

## DOUG WHITTON

### Sustainable Consumption: networks, information and getting beyond green-washing

May 2010

In the winter of 2009 I taught a course at Sheridan College for fourth year undergraduate design students, Interactive Systems Design. In autumn 2008 I was contacted by a member of The Movement, a design company/collective about initiating an educational design project that would partner students with an organization in the social entrepreneur sector. I was put in touch with Big Room (<http://www.bigroom.ca>), a Vancouver based organization founded in 2007 with the goal of 'making it easier for people to make green choices'. A collaboration began between the students and Big Room. Ecolabelling.org (<http://ecolabelling.org>) at the time was Big Room's only web enterprise. The web site consisted of a global database of eco-labels and related information. They were in the process of archiving every eco-label in the world. Their organizational goal is to be a global hub for business and consumers to research eco-labels, "who's deciding what's green".

#### GOALS OF THE ECOLABELLING.ORG PROJECT

Students began the project with an investigation of the stakeholder business aspirations, goals and ethos. The introduction of an organization as an intermediary to clients and consumers was a unique opportunity for student designers. It gave them a chance to conceive of the web as a medium with the potential to educate audiences about sustainability, it was also a chance to go beyond conventional user centered design practices that often equate users as customers to be driven to a purchase, or tracked and mined for data, and allowed the students to investigate the possibility of designing web experiences for people that allowed them to reflect on the consequences of their consumption.

#### TRUST

The key factor that was determined as a critical element for consumers in search of sustainable products was trust. The students all agreed that ecolabelling.org had to provide consumers with information they could trust, "who's deciding what's green?". Students realized that green-washing was embedded in persuasion. Consumers could not always trust information from the manufacturer's or the retail vendors.

#### EDUCATION/INFORMATION AND GREENWASHING

The next issue that quickly emerged was that the students themselves struggled to learn enough about sustainability and subsequently felt that they could needed to know more in order to make informed consumer choices. Learning the fundamentals of sustainability, the principles, methodologies, complexities and nuances, was a challenge. Sustainable consumption required them to be informed, acquire detailed information for each product, know how to parse the information about materials, manufacturing processes, labour practices etc. Without an accurate mental model of sustainability, consumers could become frustrated and confused with the complexity choices. Even if ecolabels are trustworthy, consumers need guidance through a maze of products to fit with their individual ecological strategies.

A need for education about sustainability on the ecolabelling site emerged as a project goal. People needed to be informed first and then persuaded.

#### DYNAMIC MODELING

Consumption can be seen as a complex system within which people negotiate various desires and needs. Often this is in response to ubiquitous brand strategies and messages.

Once students gained a sense of clarity about the need for trustworthy information about eco labels, they were able to consider shopping as a dynamic model. Dynamic in the sense that

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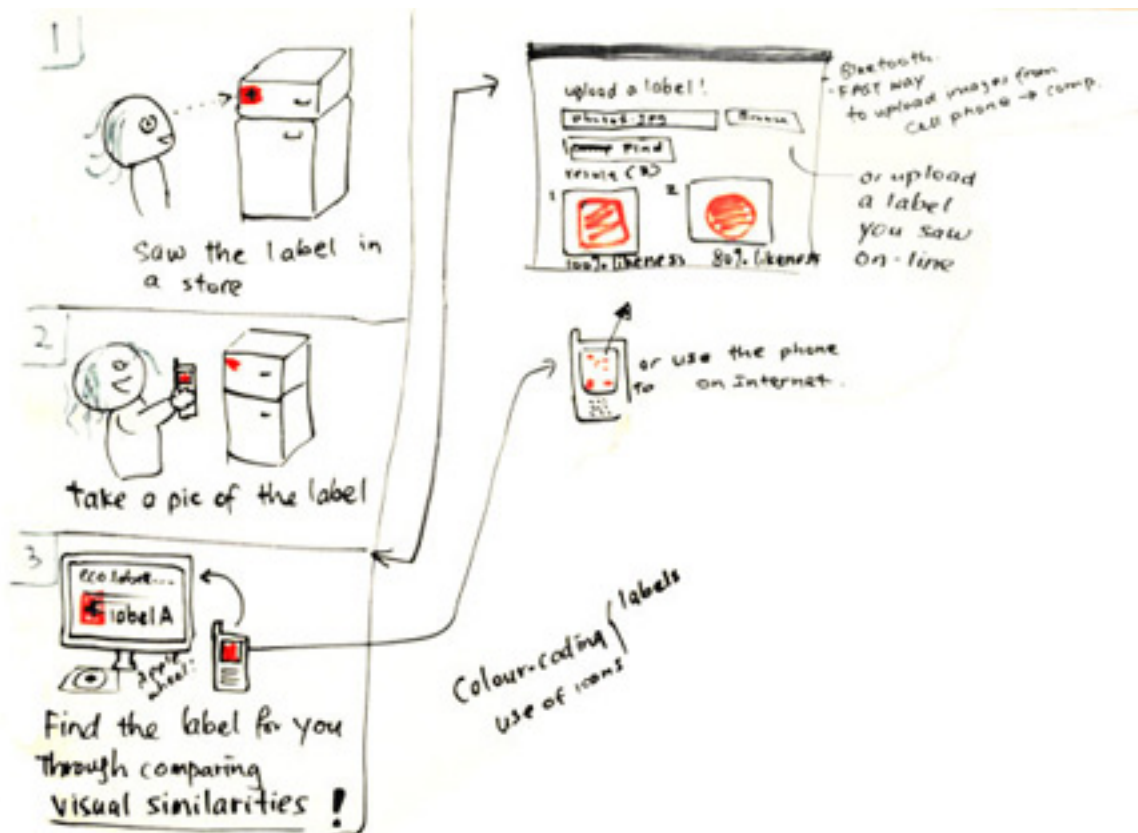
people would have various encounters with concepts, ideas and thoughts about the products they consume. The idea of consumption that emerged was one in which people would engage in a dynamic system of learning. Sometimes through seeing labels while shopping, other times by researching products before shopping.

Modeling scenarios of consumption was achieved through techniques such as brainstorming, body storming, task analysis, personas and scenarios. The basic toolkit of information architecture. The user centered design approach is an established practice of process and planning. This approach is focused upon the people using a system, it supports an empathic design process, placing the success of the design artifacts and services on the people who will use the design rather than the technology or the designer's subjectivity. The students had gained conceptual skills, such as making a system map, and they know how to use their skills contextually. The practice of mapping systems originated in software development, however design students can employ similar strategies as a way to capture the dynamics of human behavior such as shopping and consumption. Through an iterative design process mapping allows designers to make informed decisions about interactions on the screen because they've already mapped out the end users mental modes.

Fig. 1 Joyce Ng 2009

The image above is an example of a brainstorming sketch. The scenario is an exploration of how people could use a cell phone camera to record an eco-label. The image can later be found on the ecolabelling.org site.

Once the dynamics of peoples mental models was grasped, the students also explored ways to connect the ecolabelling.org database with people through various devices and platforms such as smart phones.



At this point the students were confronting the challenge of introducing a new dimension into the old model of consumption as an expression of individual freedom. With an added layer of information (ecolabelling.org database), combined with new delivery channels, things become interesting. This starts to look like a feasible model of a cradle to cradle market. The information provided by ecolabelling.org, is an external voice. This voice has to be trusted, authoritative and objective. The behavior that is being introduced asks the consumer to consider the intangible consequences of their purchases. It's no longer merely an appeal to personal freedom, but an appeal to consider consumption as connected to a larger system of externalities. Buying a product with the highest rated eco-label will help the environment. However, inevitably it will be

Chart 8 label matchmaker

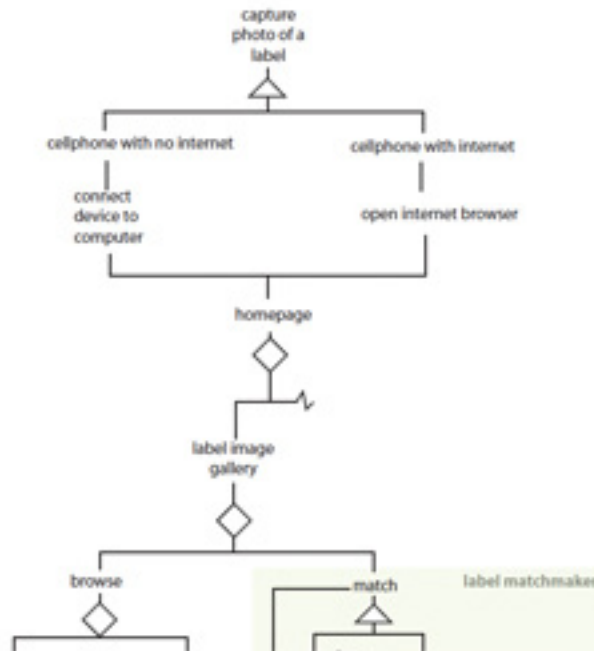


Fig. 2  
Joyce Ng 2009  
Detail of a flow chart describing a dynamic model of decision points a person could make in evaluating the sustainability of a desired product.

more expensive in terms of up front cost, but less expensive over time. A new economic model has to be learned. Design students generally learn to make desirable artifacts, they also learn to communicate and inform activist issues, but sustainable consumption requires a new synthesis of the two.

Their approach to this challenge proceeded from their own assumptions about sustainability. They struggled with the conceptual framework. This is understandable, given that sustainability is not addressed in enough depth in the curriculum. In short they approached sustainability as environmentalism. They identified the target audience as people who could afford the added expense of the “green” product, affluent environmentalists.

Their approach uncovered some underlying problems with the cultural perception of sustainability. The environmentalist assumption has been that people will wake up one day and pay a premium for sustainable products because it’s inevitable that they will want to become part of a global vision of an ecological utopia. Paying a bit more for a product seems a small price to pay for utopia. This is a dilemma that old school environmentalism has not yet come to terms with.

The economics of globalization are based on the assumption that human nature dictates that the cheapest product will win out in the market. Globalization provides cheap products. Apocalyptic scenarios of the future emerge as environmental devastation (externalities) of industrialization continue, driven by the economics of resource extraction.

### MOBILITY

Mainstream mobile e-commerce services tend to be centered on selling content to people with smart phones. One idea that emerged in the ideation phase of the ecolabelling.org project was the idea that a cell phone could be used as an information tool to facilitate better consumer choices. Connecting to the internet at the point of purchase could provide timely information from a credible source. Displaying the ecolabelling.org database in context would be ideal. Mobile technologies such as QR codes could enable this type of interaction.

The potential for using mobile technologies to support sustainable consumption is one that has yet to be fully realized. Interaction design practice has spawned sophisticated design methodologies that are focused on applications. Clients of these design services tend to see their value propositions in terms of selling devices (eg. iPhones), content and services (eg. iTunes), media

and entertainment (games and movies). Mobile computing can be more than a diversion for bored commuters and loquacious teens. Information technology can be seen as an infrastructure rather than a service or product. As infrastructure it has value in terms of supporting new types of services and cultural activities. Sustainable consumption has to become a cultural activity, people need to get engaged in it because it's interesting. It can become a means rather than an end. It has the potential to connect people while they are in a dynamic state of consumer activity. People armed with reliable, real time information, could be empowered with the knowledge to make sustainable consumer choice. This use of mobile computing could change the dynamic of shopping by allowing people to deflect the barrage of greenwashing messages buzzing through the media landscape. It could help people cut through the confusion, hype and propaganda.

Networked real time information systems, a.k.a "The Internet of Things" is a term used more in Europe than North America. It defines a world of ubiquitous information, which can go between objects as well as people. There are numerous scenarios for products in this type of environment, such as the refrigerator that emails you when you need milk. We could be looking beyond smart gadgets with novel features, which we may or may not need, towards using the 'internet of things' (IPv6 is the network protocol that will make this possible) as an opportunity to affect sustainability. Urban space can be seen as a hybrid of the real and the virtual. Within this context, it's possible to conceive of sustainable consumption as an exchange of information about the hidden dimensions and externalities of products. Design students will need pedagogical frameworks in order to be relevant in this emerging environment of ubiquitous information. The IT world and the world of sustainability need to have a common ground.

While the use of futuristic information technology to consume sustainable products may seem counterintuitive or unnecessary today, it may be necessary in a future economy of closed loop material flows and increased energy efficiency.

In a cradle to grave model of consumption products have no value after their useful life has ended. They become landfill. Things traditionally have been dumped, often before the product has died, in order to make room for newer and better things.

In a cradle to cradle model of consumption, products will have value after they die, as they become the raw material for other products. Industrial materials would be up-cycled into new products. Organic materials become valuable as compost. This type of economic activity will depend upon well conceived information design and some form of networked information as the number of services contingent upon each product increase. People will need to see graphics on products and packages that inform them of how, when and where to recycle or up-cycle. However, there may be too much information for labels to be effective, QR codes, Infrared tags and various other technology solutions will need emerge. Communication design strategies will be essential in order to avoid information overload, causing people to resort to the garbage pail. A systems thinking approach to consumption will be required. The design challenge will be to solve these problems in a way that's fun, convenient and engaging.

## MEMORY

High tech solutions may be instrumental to a networked space of consumption, but people may want to buy stuff without being connected to a 'data cloud'.

One of the innovative solutions developed by the students in the ecolabelling.org project was using memory as a search tool. An interface tool was developed based on remembering the shape, colour and iconography of a label seen on a product. After a day of shopping, a person can go home and try to find the label they saw in the store.

Fig. 3  
Annamarie Akong 2009

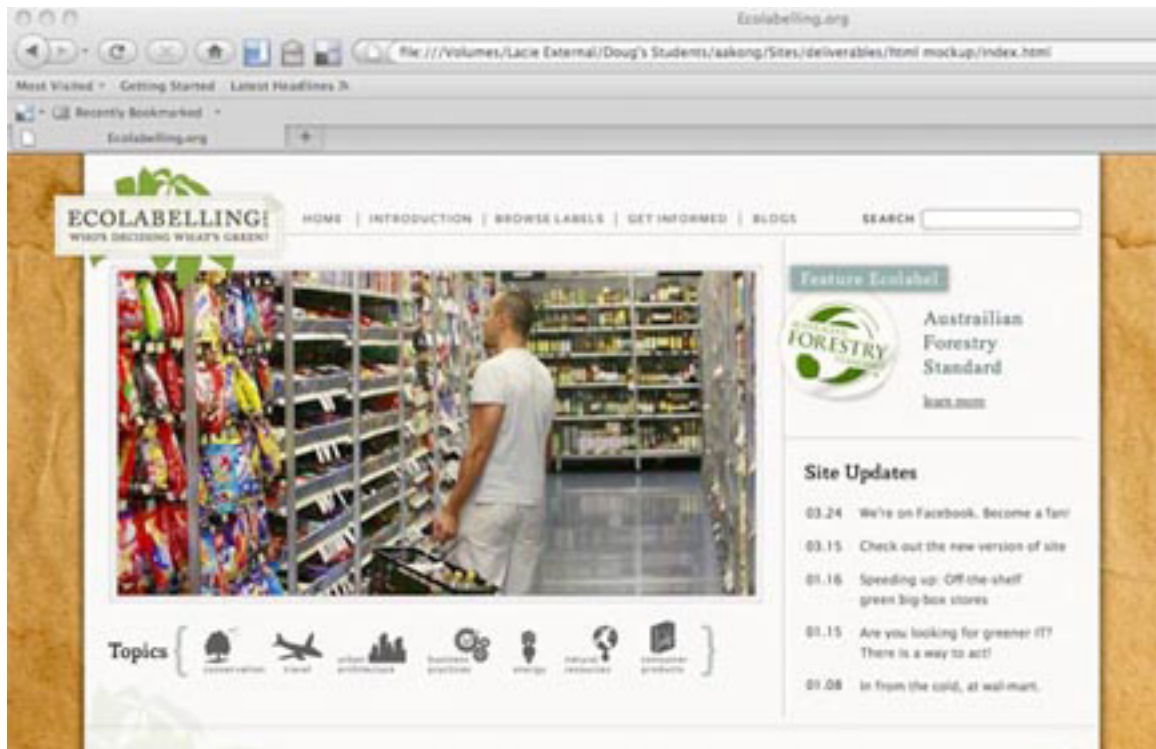


Fig. 4  
Annamarie Akong 2009

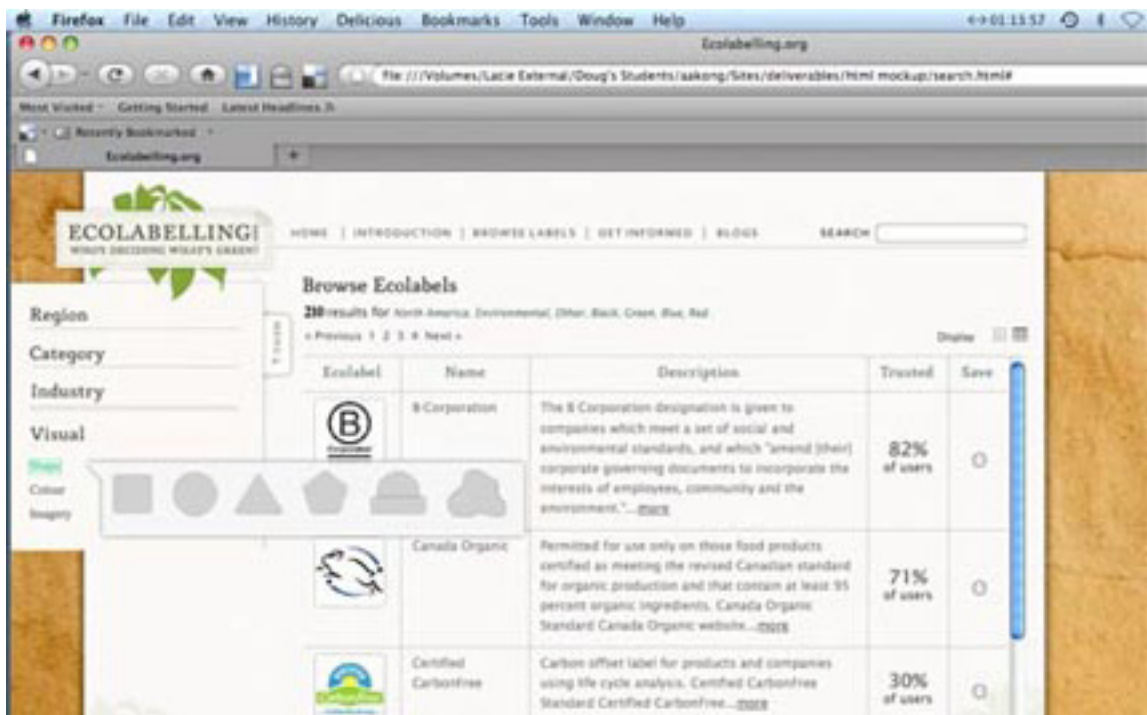


Fig. 5  
 Annmarie Akong 2009  
 Fig 4, & 5 show the interface prototype of a visual search function. People may recall seeing a label, and may be able to identify the eco-label from memory.

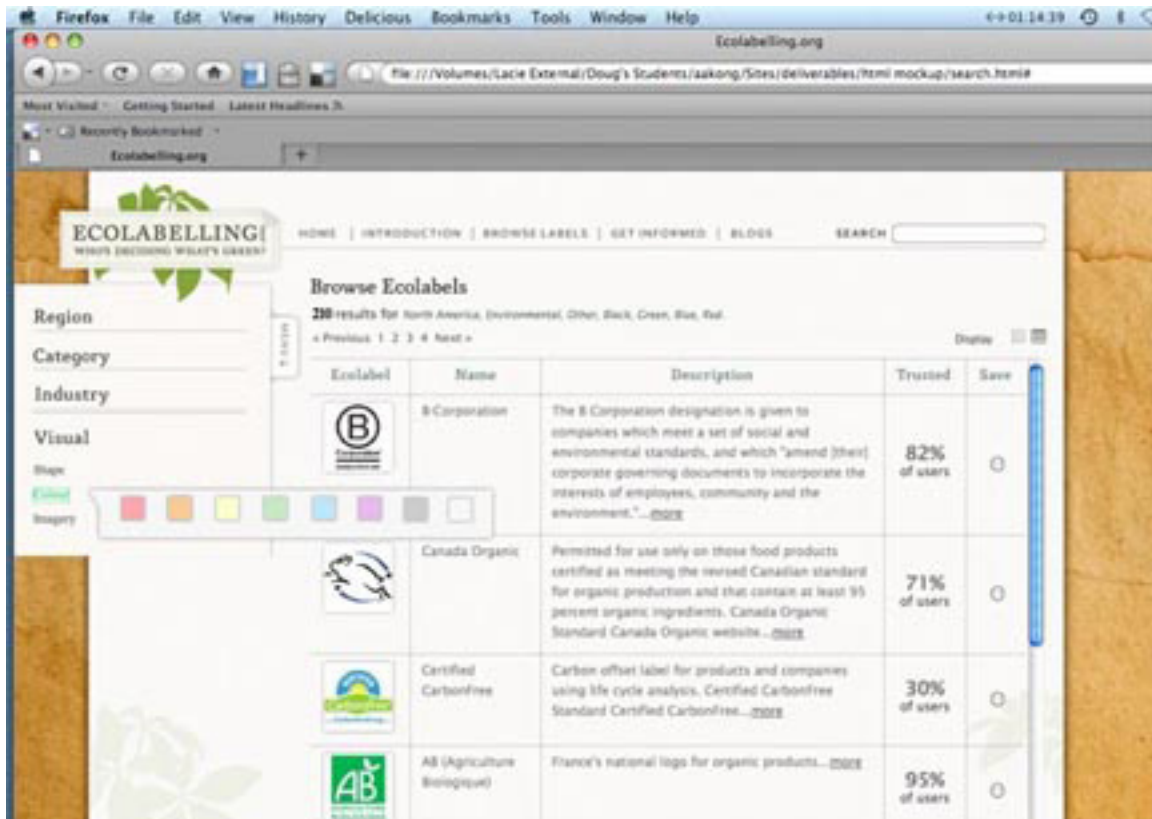
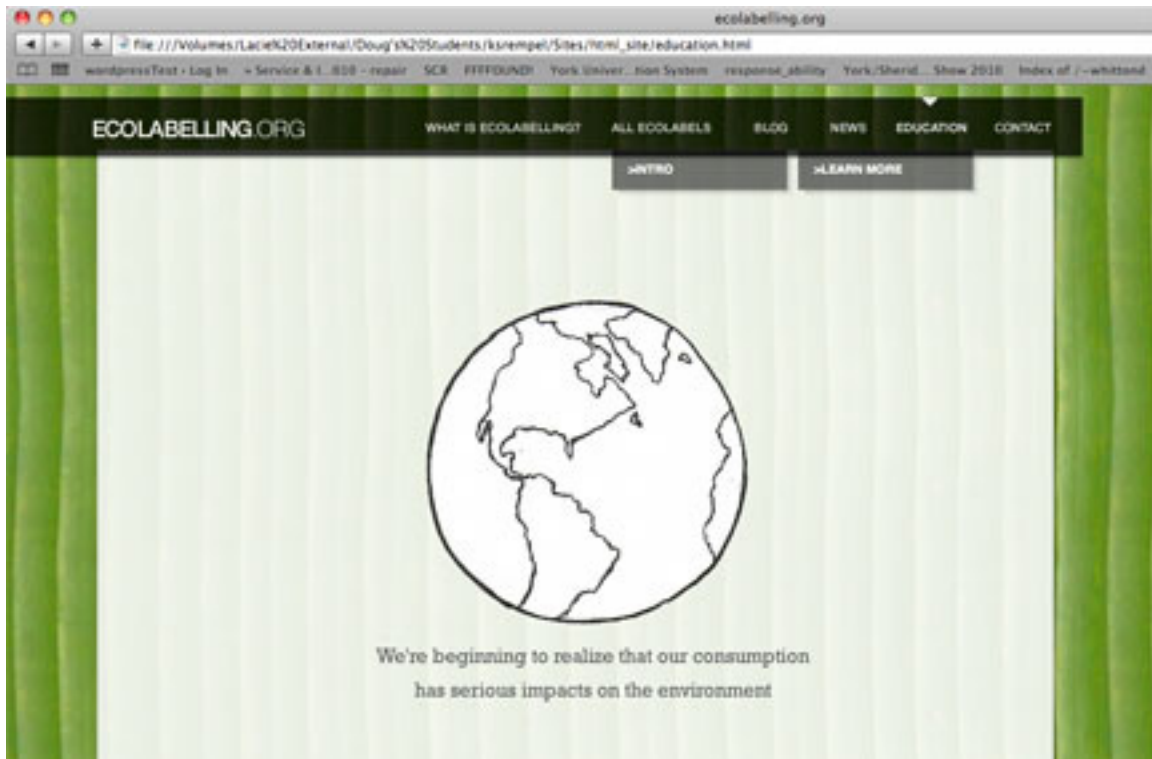


Fig 6  
 Katrina Rempel 2009, Education



## EDUCATION

Through research in sustainability, the students began to consider shopping as a series of decisions within a set of criteria — education, selection etc. However it's not necessarily a one size fits all solution. Once students engaged in a design process, sustainable consumption started to be framed as a complex activity with multiple decision points and multiple entry and exit points. Part of that process was figuring out how to educate the "users" of the system. The students identified a significant barriers, their audience might not "get" sustainability. To acquire a wider audience for ecolabelling.com they would have to educate people to understand the externalities of their purchases.

## MOTIVATION/INSPIRATION

How can design help motivate people to adopt a mode of consumption that on the surface seems to be more complex, involves more information overload and has complexities and cognitive challenges?

Unsustainable consumption, conventional consumption, industrial consumption are embedded in the pursuit of individual gratification. People get pleasure from buying stuff, owning stuff, throwing stuff away and replacing it with better stuff.

Sustainable economies are based on principles of buying less stuff, buying stuff that consumes less energy, keeping stuff longer and assuming the responsibility of sending the product to the next loop in the system when the product life ends. The benefits move away from the individual, from instant gratification, towards the collective and the future environmental benefits.

At the beginning of the industrial era people had to be motivated to buy cars in part to create a market for petroleum. Design played a key role. Appliances were developed in part to create a market for electricity. This was the new economic engine. Persuasion became the art of constructing messages that assured people of greater individual power through consumption.

The effects of the industrial era are catching up with us and a new mode of consumption will be required, new messages will have to be created, delivered through new communication channels. New narratives have to be constructed.

## GAMES

Broadcast media is the driver of mainstream linear cradle to grave industrial economies. Advertising and media in the 20th century was centralized in systems of downstream distribution. TV advertising, before the internet, sent one message to many people. Media messages were consumed passively. Desire could be effectively mass produced. Passive consumption of media messages led to passive consumption of products.

Gaming is becoming a dominant mode of entertainment that will affect communication and advertising. Playing video games is an activity that requires involvement in order to score points. People seem to be wired to play games, compete and score. Social media is plugging into the game mentality, acquiring friends, playing word games online etc. What game are we playing if we consume sustainable products in a sustainable economy? How do we score points?

As a gaming model affects communication, what are the implications for communication design? Can people become motivated to consume less if they consciously or unconsciously engage in making a game of it?

## PRIUS EFFECT

What game are we playing when we drive a car? The conventional model of consumption is to persuade people to buy a car because it's powerful, fun to drive and will enhanced their social status. In car culture, owning a gas guzzler allows people to have fun. It gives them a sense of power, they can pretend (play a game) they are fighter pilots or race car drivers, they can play the game of driving fast without getting a ticket. Part of this game is seeing the tachometer and speedometer jump as the fossil fuels combust.

Recently I read a car review of a Toyota Prius written by a self proclaimed gear head, a gas guzzler connoisseur. After a few weeks on a road trip with the Prius he wrote glowingly of the experience and expanded on how his initial skepticism was overcome. He didn't have to sacrifice his car driving pleasure for fuel efficiency, he learned the new game of efficient driving. The fact that there was a dashboard instrument visualizing fuel consumption made for a new type of driving experience. The car was no longer an F16, he was no longer a fighter pilot. The car became a glider, the enjoyment was in extending the length of the glide. He finally got it. Efficiency was cool. Gliders and F16's are both fun, each is a very different experience with technology.

The term *Prius Effect* is starting to be used in the IT community. Basically it means that if energy efficiency is visualized in a dashboard widget, or some type of interface, people are hardwired to strive to achieve energy efficiency because it's framed as a rules based game. Measurement and visualization results a behavior of efficiency, period. It seems that artifacts and environments can be designed in such a way to promote energy efficient behavior.

Galileo said something akin to "measure what is measurable, make measurable what is not." We are slowly gaining expertise in measuring our impact in terms of carbon, energy demand, water use, and toxicity production. Saul Griffith [energyliteracy.com](http://energyliteracy.com)

Fig. 7  
Shawn Mahabir 2009



### ENERGY3

Shawn Mahabir completed an undergraduate thesis project recently that explores the visualization of energy consumption. The goal of the system is to motivate and reward people for engaging in sustainable practices. This is one example of many student projects over the past several years that have investigated an aspect of sustainability. One student patented a method of sequestering carbon from city buses. Undergrads can research, investigate and solve sustainable design problems, however there is a lack of political will to create an economy that values sustainable design. We educate students in innovation, design thinking and sustainable design, only to send them into an economy with little call for those skills.

Energy 3 is a software system that visualizes the energy consumption of a house at a granular level. The project was ambitious, as the student attempted often to "invent" technologies that would allow people to turn appliances on or off remotely. Helping the student frame the project was challenging because the nature of a systems approach to design is one that is cyclical, one idea leads to another, where does it stop? In this case the focus became the challenge of allow-

ing people to get a heads up view of their daily energy usage by designing an onscreen display. It's intended to be seen at a glance. It allows people to zoom in and out of short or long time frames. A goal of the project was to make energy efficiency convenient and engaging.

The underlying premise of this project was that people need to be motivated to conserve through saving money and reducing pollution and greenhouse gas. Motivation to conserve was a missing factor in promoting sustainability, according to the student's research.

Various usability scenarios were considered in the design process. Often it came down to children being involved. Would the children in the household be the ones pressuring the adults to conserve, for example in an affluent household where saving money was not a priority. Or conversely, would the children need to be taught to conserve energy? In either case the need for simplicity was a critical factor in the success of the interface design.

Through the design process several themes emerged. One central function of the system is to display detailed real time data about carbon output and energy cost. The design challenge of visualizing the data is considerable, and I think it is indicative of a concern with numbers, graphs, data and statistics. Student designers are living in a media environment that constantly broadcasts technical, scientific and statistical information of a very complex specialized nature. Much of it is hard to understand, all of it seems to have life and death consequences for the future of life on the planet, and for the most part it's information that has no clear actionable outcome. This barrage of numbers and data can have a numbing effect. Data about climate change, loss of biodiversity more often than not leads to confusion. Information visualization may be the only coping mechanism available to designers, an attempt to seek some order in the chaos. This may offer a way for people to engage with the data in a more embodied form.

It may be that students are trying to make sense of the crisis around them, for which often there is no tangible visible manifestation. We can't see the carbon in the atmosphere, we can't see ballooning deficits, we can't see the desertification of the ocean (until recently), they are presented to us as abstract bits of information about phenomena we are poorly equipped to comprehend. A coherent data visualization may be one way to make sense of the world.

Another aspect of this type of design project that needs to be considered is in how it anticipates a possible future. Energy3 can be seen as one student's projection of what should be, or more to the point, what should probably have already been, were there the political will to make significant cuts in carbon output. It's an interface that may at first seem to be overly designed, if considered in light of our present energy consumption, however the granular details of energy renewables, where fluctuation is the norm, will be different. We may not be able to do the laundry on a cloudy windless day if not enough electricity was generated. Will there be enough hot water in the solar tank to take a shower this evening? What seems like an obsessive amount of real time data about energy, might become necessary in a post carbon world. The heads up energy display would be like checking our watch.

It would seem natural for student designers to assume that an online entity such as ecolabeling.org would function as a trusted intermediary in sustainable consumption. In a world where social media is ubiquitous, consumption can be informed through networks of reliable information.

Systems thinking is inherent in sustainable consumption when materials flow between states of re-use, recycling and compost. Networked systems of communication are a good fit in this model because the potential exists to manage the inherent complexity through software. People can be informed about the best choice of product or service through the interface of whatever device they happen to have at hand.

#### FUTURE PROOFING

Design students seem to be caught in the dilemma of either designing the forward thinking products and services that don't yet exist, or designing for existing markets, and risk becoming designasours. The way forward may be future proofing, designing with the ability to modify the product or service at some point in the future when it's clear what new infrastructure is available. In that sense, as design educators, we need to be futureproofing our students.