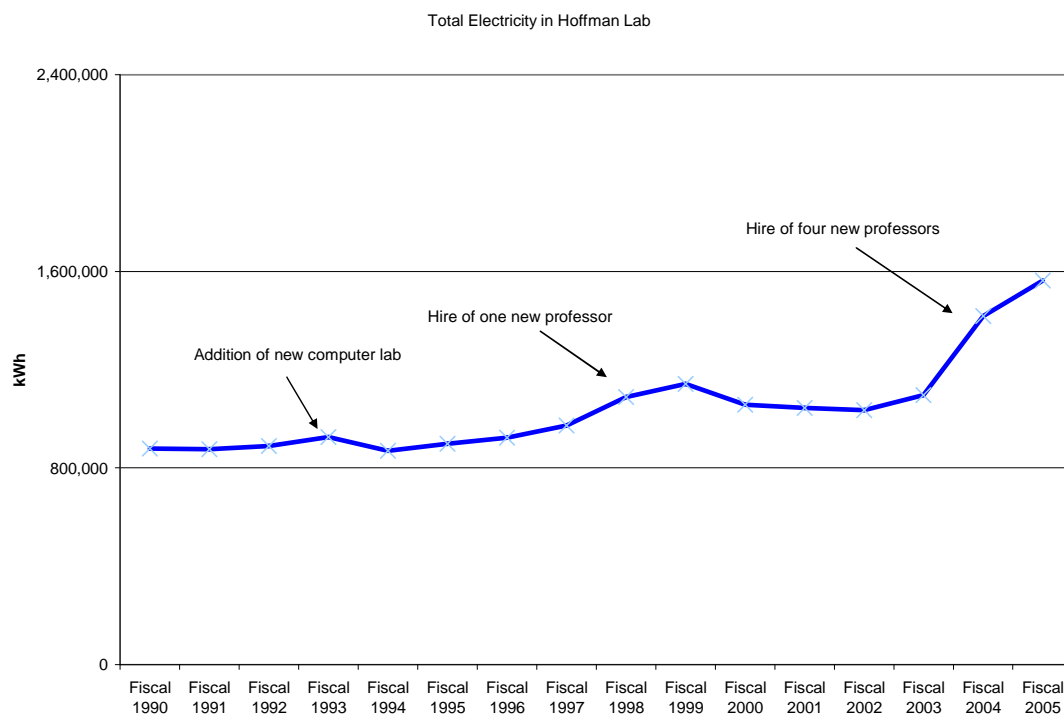
The decision to incorporate behavioral change programs in the approach to sustainable management was made early on and based on a number of observable indicators that suggested the enormous importance of human behavior.

### *The role of institutional culture and bureaucracy – norms, regulations, reports*

Before 2000 there were no university guidelines or procedures in place to account for environmental performance over and above the mandatory regulatory frameworks given by state and federal agencies. Through the work of the HGCI all new construction projects and many existing building renovations are now looked at with the USGBC's LEED standard as a reference (3). The HGCI also developed a set of sustainability principles for the University (4), which were endorsed by the University President last year. The principles and guidelines developed in the last four years give University employees and students a reference that they can measure their behavior against. Behavior change programs are necessary to propagate the knowledge of this framework, to communicate the its usefulness, and to show people how they are now empowered and have a mandate to take action themselves.

*The disappearance of previous 'infrastructure-only' attempts to energy efficiency and the previously limited institutional memory of these attempts.*

Anecdotal evidence suggests that energy efficient infrastructure and the knowledge related to it is lost with the turnover of research personnel and faculty on a timescale of 5 to 20 years. For example, motion detectors for lighting installed in the seventies were disconnected in the nineties because more women worked in the offices and labs at night and the desire for security overrode energy efficiency. Similarly, in the sciences, new professors trigger a wave of building renovations that more often than not result in the building being a larger energy consumer than before (see figure below). New display panels with halogen lamps may be installed, or new energy intensive analytical equipment is purchased, and almost always more and larger and newer computing capacity is required.



Before the clear sustainability guidelines developed by the HGCI, efficiency measures arose from random individual action. Creating a culture around environmental sustainability leads to the establishment of norms, benchmarks, and high-level awareness.

*The fact that the University owns a few high efficiency buildings that are not operated to their full potential.*

As part of a class assignment in 2001, a group of Harvard engineering students analyzed a then two-year-old building that was being hailed as example of energy efficiency (5). The students found that the building was not at all operating at its most efficient mainly because of a lack of user intervention. Office occupants were not aware of the fact that they could set their room climate individually, shade blinds were not used, heating and cooling units were blocked by furniture, and the HVAC systems were not programmed to account for different days of the week and hours of the day. The students concluded that substantial savings could be achieved annually if the building was used the way it was designed, meaning the building manager and occupants would have to be made aware of the building's energy saving systems and encouraged to use them accordingly.

## **Behavior from a psychological perspective**

Because the behavior of the 'human infrastructure' is so important in the management of environmental sustainability, every program at the HGCI has a behavioral change component. However, the target audiences depend on the objectives of the various programs. Ultimately our goal is to change the environmental strategies of all people at the University so that environmental considerations are included subconsciously into all actions. However, because this has not been achieved yet we have to make certain individuals 'change agents' and convince these 'change agents' to make sustainable choices based on factors like economics. Until these choices become automated reactions, they will have little bearing on the subsequent actions of the individual. This paper is about group programs, which are largely based on automating learned behavior and using hard-wired psychological human traits that are activated by external cues such as culture, social norms, and peers.

In the literature three types of behavior are described. According to Bargh et al. (6) conscious behavior consists of mental acts that require effort and are something we can plan and control. This type of conscious behavior plays a causal role in only 5% of our actions. Many tasks compete for this 5%, and research shows that efforts spent on the first conscious behavior reduce our ability to focus on another conscious behavior. It is therefore imperative for humans to conserve cognitive resources and make unimportant decisions routine. If the decisions are not routine, they might just turn out to be random. Two other types of behavior are automated, unconscious mental processes. The first is learned behavior, which is initially a controlled mental action that over time and with practice can operate with minimal conscious guidance (e.g., spelling when reading, being aware of the nutritional value of food, or watching out for traffic when crossing a street). The last type includes the predictable properties of humans that are hard-wired behaviors taking place effortlessly without intention or awareness. These are not just our body functions but traits like the need for affirmation and reassurance, imitative behavior, and vicarious learning to name just a few.

## **The psychological perspective applied**

The behavioral change programs we describe later in this paper aim to induce learned behavior according to the "Stages of Change Model" by Prochaska & DiClemente (7). The six stages in this model are:

1. Pre contemplation, with no awareness that there is a problem.
2. Contemplation, with acknowledgement of a problem and serious contemplation on solving the problem.
3. Preparation, during which the person takes action, and tells others about the resolution.
4. Action, behavior is changed but not habitual yet.
5. Maintenance, during which the person consciously keeps up the new behavior and tries to prevent lapses.
6. Termination, where the new behavior has become subconscious.

The programs are designed to facilitate these stages through either education or using the 'hard-wired' psychological traits of humans. Groups are assessed for the stage they are in through market research. Awareness raising activities such as posters, exhibitions, news articles, and social events can be used to get group members from the pre-contemplative stage to contemplation. Once there is awareness it is important to show how easy it can be to adopt the new behavior and to facilitate this ease by, for example, making recycling areas obvious and easily accessible, showing how to use computer hibernation, and offering all sorts of fun but preferred alternatives to undesirable behavior. At the

contemplation stage it is also beneficial to engage role models and popular peers to model behavior and trigger social perception and mimicry.

Our experience shows that about one fifth to one fourth of the undergraduate students at Harvard are at the preparation or action stage and it is relatively easy to get this percentage of students to make a one-time commitment to participating in a perceived harmless activity, such as a party, a contest, or an enjoyable class project. The readiness of staff to make a one-time commitment depends on the field of study they are working in. We find that people working in human-related fields like healthcare, psychology and anthropology are more likely to be at the preparation stage than people working in chemistry, math, astronomy, or engineering, even though the degree of knowledge on climate change issues is about the same or higher in these latter fields.

It is important to make the one-time commitment an unusual or enjoyable experience so that group members who did take action talk about it to others. If there is plenty of positive reinforcement through upbeat media reports, the right prizes in competitions, praise, or group encouragement, then a sizable portion of the subgroup that made the one-time commitment will go to the action or maintenance stage. In fact, it appears that if the committed subgroup is large enough the rest of the group goes into the action stage, too, without making the commitment. We can glean this from the reduction in energy consumption in the undergraduate dormitories, where for three years in a row between a fifth and a fourth of the residents took a pledge to reduce energy consumption. During the same time period the electricity consumption went down by roughly 20%, which means that either the pledgees completely stopped using electricity or the campaigns had an effect on all students even though most of them did not participate in the actual commitment. Only a small group of people at Harvard has actually reached the termination stage where environmental considerations unconsciously play into every decision.

### **The Campus Energy Reduction Program (CERP) and the Resource Efficiency Program (REP)**

CERP is one of the programs that the HGCI has successfully run for three years. Before addressing the chosen constituency we made ourselves knowledgeable with regards to the situation at hand. In the process we posed the following questions:

- What should we consider the most pressing problem?
- Where is the constituency with respect to the Stages of Change Model?
- How much energy and other resources do various buildings consume?
- Why do people use equipment the way they do?
- What segment of the Harvard population are we dealing with?
- What programs are out there already?
- What are some reasonable expectations for reductions?
- Who are the building users and what do they have in common?
- Which user group should be targeted first?
- How can we reach this population?
- What strategies should we pursue, especially in terms of products, costs, incentives, locations, promotions and education?
- What are the existing culture and norms?
- How will we monitor progress?

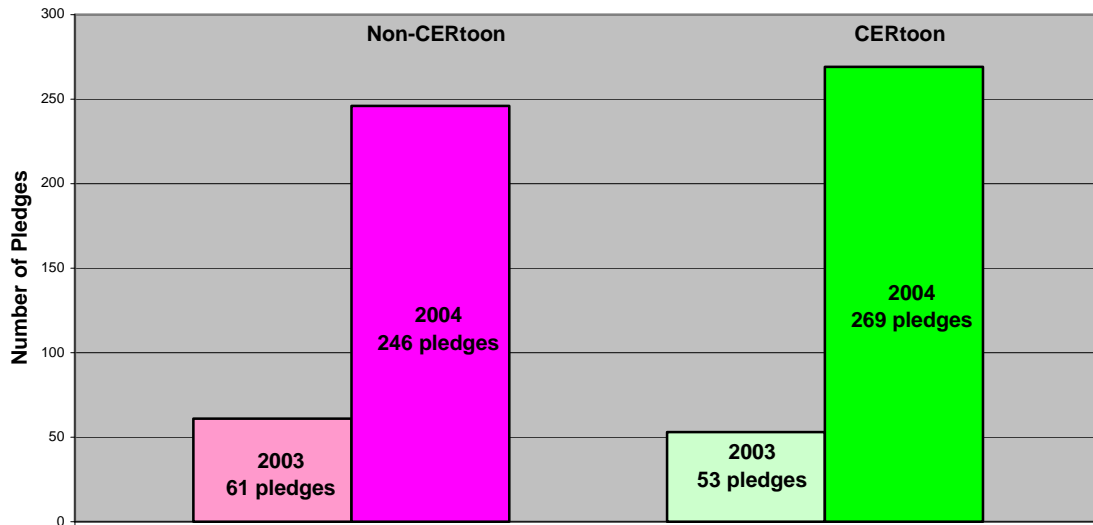
The program started out with an energy conservation pledge competition called Go Cold Turkey in the undergraduate dorms just before the Thanksgiving holiday. The pledge itself is simple, but the marketing campaign around it is complex and requires much creativity. The name of the campaign refers to a common Thanksgiving Day symbol and challenges people to buck their energy addiction. We included an element of competition, pitting dorm against dorm, and we experimented with incentives like free parties and wind energy for winning buildings. We chose the undergraduate population for our initial campaign because this group is very homogenous with respect to age, living conditions, educational level, and culture.

During the course of the first year of CERP we established the Resource Efficiency Program (REP) in the dormitories. This program employs one student in each dorm whose responsibility it is to run educational and marketing campaigns related to sustainable behavior. We run the same campaigns in all of the dorms throughout the year but each of REP's student employees can design the campaign according to the culture and population of their house, enlisting the support, guidance, and experience of all the HGCI staff and many other key representatives in the University. The Go Cold Turkey pledge was a great success in the undergraduate dorms right from the beginning. REP and CERP together have achieved electricity savings of 3% in the first year, 6 to 10% in the second year and 15 to 20% in the third year. In addition other REP campaigns have lead to \$50,000 in annual savings due to increased recycling, heat regulation, and reduced water consumption.

In the following year we extended the Go Cold Turkey campaign to four of the graduate schools including all the associated students, staff, and faculty. While the undergraduate student participation in the pledge was strong right from the beginning ranging from 20 to 25% and has not changed significantly in three years, participation of the graduate students, staff, and faculty in the largest of the four graduate schools was only 4.5% in the first year and climbed to 7.5% in the second year. This significant difference can be explained by the wide distribution of staff, graduate students, and faculty over 80 buildings and the lack of a network of people, as provided in the dorms by REP. However, by looking at where the pledges came from we can see that we only got significant pledge rates from buildings where we did have what we call "champions"- people we know personally who are willing to help us distribute our message and who themselves are great role models in their buildings.

After the first year of low pledge rates among staff we added a second campaign, which we called CERtoon. The idea behind CERtoon is that a seemingly unrelated event can prime human perception of a problem and lead to better performance in a subsequent task. CERtoon again has a competitive component for students who are asked once a year to submit cartoons on a specific environmental topic - the topic of the year. The winning entries of the CERtoon competition are then displayed in exhibitions in the widely dispersed buildings where staff, graduate students, and faculty work. These "cultural events" happen during the spring and summer to prime building occupants for the fall Go Cold Turkey pledge. We have held the CERtoon competition for two years in a row and the winner's exhibitions have been very well received in the departments that have hosted them. Our finding is that a CERtoon exhibition bolsters the Go Cold Turkey pledge rate in the building where it was held by 8% (see figure below).

Comparison of Pledge Rates in Buildings with and without CERtoon Exhibitions



### Financial and human resources to run behavioral change programs

The fact that the operational budget of the Green Campus Initiative is small compared to the size of the University meant that we needed to create allies across campus. One of the main achievements of the behavioral change programs is the network of interested and helpful students and staff that was created and that supplements the staffing of the HGCI. The main allies are found amongst the house masters (i.e., dorm supervisors), the human resources staff, the press, the arts departments, environmental student organizations, students in the sciences and public health areas, staff in various departments, building managers, and lab directors. These "champions" help in making the programs visible, interesting, and relevant in the dorms and departments.

It seems that past participation in Go Cold Turkey or CERtoon is an indicator of future involvement in CERP activities. For example, departments that hosted a CERtoon exhibition one year are quick to say yes to an exhibition the following year. Employees who have taken the Go Cold Turkey pledge before are more likely to renew their pledge the next year and rally their co-workers to participate too. The increased percentage of Go Cold Turkey pledges that we have seen in the academic departments might be a reflection of this.

### References

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