

CAMPUS SUSTAINABILITY PRACTITIONERS: CHALLENGES FOR A NEW PROFESSION

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Introduction

The purpose of this paper is to put forward a number of ideas about the deep challenges that must be faced by campus sustainability practitioners, in the hope that it can inform our evolving understanding of what being an effective campus sustainability practitioner requires. The paper attempts to put forward a number of insights that can hopefully spark further deliberation, debate and evolution as we all work together to unravel the mystery of what it will take to catalyze wide reaching systemic transformation in the university sector.

The paper draws upon various direct experiences enjoyed and endured by the staff of the Harvard Green Campus Initiative. To assist in giving further weight to the material presented, this paper also draws upon the illuminating work of a various authors of important education theory and human development publications.

Framing the Problem as Systemic and Relational

The university sector continues to perceive itself as separate from the earth’s life support systems. Table 1. *Current Campus-Earth Systems Relationships* illustrates the systemic disconnect that exists between the internal workings of our universities and the impacts that result upon the Earths systems. Universities continue to propagate leadership styles, organizational cultures, information and procurement systems, human resource processes, finance and accounting systems, campus planning and building design decision-making processes etc that function as if completely oblivious to the earth system impacts that result, as if we have no basic dependence upon the earth’s systems to provide clean air, water, stable climate, food, materials and waste processing etc.

Table 1. Current Campus-Earth System Relationships

<i>Institutional Drivers</i>	<i>Institutional Systems</i>	Currently <u>NO</u> Effective Relationship between Earth & Institutional Systems	<i>Earth Systems</i>	<i>Earth Impacts</i>
Mission	Energy supply and distribution		Ecosystems	Species extinction, increases in infectious vectors from insects
Leadership Style	Material supply and disposal		Climate systems	Climate disturbance
Organizational Culture	Food supply		Atmospheric systems	Ozone depletion, air pollution
Information Systems	Water supply and disposal		Oceanic systems	Rising sea levels, deep ocean current changes, fisheries depletion
Procurement systems	Building design and construction		Geological systems	Desertification, land pollution, mineral and resource depletion
Decision Making Processes	Building Mechanical Systems		Water systems	Water pollution, scarcity and unreliable rain fall
Finance & Accounting Structures	•Ventilation		Nutrient systems	Depletion of soil quality, build-up of toxins in soils
Human resources	•Temperature control			
•Position	Transportation			
Requirements	Non-vehicular Circulation			
•Incentives	Landscaping			
•Training				
Capital Developments				
Building operations and maintenance				
Campus planning				

In a relational sense, the University sector, like the rest of society, must grow up and engage in an ongoing and ‘adult’ relationship with the earth’s life support systems. This relationship must be informed by an ongoing exchange of information between the university’s internal systems and the larger earth systems that are being impacted. This exchange of information must be designed to have an ongoing and transformative influence on the priorities and behaviors of the institution for generations to come. Further, this relationship must reach into the organizational drivers of the university, affecting everything from top level leadership, organizational culture, information systems, decision-making processes, human resources, campus planning and building design and operational activities. It is only by integrating accountability for earth system impacts into these institutional drivers that our organizations can truly undergo the depth and pace of systemic transformation necessary, whereby every year will result in significant improvements in campus design, operations and performance.

A summary of some fundamental dimensions of this new mode of campus-earth relationship are listed in the middle column of Table 2. *Future Campus-Earth System Relationships*. Basic requirements of new relationship include:

- implementing organization wide transparency of earth impacts associated with decision-making,
- developing the learning organization capacities of our universities to enable constant innovation and an ongoing, dynamic response to earth system requirements, and
- utilizing the campus as a living laboratory for exploring new practices and associated organizational and earth system impacts.

The ultimate result of achieving these kinds of fundamental changes in the orientation of the university to our earth systems will be the full transformation of the physical campus, eventually arriving in balance with the local and global Earth systems.

Table 2. Future Campus-Earth System Relationships

<i>Institutional Drivers</i>	<i>Institutional Systems</i>	Create Relationship between Earth & Institutional Systems	<i>Earth Systems</i>	<i>Earth Impacts</i>
Mission	Energy supply and distribution	<u>Change Institutional Drivers:</u> > Make hidden upstream and downstream environmental impacts known > Develop learning organization capacities > Mission alignment between teaching, research & operations > Align finance & accounting systems to support long term system health > Regulatory Advocacy ↓ <u>Change Campus Systems:</u> ○ REDUCE CONSUMPTION ○ SHIFT TO RENEWABLE, CLEAN energy & materials ○ ENHANCE ECOSYSTEM HEALTH in campus design ○ REUSE and RECYCLE ○ CLOSED LOOP SYSTEMS.	Ecosystems	Species extinction, increases in infectious vectors from insects
Leadership	Material supply and disposal		Climate systems	
Organizational Culture	Food supply		Atmospheric systems	Climate disturbance
Information Systems	Water supply and disposal		Oceanic systems	Ozone depletion, air pollution
Procurement systems	Building design and construction		Geological systems	Rising sea levels, deep ocean current changes, fisheries depletion
Decision Making Processes	Building Mechanical Systems •Ventilation •Temperature control		Water systems	Desertification, land pollution, mineral and resource depletion
Finance/Accounting Structures	Transportation		Nutrient systems	Water pollution, scarcity and unreliable rain fall
Human resources •Incentives •Training	Non-vehicular Circulation			Depletion of soil quality, build-up of toxins in soils
Capital Development	Landscaping			
Building operations and maintenance				
Campus planning				

It is possible that every local and regional university context may require a nuanced version of what is needed in order to foster an effective connection between the campus systems and earth systems. To that end, this framework needs more work. However, for now, framing the challenge before us as systemic and relational is immediately useful for many reasons including:

1. It focuses our attention on the nature of our organization, organizational systems and drivers, many of which are difficult to uncover but which must be brought to light as a first step in the process of deep organizational transformation.
2. It shows the connection between the way the physical campus is designed/operated and the underlying organizational drivers that determine decision-making outcomes. This is essential in understanding why we can succeed in getting one green building up one year only find the next three buildings are the same as usual (because we may have failed to change associated organizational drivers).
3. It leads us to consider the opportunity and necessity of changing organizational drivers in concert with innovating on the physical campus. Expanding the challenge of the campus sustainability professional from creating new campus programs/projects to changing fundamental organizational drivers.
4. It provides insight into the nature of our paradigm failure: a failure of systemic relationship, between our organizations and the earth systems upon which they depend. This insight may catalyze efforts to imagine what the new paradigm must look like – including new mental models, organizational values, organizational drivers and the physical campus design and operations.

The Art of the Entrepreneur: Making a Business Out of Sustainability

The constant challenge for any campus sustainability practitioner is getting access to resources to develop new services and run programs, projects or initiatives that target a wide range of green campus activities. Tackling the constant deprivation of resources requires an entrepreneurial approach to building a financially viable business out of green campus activities.

Our campuses are ripe with opportunities for reducing the consumption of resources (and associated emissions) and saving money. This means that they are ripe for the development of a wide range of green campus services, programs and projects that can be self-funding and better. While efficiency is not going to get us all the way to the holy grail of sustainability, it is a great way to fuel the development of a business that can get our organizations moving in the right direction. Perhaps most importantly, making a business out of green campus activities can allow campus sustainability practitioners to build up their staff base, increase their political reach, raise the general profile of green campus efforts, and generally improve the chances of getting more funding for other important activities that don't have obvious paybacks but which are essential to the longer range mission of campus sustainability.

This section documents a number of approaches, styles and strategies that have been proven effective in winning funding and making a business out of green campus initiatives.

Understanding Your Role

Any new initiative begins with someone having an intention, identifying an idea or opportunity, engaging others in thinking through ideas, and setting a shared course to translate ideas into action. Regardless of whether the new initiative is an entire green campus program, a green

building project, a residential green living program, a student internship, a recycling program, a renewable energy project, etc, there are a number of common strategies, skills and activities that are essential for converting an idea into a fully developed, funded, staffed and active program.

To start with, someone must take the lead role in facilitating overall program development and approval. The tasks involved include establishing relationships, organizing meetings, building ideas based on new input, writing proposals, ensuring that stakeholders are satisfied and supportive, drafting budgets, timing the final funding request and generating solutions to problems that emerge all along the way.

This strategic facilitation strikes a fine balance between active leadership, astute organizational awareness, and skillful facilitation. In the university context, and especially in relation to the development of a new program, the most effective leaders are people who can execute necessary tasks while helping others to take ownership of the product. As the saying goes, a good leader can accomplish almost anything if she or he does not mind who takes the credit.

Central to making a business out of campus sustainability is protecting enough hours to do the work of business building. Too often, campus sustainability practitioners become project managers and implementation staff for a small cluster of particular green campus activities, perhaps the campus recycling program, a carpooling program, a green building review service etc, leaving them very few hours for doing the heavy lifting of creating new business opportunities around the campus. Campus sustainability practitioners need to keep the majority of their hours free of project implementation work, focusing their attentions instead on doing the business development, partnership building, fundraising, work plan development, recruitment, staff training & management and organization building of a green campus business that makes its living by improving campus design and performance.

What follows in the section is an overview of strategies and approaches for winning new program funding partners, the foundation of building a green campus business.

Understanding Your Organization

A common mistake is to assume too much and understand too little about how your university actually works. Take the time to learn how your target departments and populations are structured, perhaps by asking the following questions:

- What roles and responsibilities do people have in the departments?
- Exactly how do their decisions and work portfolios interface with issues of sustainability and how best can I communicate this?
- Does the top level manager have absolute decision-making authority, or does he or she have to gain permission from other individuals? Specifically, who makes the budget allocation decisions?
- Have they ever funded anything remotely like this before?
- What are the personalities, alliances and politics in the department like?
- Is the department well run and stable or has it just been through a major staff cut or political upheaval?

Take time to meet with staff in the relevant departments - get to know them and let them get to know you. Always discuss your ideas with an open mind. Be ready for encouraging of new input, suggestions and concerns. Most importantly, try to arrive at a point where others trust that you understand the realities of their organizational context. If you can do this, you will be a big step closer to establishing a partnership that will benefit your new program.

Locating Your Audience

Because your time is limited, you must refine and focus your energies on working with the people that can be of ultimate use in making progress. In the early design and development stages of a new program, smaller groups of committed, strategically selected supporters are likely to be more effective than lots of scattered participants. Your ideal partners will be a mix of people who have access to funding and high level managers, and who know how things work around the university.

You should learn to distinguish between theoretical and applied support. The latter is what you want - applied support is what will translate into funding, space and organizational structure, partnership, and legitimacy. Theoretical support is mildly helpful in the sense that it can facilitate corridor conversations and political legitimacy, but your time is best spent with those people who can help in concrete ways. To get to the people who can provide applied support you must understand your organization, as discussed in the last section.

Creating the Need

Once you have identified the key people to invest your time with, you must then set about igniting a need within this group to take action and make some changes. Avoid making presumptions about potential partners, especially in terms of the types of persuasive arguments you should use. Enter meetings with an open mind and broad set of arguments about the environmental impetus. Understand and clearly lay out the scientific evidence for climate change and be able to talk about mitigation strategies, such as energy conservation & renewable energy. Read up on current projections for consequences around the world and especially in your local area. Create opportunities for your targeted partners to ask questions and learn as much as possible about global environmental issues. As you get to know key individuals, be adaptive in your position, arguments and role. Where ever possible draw direct connections between the day to day work of the department and the global environmental issues you have outlined. Also, use case studies of what other peer organizational have been doing in response.

Leading and Sharing the Evolution of Ideas

Once you have ignited enough interest or need in your potential partners to want to take action, begin canvassing their reactions to various ideas for impact reduction initiatives in their department. Be prepared to propose and hear numerous ideas before you are able to find an idea that has real potential. An idea that has real potential ignites instant enthusiasm, attracts minimal negativity, has at least one obvious route for being financially supported, and is something that you can shepherd through the next phases of its development.

A campus sustainability practitioner should be informed about the kinds of services and programs that are going to be immediately useful to the department/funder and should take the lead in getting people to think about these ideas. For example, if you are working with a department that builds new buildings it is wise to understand what it takes to achieve a green building, such as:

- Moving early enough to address sustainability in the proposed building (preferable before pre-design)
- Working with the client and project manager to give them the fullest possible understanding of what green building design means, provide training where possible (E.g LEED workshop)
- Advocating for fee structures to include incentives for integrated building design, modeling, documentation and low operating costs post construction
- Getting an early commitment – and including requirements in RFP for design team selection
- Adopting the LEED framework to ensure thorough accountability

- Ensuring that entire design team shares and understands the commitment
- Providing helpful case studies to incite ideas and confidence – the more local the better
- Establishing roles and responsibility early and managing a regular reporting and accountability process
- Providing ongoing research and modeling support
- Requiring Pre-design integrated building modeling and associated life cycle costing to determine large system options
- Ensuring that all green building design requirements get thoroughly included in the design and construction specifications for all subcontractors.
- Gathering associated documentation (especially if going for LEED) and implement a strategy for using documentation to benefit future building projects

By knowing what it takes to achieve a green building, you will be able to lead the conversation towards service ideas that you know are necessary. Similarly, if you are working with a department/funder that manages residential dorms, you should already be familiar with what it takes to run a successful residential green living program. This background knowledge is essential for ensuring that the right ideas are put on the table up front.

Once you've settled upon a general idea, the next step is to refine it and gain support for it. This is best achieved by ensuring that numerous stakeholders have a chance to have their thoughts heard and reflected in the more detailed design of the proposal.

Taking "No" for a Question (Rather than an Answer!)

As you traverse the university landscape in search of strategic partners and supporters of a particular program concept, be prepared for hesitations, discouragement, responsibility avoidance and the good old smoke screen. None of this should be interpreted as a sign to stop. The best change agents interpret all kinds of feedback as sources of important information. When someone says “no” or “maybe later” or “it won't work” or “it's been tried already and didn't work” or “we just don't have the funding,” the most important thing to do is figure out what is behind this response. Understand that an individual's response may be changeable. It may evolve over time and interaction with you, especially if you can attune yourself to what they need in order to change their response.

While not always the case, sometimes an individual may not be able to tell you the real reasons behind their hesitation either because they are not conscious of why themselves, or they feel awkward about speaking the truth. Common hidden reasons for not wanting to participate in a new program include the following:

- Needing to maintain control.
- Being overwhelmed with the complexity of her/his job already.
- Worrying that the new commitment will take too much time.
- Believing that he/she will be left “holding the baby” after you've set the program up.
- Lacking confidence that you'll be able to meet her or his needs and honor limitations.
- Not knowing you well enough to trust that you will make the program a success.

If you can put yourself in the position of the other person, which requires that you have really taken the time to understand their daily responsibilities and pressures, you can often discover what may be underneath their hesitation and how you may be able to attend to this. The next step is to make the necessary adjustments to address the concern and to meet again to discuss a new approach. However, many of these hidden reasons can only be dealt with by having sustained interactions and building a relationship over time. As familiarity, trust and mutual understanding

grows many of these hidden reasons will simply resolve themselves in the mind of the individual, without ever having to directly confront them. There is a lot to be said for just staying in communication long enough for things to naturally shift under the force of mutual understanding.

In the case of the HGCI, the most common hidden reasons for reluctance that emerged during early program development were concerns about increasing time commitments of already overloaded staff, adding more complexity to overwhelming portfolios. As a result of these issues, the HGCI goes to great lengths to design its programs so that participating departments and sponsors do not have to carry any of the time burden associated with the programs, nor do they have to deal with day-to-day management complexities. Departments and sponsors consistently become more willing to participate as they realized this is going to be the case.

Figuring Out Who Should Pay (because they won't just tell you!)

Universities have complex accounting structures and it pays to understand them as best you can. A common problem is that capital budgets are managed separately from building operating budgets. This means that using money from the capital budget to generate operational savings will meet resistance from the capital budget manager who will not actually see the financial benefit. The operating budget manager on the other hand is unable to access the necessary capital funds to upgrade buildings and reduce operating costs.

Another common issue relates to metering and billing. Often the entities responsible for consuming the energy/water are not the ones that pay the bills. Their use may not even be metered. In this case, there is no incentive for building users to change anything as they will not see any of the returns of their own reduction efforts.

With these issues in mind, it will be wise to ask how the accounting, metering and billing works in the departments that you have targeted for a potential funding partnership. You will need to use this information to come up with a good rationale for whose budget should provide the funding and how that department will ultimately see the benefit of its investment.

Where possible it is advantageous to seek multiple funding partners, or at least establish good program reporting relationships with multiple key representatives within any funding department. This will give you more political support and general resilience in the long run.

How Much Do I Ask For?

To determine the amount that you are asking for you will need to consider three things:

1. Your basic annual service, program or project costs
2. How much your initiative can realistically save the funding department
3. How you will be able to calculate and prove the savings associated with your initiative

Give plenty of time to considering these three factors. Your basic program costs should be determined using your own professional judgment, learning from similar programs where possible. A common mistake made in establishing new programs is underestimating the time and costs required to properly manage or coordinate the program. This is your chance to be sure that you avoid setting yourself up to have to carry the implementation work-load of the program under development. It is recommended that you consult other organizations that have implemented successful like programs to get accurate estimates of coordination time.

Reaching final agreement on the projected savings and the means of proving the savings should directly involve the potential funding partner/s. While you should take the lead in proposing savings scenarios and associated evidence, the process of coming to agreement on these last two factors will be essential for winning the ultimate buy in of your potential funding partner.

As you interact with potential funding partners it is wise to discuss what they believe to be a reasonable period of time for programs and projects to pay for themselves. Two to five years is a frequently used payback period for work undertaken by the HGCI. If your potential funding partner does not think that a project with any kind of payback period is worthwhile, you have your work cut out for you. If you can get some agreement on a payback period, then you will have established an important basis upon which to design and measure your proposed program.

Behavioral change programs can generate very impressive payback periods. On average the HGCI's programs of this kind have paid themselves back within 18 months, showing consistently that well-designed, funded and managed behavioral change programs have rates of return of over 70 percent per year. This success has gone a long way in convincing skeptics that behavioral change programs are valuable. A wide range of high performance building projects also have impressive paybacks as do peer to peer training programs for building managers and green laboratory programs focusing on fume hoods and other energy intensive aspects.

Take note that the financial year starts on July 1 every year, which means that every budget is renewed at this time for the next year. College and university budgets are usually planned well before the start of the fiscal year, sometimes by the preceding December or January. This means that any new budget request needs to be in the system for approval before this time; otherwise, it may have to wait until the next budget planning cycle.

An exception is if your program requires a small enough start-up amount. In this case, the funds might be found in discretionary budgets. These are often set up to provide managers with some contingency funding for unexpected costs during the year. It may be worth your time to find out if discretionary budgets exist in your stakeholder departments. They almost always do, but are also very carefully guarded.

Communication Style: Tips to Win

Face-to-face communication is always better than phone, email, or documentation. Where ever possible make appointments to present your ideas to key decision-makers, and make the appointments short and well-organized.

When initially approaching top administrators, you might be referred down to lower-ranking administrators. This can work to your advantage if you succeed in keeping the option open to return to the top-level manager later. Simply ask if you can seek her or his advice as things progress.

Be sure to respect the political landscape of your potential funding partners. Going over someone's head to his or her boss in order to pressure them into doing something they have clearly indicated they don't want to will rarely, if ever, generate the kind of positive engagement you need. Going over someone's head to get them off the fence is another question all together. In the common instance in which an individual is simply not taking any clear position, a positive push from their boss (catalyzed by you) can be ideal. This works the in the other direction just as frequently, whereby managers previously on the fence as catalyzed to move forward upon learning of their own staff's support (catalyzed by you).

To be an effective change agent, you must win hearts and minds at each and every level in the hierarchy if you are going to succeed. This means taking the time to meet and build working relationships with each relevant staff person along the way. Middle managers are particularly important because they can be terrific allies as you move up and down the hierarchy to make sure everyone is on board.

Before, during and after your meetings, put yourself in the shoes of your potential partners to try to understand their needs and objections. Practice reflective listening. Instead of saying "But

that's not a problem," try "So you are concerned that..." This approach will make administrators feel heard, and it will help you understand and thereby overcome their objections.

Tune into the language and terminology that is used by various departments. When appropriate, incorporate their preferred terms and be open to adapting your own vocabulary. In general, the use of "we" instead of "I" is a helpful way of sharing the overall ownership of the process.

Be sure to allow people the space to raise objections and state their concerns, and do not be too quick in trying to argue against the concerns. Before you try to address the issues, make an effort to actively explore them, further drawing out the skeptic and showing that you understand her or him. Sometimes people will not be looking for you to argue with them, wanting instead to just get their concerns on the record before agreeing to support your proposal.

Keep an eye on the time, and always use the last 10 minutes of every meeting to focus everyone's attention on addressing the fundamental questions you are there to have answered. Conclude by summarizing the tasks you will undertake as a result of the meeting, along with any commitments other participants have made. In closing it can be wise to ask that the meeting participants meet with you again to further refine and implement the next steps of the program.

Documentation: A Tool for Good

It is always strategic to document your proposal as it progresses. Be sure to keep proposal documents succinct. The most effective proposals are limited to three pages, including a one-page budget. Your proposal should include a brief introduction, timeline and summaries of roles, responsibilities, decision-making processes and - especially important - the program "deliverables." As you go through your overall communication and partnership building stages, try to arrive at a universal agreement on what the program will aim to achieve.

Most importantly, make sure that your potential funding partners agree with any assertions made in the document. If they don't, find out why not and try to alleviate their concerns. If they still do not agree, find out what they would support and write that into the proposal. It's not uncommon for the HGCI to redraft a proposal 5 or more times as a negotiation process evolves.

Managing Risk Perception: On Your Feet Action

Experiences at the Harvard Green Campus Initiative suggest that you must always be ready to think on your feet during turning-point funding meetings. Sometimes the conversation can head in unexpected directions, raising new concerns about your program concept. Always keep up with where the conversation is moving, calculating how it is effecting perceptions of risk. Whenever you sense these perceptions rise, move quickly and without appearing defensive to diffuse them with clear and confident responses. The best responses cite similar situations and illustrate effective approaches to dealing with the concern. If you have no such example to offer, the next best thing to do is to quickly identify a program adjustment that can minimize the risk. With experience you will become adept at responding spontaneously to such situations.

Timing Your Final Request: The Master Stroke

There is always a right time to push for final funding approval, and knowing when the time has come is an important skill. This is a critical moment, because if you have miscalculated and the answer is "no," then your options for continuing to advocate the program may be limited.

The best time to request funding approval is when you have fully secured informal support from multiple levels in the hierarchy, the kind that develops over an extended period of discussions, proposal readjustments, and general relationship building. By the time you request final funding, all

of your stakeholders' concerns, barriers, performance targets, payback requirements and ideas should have been addressed, and the proposal should be well understood by all parties.

At this point it may be wise to meet with all key funding partners to establish and formalize their commitments and to set a start date for the program. Schedule the meeting well in advance so that you have ample time to prepare a polished, detailed and organized presentation.

Being Prepared to Scale Down or Let Go

Be prepared for decision-makers to offer only partial funding. Do not accept it without carefully thinking about the consequences for your program. Sometimes it is better to take no funding than insufficient funding. If you attempt to establish a program without the proper resource base, you will doom it to failure, setting a negative precedent for your future efforts. The only times that you should consider accepting partial funding is when:

- You can reasonably scale the entire program down to ensure it will be adequately funded. If you think this is an option, you could say: "That level of funding might work if we scale back the program or bring in other partners. Can I take a few days to consider the possibilities and get back to you?" Be sure to create a follow-up appointment on the spot.
- You have a good chance of finding another funding partner to make up the shortfall. Sometimes having a partial funding commitment from one department can catalyze renewed interest from other departments that were unwilling to carry the program costs alone but would consider sharing them. Arrange meetings with the other departments as soon as possible to discuss this possibility. If appropriate, ask the new funding partner to assist in encouraging others to contribute.
- You are at a stage in your own career path that it makes sense to go out on a limb and do whatever volunteer or overtime work it takes to make the initiative work in the hope that better funding will follow.

If the partial funding is grossly inadequate and you can see no other avenues to make up the difference, you might be well-served to let it go and regroup for another attempt at a later date. Trust your own professional judgment on this at all times.

Recovering from Bad Days: We all Have Em

Some days are tougher than others when you are trying to get something new off the ground. Anyone who has ever worked in a university setting knows that some days are just demoralizing. If you find yourself leaving a meeting feeling fundamentally discouraged, keep in mind the bottom line—we have to deal with climate change somehow and soon. It's not personal. Obstacles to setting up green campus programs to deal with this environmental crisis must eventually be overcome. You are just the messenger. The need to take action is not going away. Something will have to give. Take a rest, open your heart, and try to come back with a new approach to the problem.

Addressing Finance and Accounting Systems that Cost a Fortune

As well as doing the work of a business entrepreneur, campus sustainability practitioners must also attend to the work of removing systems barriers to campus sustainability that are operating throughout the campus. This work is different to the work of building a business and involves a different set of activities and capacities that are of a more political and alliance building nature. A primary example of this aspect of a campus sustainability practitioner's role is addressing

campus finance and accounting systems. Systemic barriers to high performance campus operations created by conventional finance and accounting systems must be challenged by campus sustainability practitioners and alternatives implemented. Or put another way, campus sustainability practitioners must remove the drivers that have directed our campuses into an almost embarrassing state of low grade design and performance, replacing them with effective incentives for high performance campus design and operations. By doing this systemic change work we can free up the enormous population of campus facility, project and building managers to do what many of them have always wanted to do – design, building and operate high performing campuses.

The separation of capital budgets and operating budgets all but ensures that our campuses will continue to operate with enormous inefficiencies. This is a direct result of capital budget managers choosing the low front cost option rather than low operating cost option.

One immediate solution to this systemic barrier is to create revolving loan, available to facilities staff who may otherwise find themselves constrained by capital budgets that are out of their control and annual operating budgets that are kept too low to fund building upgrades. The Harvard Green Campus Initiative has had considerable success with this model and recommends it to other organizations in concert with an adequate investment in staff to implement the fund and support the demands of innovation. To date the HCGI has invested more than \$3 million to fund over 50 campus projects, generating a rate of return of over 30%, reducing annual greenhouse gas reductions of well over 30 million pounds (or 3% of 2003 campus emissions). A second loan fund has recently been established for new building construction. This fund will only fund the cost difference between convention design/technology and an innovative high performance alternative. The payback period is up to 10 years, opening the way for many new campus innovations. www.greencampus.harvard.edu/gclf

While a loan fund can generate enormous benefits, this solution is limited in its effect upon the financial administrators of the university who continue to approve capital budgets that are determined without any consideration of the life cycle costing of associated projects. What is needed, is a full conversion to life cycle costing analysis as a central approach to budget allocation and project approvals. Few universities have integrated full life cycle costing, however, all universities are going to have to do so in the short to medium term, if they are serious about being business minded and committed to campus sustainability.

Life cycle cost analysis (LCCA) ‘is an economic method of project evaluation in which all costs arising from owning, operating, maintaining, and ultimately disposing of a project are considered to be potentially important to that decision. LCCA is particularly suitable for the evaluation of building design alternatives that satisfy a required level of building performance (including occupant comfort, safety, adherence to building codes and engineering standards, system reliability, and even aesthetic considerations).’ (Fuller&Petersen. 1996, pg1.)

Simple payback is the most common approach used to determine whether or not to invest in a range of campus project options. However life cycle costing analysis is a far more advanced approach to understanding true cost than simple payback, because unlike simple payback, LCCA takes into the time-value of money and the long-term economic implications of a decision.

It is recommended that campus sustainability practitioners secure training in life cycle costing analysis so that they can advocate successfully for its adoption in a wide range of decision-making arenas throughout the campus. The ideal combination for a university seeking to maximize its overall efficiency is the establishment of a substantial loan fund as an incentive for innovation along with the full integration of life cycle costing analysis in capital budget processes.

Building Learning Organizations: Peer to Peer Programs

While working to build a business out of campus greening and tackling key systemic barriers, campus sustainability practitioners must also build the learning organization capacities of our university. Each time we succeed in implementing a new project we must give consideration to how the lessons from this experience can be integrated into future decision-making activities in the university, such that it eventually becomes an unconscious institutional habit. Each time we find a new champion, we must give consideration to how they can be positioned to pass their enthusiasm and expertise to others.

Building an effective learning organization means attending to the adult educational challenge, increasing the rate of learning of all campus constituents such that they are able to participate in continual innovation and transformation. By applying the research of cognitive and educational theorists to the question of institutional change, critical factors about the nature of the human mind can be linked to the key concern of catalyzing systemic transformation in the university sector for the purpose of achieving campus environmental sustainability. While campus sustainability practitioners can't tackle every adult learning challenge in the university, they can implement some key strategies that have been proven to be effective in fostering engagement and learning in groups of adult professional.

There is much research to support the idea that learning is best served when "motivation is intrinsic" that is to say when the individual is self motivated rather than externally motivated (Gardener, 1999. p76). Emotions play a significant role in motivation. Experience that has no emotional engagement are not likely to be effective in generating new mental representations. (Gardener, 1999. p77) Emotional drivers are largely reliant upon social interaction between individuals. The educational value of guided social experience is substantial. As stated by Feldman, "The facilitating effect of social interaction has been confirmed by recent research on moral judgment and conservation." (Gardener, 1999. p12)

Further to this social interaction can generate important cognitive conflicts that ignite the individual to engage in a learning process that is motivated to internally resolve these conflicts. Piaget believed that by "generating cognitive disequilibrium, the desire for change is energized." The desire to change is thought to be largely motivated by the intrinsic desire to communicate with others and to have the acceptance of others. (Feldman, 1994. p13)

Putting all of this together, it becomes apparent that one of the most effective ways of engaging and motivating people to change their mindset and behavior is to engage them in well coordinated peer-to-peer programs that foster social interaction and group driven learning amongst populations of individuals that have common daily functions and experiences. In hierarchical settings like universities, information is most often control vertically, between managers and subordinates. Peer-to-peer programs foster information flow across horizontal management lines, allowing for innate cognitive forces to work in favor of the learning process. In setting where attentions spans are short, portfolios are complex and where there's not enough time in the day to complete the work demands, campus sustainability practitioners must adopt engagement strategies that out compete other demands. Well run peer-to peer are likely to succeed in doing this because there is a latent and underserved human need for social interaction with peers in campus settings.

The Harvard Green Campus Initiative has created three different peer to peer based programs that have had significant success in various areas of university life:

1. The Green Campus Loan Fund Advisory Group: Consists of 15 campus facility managers that come together once a month to review Loan Fund applications, share experiences with

- technologies and vendors, share new rebate and grant opportunities, and identify new opportunities for improving their own facilities. This peer to peer forum has motivated a very significant increase in the number of campus efficiency projects occurring across the university. www.greencampus.harvard.edu/gelf
2. Resident Green Living Programs: Now running in 5 schools and departments across Harvard. This program employs 40 students to engage and educate almost 9,000 fellow students in university residential settings about campus sustainability and what they can do to reduce personal impacts. The students are able to create communication and engagement strategies that captivate the interests of their fellow students. These programs are producing savings well in excess of the program costs. www.greencampus.harvard.edu/rep
 3. High Performance Building Seminars: 30 building managers and property operations assistants are currently engaged in an annual peer to peer training program, whereby the building staff are supported to work in teams to produce and deliver a training module on a high performance building topic of their choice to their peers. Topics range from lighting, HVAC, renewable energy, windows, roofs to procurement. Each seminar series has resulted in building improvements that generate savings well in excess of the training program costs. Despite unbelievable work loads, staff are remaining engaged and are greatly enjoying the learning experience and the opportunity to lead others. www.greencampus.harvard.edu/hpbs

When done well, peer to peer programs are extraordinarily successful in igniting sustained adult learning in small to large groups of individuals. Central to the success of these kinds of programs are adequate coordination, adequate structure and focus that remains relevant to all participants, the creation of an enjoyable atmosphere including the occasional laugh, the constant renewal and expansion of membership (as members leave or become otherwise occupied), and the generation and reporting of clear progress and achievements.

Designing Programs for the Way We Are

Motivating the participation of individuals is the important first step to any effective learning process; however it is not enough to ensure the development of new behaviors and habits. The depth and breadth of change that we seek on our campuses will require the transformation of significant volumes of unconscious habits, both at the level of the institution and individual.

What we know about the conscious mind of the individual, that is the part of the mind that knows what it is thinking, is that the conscious self “only plays a causal role 5% of the time” (Bargh and Chartrand, 1999. p464). Further to this, the mind is always seeking to free up these limited conscious reserves by moving conscious mental activity into the nonconscious mind as soon as possible.

“Initially conscious choice and guidance are needed to perform the desired behaviorbut to the extent the same expectations are generated, or the same behavior is enacted, or the same goal and plan are chosen, conscious choice drops out as it is not needed - it has become a superfluous step in the process.” (Bargh and Chartrand, 1999. p468)

An individual can be supported to allocate precious conscious resources to a new choice or behavior until it becomes routine (or nonconscious) by what Vygotsky termed scaffolding within “the zone of proximal development” (Vygotsky, 1978. p86). This amounts to providing careful external support to individuals so that they are able to achieve new thinking processes, choices and behaviors that are within their potential ability (and perhaps within their realm of motivation).

In the case of supporting the development of new choices and practices for campus sustainability, scaffolding is required to trigger the allocation of precious conscious reserves towards the adoption of new choices and behaviors until these new habits become effectively internalized. Once internalized, a certain amount of scaffolding may still be necessary to trigger nonconscious goals. For example, even though an individual may be personally committed to switching the lights of when leaving, a colorful light plate sticker can still help as a reminder.

To assist with meeting this challenge, Bargh and Chartrand point to the individual's immediate environment as an ongoing scaffold for her cognitive functioning. They propose that the individual is constantly evaluating the immediate environment and drawing cues from it to trigger cognitive processes, largely without conscious awareness of what she is doing. This evaluation often serves to activate nonconscious goals (mental representations) that operate as if they were "consciously intended, even to the point of producing changes in mood and in self-efficacy beliefs, depending on ones' degree of success or failure at reaching the goal. The goal does not know the source of its activation and behaves the same way regardless of where the command to do its thing came from"(Bargh and Chartrand, 1999. p473).

The benefit of this cognitive tendency is that one transcends the limitations of one's conscious self-regulating capacities by instead being driven by "mental processes put into operation directly by environmental features and events" (Bargh and Chartrand, 1999. p465).

The cognitive tendency to be triggered by our immediate environment to enact nonconscious goals presents both a challenge and an opportunity for campus sustainability practitioners. The challenge is that our campus environment has been designed to hide almost every earth impact associated with our daily decisions. Our nonconscious belief that the earth is infinite and that we need not consider our impact upon it is being constantly re-affirmed by a campus environment that offers no information to the contrary. Our limited conscious reserves are being constantly out-competed by the triggers driving our nonconscious habits.

The opportunity for campus sustainability practitioners is in the power of changing the triggers in the immediate physical and social environment. The implementation of environmental cues and social cues (from peer-to peer programs for example) all over campus is necessary if we are to succeed in changing thinking and behaviors. One of the classic ways in which campus sustainability practitioners can radically change the level of earth awareness is simply by turning up to building design meetings (or other important meetings), as a recognized sustainability advocate. Sometimes, you don't even have to say anything because simply by being present you are acting as a powerful trigger for people to attend to their own emerging earth consciousness. In many situations all you need to do is literally be the poster child of sustainability.

Some of the implications of these basic cognitive tendencies for achieving campus sustainability include:

1. We are always going to be competing for the precious conscious reserves of the individual.
2. By understanding the limitations of these reserves and the constant cognitive drive towards the nonconscious we can design our services, programs, projects and initiatives to follow the progression from the conscious to the nonconscious. For example, once we have proven the value of a certain green product we should move quickly to have it included in future specification so that people can move on from having to remember the particulars of the product in their day-to-day decision-making. Once we have agreement on purchasing renewable energy, we can move quickly to set up contracts and payment processes that are effortless to renew annually.

3. We must be attuned to how much and how fast people can learn/adapt so that we can constantly be designing our programs to be extending people the right amount. As soon as we have succeed in making one new behavior/choice unconscious we can refocus conscious attention on a new change. If we are seeking to extend people too far, they will not sustain their involvement, if we don't extent them far enough, progress will lapse. Peer-to peer programs can be very helpful in guiding us on the right pace of learning and change for people.
4. We must seek to create physical cues (everything from you to stickers to entire green buildings!) to trigger people into habits and behaviors that are informed by an internalized sense of accountability to the earth's systems.

The Mind of the University: Is it Human?

Having gained some new insight into the mind of the individual, it may be valuable to consider the mind of the organization. What if the university organization has the same tendencies as the mind of the individual, meaning, what if the organization also has limited conscious reserves and is constantly seeking to convert conscious effort into nonconscious habits, that are then triggered by various external cues?

By looking at our universities in this light, we can focus our attention on the difference between conscious and nonconscious institutional systems/behaviors. What are the nonconscious systems in our universities that are controlling the behaviors of its employees? The finance and accounting systems may be one good example. These systems are maintained through various standards, training programs, software programs and reporting procedures. Who, if anyone has overall control over these systems? When were the systems last scrutinized to fully reveal the implications of their current design? How can a campus sustainability practitioner gain enough access to an institution's precious conscious reserves in order to fix key systemic barriers to high performance campus design and operations? How quickly do we need to create the new systems, protocols and triggers before we loose our access to the conscious reserves of the organization? What would the impact be of getting financial managers from peer institutions together to attend to the issues at hand?

The idea that the mind of our organizations may reflect some of the same tendencies as the mind of the individual certainly requires more consideration and development.

Changing Minds to Change the World: The Final Challenge for the Campus Sustainability Practitioner

We can create new campus programs and new institutional habits that speak aloud of earthly interdependence, but what happens when our students/staff leave the gates of the campus to enter the world of corporate America where they will be constantly bombarded with powerful signals telling them that there are no earth impacts associated with their choices?

What we need is the development of an internal mental representation that is robust and hard wired, allowing the individual to transcend the 'absurd consensus' that the earth's systems are of no real concern and to instead live in a state of nonconscious awareness of the earth system implications of choices.

To understand the cognitive requirement of generating the necessary representational system, consider Piaget. One of Piaget's major findings concerned the "A not B" phenomenon that

occurs during infancy. In the case of the infant, early in her development when an object is hidden from view she behaves as if it's effectively non-existent. As the infant develops, a new sense of *object permanence* allows for the idea of the object to remain in mind regardless of immediate sensory input. Holding the idea of the object's permanence allows the child to solve the problem of the disappeared object by adopting new strategies for finding it. Even though the child no longer sees the object, in her mind she still has an internal mental representation of it, a function of imagination and memory. (Gardner, 1981. p86)

In the case of the adult, the core cognitive challenge in relation to achieving campus sustainability is to sustain a sense of *impact permanence* (knowledge of the hidden impacts) in the presence of an immediate context that makes these impacts disappear from view. Without having the mental representational abilities to sustain a sense of *impact permanence* associated with choices and behavior, the individual is triggered to behave as if there are no impacts. We, like the child, behave as if the impacts no longer exist, simply because they are not in our sight.

Our problem is that we have, by design, placed ourselves in an information vacuum regarding the earth system impacts of our daily choices. Pipes are hidden from view, power plants and mines are out of site, pesticides and chemicals are stored away in closets, waste is constantly taken away, manufacturing processing in other countries are not known etc. And so we are trapped by our own cognitive tendencies into a default mental setting that is operating as if the impacts actually do not exist, simply because we do not see them and we have no robust internal representation of their existence.

The emergence of an internal representation of *impact permanence* is the shift in human cognitive evolution that will enable us to have our complicated modern institutions and society without losing touch with the earth systems that underpin our existence. In a sense, this evolution in mental capacity may represent the shift from our infancy to our adulthood in relation to the Earth systems. So how do we get there?

Gardener notes that the persistence of misconceptions is in part due to “the tendency on the part of many adults to confuse the accumulation of factual information or cultural literacy with the alteration of robust representations” (Gardener, 1999. p74). Beyond the accumulation of facts, the development of robust representation requires the repeated experience of behavioral change reinforced by associated mental processes of representation. This is where universities with strong green campus initiatives are perfectly placed to help us evolve.

The green campus driven experiential learning and behavioral change that students, staff and faculty alike are exposed to in their time on campus, can be the crucible of our cognitive evolution into our adulthood on earth.

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