



FLUX: Design Education in a Changing World

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Eric Benson

Assistant Professor of Graphic Design
Founder, www.re-nourish.com
University of Illinois at Urbana-Champaign
408 E. Peabody Drive
Champaign, IL 61820 USA
ebenson@uiuc.edu

Ideas for Integrating Sustainability into Graphic Design Pedagogy: American Case Studies

Eric Benson

University of Illinois at Urbana-Champaign, USA

Abstract

This Article provides an initial overview of the professional graphic designers' negative environmental impact and why their method of design for planned obsolescence must change. It argues thereafter that the American university graphic design curriculum should evolve to include an initial discussion of sustainability through a required studio design course on the topic. To aid in the development of a sustainable design curriculum, the Article provides three case study courses taught by three American university professors. These provide best practices for other university educators to emulate in teaching the topic of sustainable design in their classrooms. The discussion of teaching sustainability in graphic design is just beginning and the required course proposed should serve as a catalyst to completely change how graphic design is taught from early foundational courses to graduation.

Key Words: *Sustainability, Eco-Design, Green Design, Impact.*

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Introduction

Current environmental and social issues are forcing us to rethink the way we make things. The global population is expected to grow by another 2.6 billionⁱ and will certainly strain our natural resources as more countries rise in economic prowess. As population expands, so does the need for clean water, fresh air, safe food, more jobs, efficient housing, dependable transportation, increased GDP (partly from sales derived from advertising/communications) and many other daily and economic necessities. These demands will speed up the destruction of our forests and consequently increase the pollution of our air and water to meet the need for a growth in agriculture, home building, print communications/advertising (paper use has already tripled since 1961ⁱⁱ) and compound energy issues for elevated production of products to satisfy shareholders. Graphic designers, by failing to recognize the environmental impacts of paper distribution and use, readily contribute money to the third largest polluting industry in the worldⁱⁱⁱ: the paper mills. U.S. designers created around 17 billion catalogs using 100% virgin-fiber paper in 2001 (which equated to around 64 catalogs per person).^{iv} In this method of wasteful communication, 44% of the mail is dropped unopened into the nearest trash bin.^v When creating these mailers designers predominantly choose virgin fiber paper (or paper pulp from freshly cut trees) to achieve high gloss, colorful images of the products being sold inside the catalogs/mail. However, this choice leads to 40 million acres of trees cut down across the globe annually.^{vi} Understanding the far-reaching environmental and social impacts of the graphic design

profession is needed in our design education curriculum to find ways to help change our current way of making.

When faced with these forthcoming issues, it is important not to wait for others to send a call for action, but instead to lead the sustainable design revolution ourselves in the classroom. Teaching sustainability in university design classrooms is not a fad, however, it will soon become a necessary component to each and every graphic design academic unit, and eventually, such teaching methods will completely change the way we design the objects in our world. Everything around us in our daily lives has been designed, thus, a designer's environmental impact is profound. Our dual professions of educator/scholar and maker are powerful ones. If we educate our design students to understand the environmental and social impacts of their work and the strength of their process, we can create positive changes in the profession and society as a whole.

Intentions of this article

The intention of this Article is to plant "seeds" for the educator to use to foster growth through further discourse in undergraduate graphic design pedagogy. This sustainable design conversation is just starting to gain momentum in our craft (years late – but better late than never). The graphic design educator will play an integral role in shaping design education and responsible design planning for the future. First, this Article will address the definition of sustainability, a necessary starting point for teaching methodology. Next, the Article will address how sustainability relates to the graphic designer and, more specifically, the graphic design student. It will continue with three case studies, followed by best practices to teach the topic, and conclude with a look ahead at the future of sustainability in the graphic design classroom.

Setting the baseline: Defining sustainability

The first thing that must be done to begin this discussion is to define "sustainability", as this term is essential to pedagogical changes in graphic design teaching. The generally accepted definition of sustainability "allows for current economic needs to be met while preserving biodiversities and ecosystems to maintain the same quality of life for future generations.^{vii} In simpler terms, sustainability provides a means to preserve life on Earth.

Sustainability and the graphic designer

Understanding the definition of sustainability is the first step in approaching how its principles can be used to designing. As we create, we begin with an intention (or plan) and choose materials, images and type that are relevant to that concept in order to communicate a message. Designing sustainably must begin with materials. The materials designers choose should always follow sustainable principles in order to:

- Respect and care for the community
- Improve the quality of life, conserve Earth's vitality and diversity
- Minimize the depletion of non-renewable resources
- Change personal attitudes and practices to keep with the planet's carrying capacity

However, to design sustainably, choosing materials carefully is just one part of the equation. The designer and his/her collaborators must also ask: "Does this project need to exist?" Chris Hacker (Senior Vice President of Design at Johnson and Johnson) has developed a set of eleven questions that the designer should utilize at the beginning of every project including:

1. Do we need it? Can we live without it?
2. Is the project designed to minimize waste?
3. Can it be smaller, lighter or made from fewer materials?
4. Is it designed to be durable or multi-functional?
5. Does it use renewable resources?

6. Is reuse practical and encouraged?
7. Are the product and packaging refillable, recyclable or repairable?
8. Is it made with post-consumer recycled or reclaimed materials and how much?
9. Are the materials available in a less toxic form? Can it be made with less toxic materials?
10. Is it available from a socially and environmentally responsible company?
11. Is it made locally?

After considering these concerns, if the designer deems the project a worthwhile pursuit, considerations must be placed on limiting waste, minimizing materials and energy, encouraging reuse, and determining avenues to recycle. Keeping these considerations in mind, sustainable design must be environmentally safe, economically viable and also socially equitable. This is commonly called “the triple bottom line.”^{viii} If all three of these criteria are not met, then the design has negative environmental and social impacts along the way and is not, by definition, sustainable.

One of the major negative impacts the graphic designer has on the planet is through a primary material source: paper. Paper is seemingly ubiquitous for the graphic designer however most designers do not fully understand how it is made, its history and how paper manufacturing impacts the world in which we live. Graphic designers are intrinsically connected to the commercial and natural world. As part of this union, paper companies have become the third largest industrial polluter of our water and air.^{ix} Graphic designers have also helped create tons of informative and beautiful packaging that comprises 32%^x of a typical municipal landfill.

If one pares down our current design process, we discover our current model of making: we throw things away to make things to throw away. Designers essentially make beautiful trash.^{xi} This, in the end, however is “successful” capitalism. The more packaging that is dumped into the municipal landfill equates to more products bought and sold. This consequently ends in higher profits for companies that quarter. Is this really a “success”? All of our work eventually ends up living in the landfill. Puente Hills Landfill in Whittier, CA is the largest human-made object on Earth. It could be argued that Puente Hills Landfill is a monument to capitalism and also, loosely, the graphic designer. This wasteful means of making raises the questions: are we really making “good”^{xii} design and are our students learning a flawed process?

A better way to design: “Cradle to Cradle”

The “Cradle to Cradle” design model developed by architect William McDonough and chemist Michael Braungart best represents a better way of making for the designer. In this model, waste equals food.^{xiii} In nature, there is no “waste”.^{xiv} Waste left by every creature in nature (except humans) is returned to the Earth to help nourish the soil for future growth.^{xv} This cyclical concept is what McDonough and Braungart call “Cradle to Cradle.”^{xvi} Designed objects should be returned to the soil (bio-nutrients) to decompose safely or be returned to industry (technical-nutrients) to be reused infinitely.^{xvii} Their book *Cradle to Cradle: Remaking the Way We Make Things*^{xviii} is essential reading in the sustainable graphic design curriculum.

How are other creative disciplines teaching sustainability?

As graphic design educators look to incorporate meaningful ways to teach sustainable design in their curriculum, it is logical to investigate what similar disciplines are doing to create creative curriculum. The two disciplines this Article will examine are the fields of architecture and industrial design.

Architecture, over the past few years, has embraced sustainable principles in their curriculum at a much greater degree than graphic design educators mainly because their creations are considerably larger. Buildings consume 70% of US electricity and 40% of our raw materials.^{xix} Typically, at the undergraduate level, the topic of sustainability is addressed in courses where lectures and readings inspire studio-based experimentation. At the graduate level North American universities such as Cal

Berkeley, Carleton University (Canada), Harvard, Kent State, MIT, and Oklahoma have developed graduate degree programs in sustainable architecture.

The industrial design discipline has tested an undergraduate sustainable design course entitled “Okala” in approximately forty American universities. Okala, which means, “life sustaining energy” in the indigenous Hopi language, is a lecture-based sustainable industrial design curriculum developed in North America by Philip White, Louise St. Pierre and Steve Belletire.^{xx} The Okala program incorporates reading materials and responsive research papers into its semester long curriculum. Towards the end of the course, the industrial design student is tasked in developing sustainable design strategies and a theoretical life-cycle-analysis for a new product.

Within the graphic design curriculum, the conversation on sustainability is just beginning to gain momentum. MCAD (Minneapolis College of Art + Design) in Minneapolis, Minnesota has an online continuing education program in sustainability.^{xxi} There are currently no other university graphic design schools that have an established working sustainable design program in place. However, there are a number of schools looking into developing curriculum in sustainability for the graphic design student. Despite the lack of larger-scale investigation, there are exciting successes, and at the same time great opportunities for growth and exploration happening in our North American design colleges. The remainder of the Article will share three case studies from graduate and undergraduate graphic design educators and also a set a standard of “best practices” to take back to your department for further investigation and conversation.

Case Study 1: A sustainable design project

The project described in this case study was part of the Advanced Graphic Design (ARTD310) taught by the author in his role as an Assistant Professor at the University of Illinois to senior design students in the fall of 2006. The project was a stand-alone sustainable packaging project nestled at the end of three other smaller projects that asked more typical (non-sustainable) project questions of the students. This case study and the following two case studies exploration will be presented through a series of questions asked to the educator by the author.

1. **How did you approach organizing the class?** Advanced Graphic Design 1 (ARTD 410) was taught at the University of Illinois in the autumn of 2006 to two sections of fourteen senior graphic design students. The four assigned projects were cumulative. The projects enhanced the students understanding of the graphic design practice and encouraged investigation of under utilized design tools such as: found objects and reused materials to build the foundation for the final project.
2. **What was the format of the project?** The five-week project was initially introduced through a background discussion that, similar to this paper, defined sustainability and how it related to the graphic design student. This lecture challenged students to think more about the impacts of their work on the environment through examples that can be linked to the graphic designer, such as: over-consumption and resulting waste, water/air pollution, global warming and deforestation. To build upon this introductory discussion, the students were asked to read *Cradle to Cradle: Remaking the Way We Make Things* by William McDonough and Michael Braungart.^{xxii} In small discussion groups of four, the students and myself examined key points in the book for two consecutive weeks to delve deeper into the subject and answer questions that students found confusing. Before the design phase of the project began, the students were broken further into smaller groups to research sustainable materials/topics and present their findings to the class.
3. **What were the successes of the class?** Students seemed to learn more about the topic through researching subtopics and presenting their findings to the class. *Cradle to Cradle*^{xxiii} was extremely integral in building upon their knowledge of sustainability. The book changed the way many approached projects in the following spring 2007 semester. One student in particular worked on The Solar Decathlon (a US Department of Energy sponsored competition involving 24 other international universities) in collaboration with other Architecture, Mechanical Engineering, Computer Science and Industrial Design to design sustainable print materials that promoted a student designed solar home. Although the packaging solutions for my class weren't necessarily revolutionary, the students tackled two

topics (sustainability and packaging) they had never encountered before with measurable success. The packaging concepts featured concepts of reuse, recycled PCW (post-consumer waste) paper, plantable wildflower paper, and compostable PLA (Polylactide) bioplastics. Since the size and materials of the packaging were not pre-determined, the students created a wide variety of solutions. Approximately one third of the students from this course displayed their final sustainable packaging solutions in their senior BFA shows.

4. **What did not work? How could you change it next time?** The initial lecture for the project was too overwhelming for one day. It is important with teaching sustainability to break out each sub-topic into smaller chunks for better digestion of the information. There is a lot to discuss on the topic, and therefore it is best to not overwhelm and scare away the students. The inclusion of other media (films and readings) would have reinforced the topic and possibly inspired more creative solutions.



Figure 1: Austin Happel, Mode Tea Containers 2006



Figure 2: Austin Happel, Mode Tea Containers (Components) 2006



Figure 3: Cara McKinley, Mode Tea Glass Containers 2006



Figure 4: Clint Micelli, Mode Tea Plantable Packaging 2006

Case study 2: A sustainable design graduate level course

The following case study was compiled through email correspondence^{xxiv} with Professor Phil Hamlett at the Academy of Art University in San Francisco. The course entitled “Graphic Design and Sustainability” (GR 699) was taught by Professor Hamlett to graduate students in the spring of 2007.

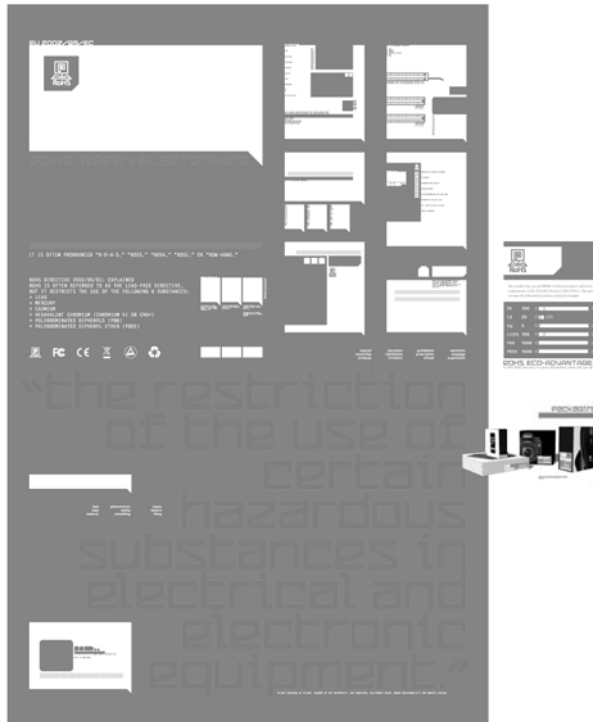
- 1. How did you approach organizing the class?** The spring course entitled “Graphic Design and Sustainability” began with a few lectures to familiarize the students “with enough sustainable principles to ensure a meaningful project development and critique. [The] first couple of class sessions revolved around a series of ‘book reports’ on various writers, articles, NGOs, legislation and activities.”^{xxv} The initial required reading included McDonough and Braungart's *Cradle to Cradle: Remaking the Way We Make Things*^{xxvi} and sections of Alex Steffen's *Worldchanging*.^{xxvii} The students were also required to watch Al Gore's “Inconvenient Truth.”^{xxviii} After the introductory research phase, “the students were asked to focus on an industry vertical, [and] then choose a company (NGO or industry standard) upon which to base their work.”^{xxix} The course goal was to produce “a portfolio-worthy artifact that spoke intelligently to sustainable design principles — either for a company that was currently not doing so or for an NGO”^{xxx} that needed to actualize their principles more responsibly.
- 2. What were the successes of the class?** The students were interested in the topic the entire semester thanks to the required media and a “This Week in Sustainability” mini-lecture where up-to-date environmental news from any industry sector was discussed. In the end, the design students produced fairly “real” projects and were amazed by the rapid growth in the sustainability movement.
- 3. What did not work? How could you change it next time?** The possibilities for the project were too open-ended resulting in the students spending more time thinking about format as opposed to focusing on content. It is best to select more concrete parameters in an introductory class so the students can learn more about the topic.
- 4. What is your advice to an educator teaching sustainability for the first time?** “Build enough reading and lecture material into the course so the students are basing their work on marketplace realities.”^{xxxi} (Sustainability has to work.) It is also just as important to make certain that the educator provides “enough dissenting opinion so the students” can critically examine and determine “greenwashing”. If the student is armed with a good amount of “sustainable awareness and critical skill” – they are capable of producing meaningful efforts. “[W]ithout this fortification, the graphic design student [is] in danger of not progressing beyond cliché.”^{xxxii} Generally, they will spend way too much time using leaves, trees, twigs and all things “green” to style design solutions. During the design phase of the project, it is in the educator's best interest to push the content deeper and passed expected, surface-level solutions.



Student
Vincent Lo
www.vloadd.com

Course
Graphic Design & Sustainability

Instructor
Phil Hamlett



RoHS Certification Branding Guidelines

The RoHS Directive (2002/95/EC) is a set of guidelines that governs the consumer electronics manufacturing industry, restricting the use of six hazardous substances in electronic products. Manufacturers claim compliance to the RoHS, but there are no recognizable brand standards to which companies can adhere. Graduate student Vincent Lo reinterpreted the RoHS standards and created a branding and audit system that gives visual unity the compliant products and a way to display the exact amount of hazardous substances found within.

Figure 5: Vincent Lo, RoHS Certification Branding Guidelines 2007

Case study 3: A sustainable design undergraduate level course

This last case study was compiled through email correspondence^{xxxiii} with Professor Nina Bellisio at the Art Institute of California – San Francisco. The courses entitled: “Senior Project Design Studio” (GD 4412) and “Senior Lab Project” (GD 4412) were taught by Professor Bellisio to undergraduate students in the fall of 2006 and spring of 2007.

1. **How did you approach organizing the class?** The course actually comprises two separate classes including a research-based class and a project-based class. The research-based class begins with a discussion about what it means to “work sustainably.”^{xxxiv} Students start by brainstorming about examples of work they have seen or experienced that are sustainable. We then move on to discuss any concerns and/or difficulties including possible negative stereotypes the students have relating to sustainable design. Even in San Francisco, “green design is thought of as boring and preachy and only [productive] for certain types of people (hippy, parents).”^{xxxv}

The students then read *Cradle to Cradle*^{xxxvi} over the next couple of weeks and the class discusses the text while they begin to work on their own research. Students in both classes were permitted to approach the project according to standard design methodology, with one exception: students “had to defend their use of materials.”^{xxxvii} This was a more traditional studio “with sustainability running through it (and hopefully into their other classes) rather than some crazy idea they only had to think about”^{xxxviii} in one class.

Meanwhile, the research-based class continued to read and discuss while the studio class was busy designing and creating. The few students enrolled in both courses found this a bit challenging, but they were encouraged to approach the research as they would a “grant proposal—they needed to figure out exactly what they would make once they were given the money.”^{xxxix} The research class probably worked out better because the students were reading, learning and talking about new perspectives on design. However, many project proposals involved innovative concepts about “recycling, sustainability, etc., while the concepts for the design class were much more varied—involving green design without being about green design.”^{xl}

2. **What were the successes of the class?** The main success of both classes was to get the students talking about sustainable design. Most students had never even heard of *Cradle to Cradle*^{xli} before the classes began and, by the end of the courses, they were “bringing in examples of it being referenced in the news and on the web.”^{xlii} They were also constantly bringing in new samples for the “prop box,” including “cornstarch spoons and that sort of thing.”^{xliii} The timing of *An Inconvenient Truth*^{xliv} couldn’t have been better. “It didn’t hurt that [Al Gore’s documentary] won the Oscar that quarter and it was in the news almost every day, but for a student body that mostly plays video games, just noticing that much brought them into the realities of practical design.”^{xlv}
3. **What did not work? How could you change it next time?** The second time the class was taught there was “added discussion questions to all of the readings to target their discussions.”^{xlvi} The class also featured anti-green propaganda. “(One example is a great essay in the Economist against organic, free trade and everything else that is referenced in a Commonwealth Club panel discussion that [the students] listened to.)”^{xlvii} The students also spent more time in the second semester going over concepts to broaden their responses. It helped that this spring class was much smaller so email was utilized during the week to link them to new readings. The next time this class is taught there are plans to add a discussion board to the course website “to help facilitate [communication] in larger classes.”^{xlviii} There also needs to be more brainstorming activities incorporated into design classes “to help [the students] think beyond recycled paper.”^{xlix} These explorations “would involve thinking about new ways to solve design problems rather than just replacing some of the ‘bad’ parts of current design.”^l

4. **What is your advice to an educator teaching sustainability for the first time?** Show examples of “both design using recycled materials as well as design that [appears] traditional but is really sustainable.”ⁱⁱ It is also good to include “a sustainability journal for information and examples that students collect (or take pictures of) and analyze. Making them subscribe to something like Treehuggerⁱⁱⁱ is a good start.”ⁱⁱⁱ

Best practices

The ideal method to incorporate sustainability into the graphic design curriculum involves teaching its principles within the existing set of traditional foundational design pedagogy. Designing for longevity, reuse, a reduction of waste/energy etc. should become as integral as composition, hierarchy, context, gestalt, color, etc. Realistically, this “ideal” design methodology will take time to develop, necessitating further research, experiments and conversations within the design education community prior to its complete integration into the traditional graphic design pedagogy. As part of this experimentation to form an acceptable teaching model, this paper’s interim proposal would involve introducing a required sustainable graphic design course into the student’s junior or senior level class offerings. The course would be composed of lecture and discussion based studios with correlating projects allowing students to react to the materials presented in class. These studio projects should explore the basic principles of sustainability in the beginning portion of the semester and later expand to explore more difficult scenarios. This interim proposal will serve as an incubator for further experimentation with teaching methods and project ideas.

Based on the research derived from recent case studies and feedback from faculty teaching experimental sustainable graphic design courses and projects, the following best practices should be utilized as ways to begin to incorporate sustainability into the graphic design curriculum:

1. Educate ourselves on the topic
2. Keep the teaching tone optimistic
3. Make projects tangible. Enforce the use of eco-friendly materials in final design concept(s)
4. Keep projects/solutions simple
5. Use existing case studies to inspire the assigned project
6. There are no limitations only “opportunities”
7. Show sustainable materials (papers, bioplastics, bamboo, etc.) in class
8. Encourage the students to delve deeper and ask questions
9. Develop a reading list and assign it. Designer students need to read more
10. Keep up-to-date on the topic and have students present weekly reports

Best practices: Sustainable teaching resources

The following two introductory lists present resources for the educator to begin his/her further education on the topic of sustainability and provide tools for graphic design departments to begin the conversation of introducing the topic into their curriculum.

Books:

1. *Cradle to Cradle: Remaking the Way We Make Things*, by William McDonough and Michael Braungart
2. *Natural Capitalism: Creating the Next Industrial Revolution*, by Paul Hawken, Amory Lovins, L. Hunter Lovins

3. *Paper or Plastic: Searching for Solutions to an Overpackaged World*, by Daniel Imhoff
4. *Worldchanging: A User's Guide to the 21st Century*, by Alex Steffen

Films:

1. [design:e2](#), PBS, Tad Fettig
2. [An Inconvenient Truth](#), Guggenheim/Gore
3. [Gone Tomorrow: The Hidden Life of Garbage](#), by Heather Rogers

Web resources:

1. www.re-nourish.com
2. www.designcanchange.org
3. <http://sustainability.aiga.org>
4. www.lovelyasatree.com
5. www.themightyodo.com
6. www.worldchanging.com

Going forward

Teaching sustainability to undergraduate graphic design students emphasizes a distinct focus on process and a deeper comprehension of the materials we typically use in our craft, including: paper, ink, cardboard, and plastics. Industrial design and architecture students are required to have a basic understanding of the materials they specify and use. Why should the education of the graphic designer be any different? As the student and educators learn more about the concept of sustainability, the discussion of how these materials interconnect with energy, water, pollution and the economy must progress. The impacts of our graphic design students on our planet can be socially and environmentally negative without a better understanding by the educator and student on how to lessen the impact.

The American sustainable industry is a \$230 billion industry that continues to grow 20 to 30 percent annually^{iv}. As the graphic design student must stay current with technology and software trends, s/he must also be aware of market forces facing the craft. Our students are graduating into a world of new challenges and it consequently important for them to understand the topic and how to design sustainably for the companies that will be asking their assistance.

Sustainability is quickly becoming an environmental necessity, and because of this sustainable design has to work. It must become ubiquitous, integrated into the traditional process of the design. Education will play a key role in this determination.

End Notes

ⁱ United Nations. 24 Feb. 2005. *World Population to Increase by 2.6 Billion Over Next 45 Years, with all Growth Occurring in Less Developed Regions*. <http://www.un.org/News/Press/docs/2005/pop918.doc.htm> [31 May 2007].

ⁱⁱ Mock, Gregory. Earth Trends. 2000. *How Much do We Consume?* <http://earthtrends.wri.org/features/view_feature.php?fid=7&theme=6 [31 May 2007].

ⁱⁱⁱ Imhoff, Daniel. 2005. *Paper or Plastic: Searching for Solutions to an Overpackaged World*. 162. San Francisco: Sierra Club Books, [hereinafter referred to as Imhoff].

^{iv} Creative Action. *Fast Facts/Quick Actions*. <http://www.creativeaction.org/Facts/consumption.htm>. [31 May 2007].

^v The New American Dream. *Just the Facts: Junk Mail Facts and Figures*. <http://www.newdream.org/junkmail/facts.php> [31 May 2007].

^{vi} Eisenberg, Sheryl. National Resource Defense Council. 2004. *Taking Trees Personally*. <http://www.nrdc.org/thisgreenlife/0402.asp>. [31 May 2007].

^{vii} U.S. Environmental Protection Agency. *Sustainability*. <http://www.epa.gov/sustainability/> [31 May 2007].

^{viii} Savitz, W. Andrew. 2006. *The Triple Bottom Line: How Today's Best-Run Companies Are Achieving Economic, Social and Environmental Success – and How You Can Too*. Josey-Bass,

^{ix} Imhoff 100.

^x *Ibid.* 162.

^{xi} Ewen, Scott. *Emigré Magazine*.

^{xii} The term “good” is intentionally ambiguous as used in the above question. In the design community, as elsewhere, “good” is a highly subjective term. The author values design, which is not only highly functional and aesthetically effective, but also sustainable in environmental terms, while others may place greater value on commercial communication.

^{xiii} McDonough, William and Braungart, Michael. 2002. *Cradle to Cradle: Remaking the Way We Make Things*. 92. New York: North Point Press, [hereinafter referred to as McDonough].

^{xiv} *Ibid.*

^{xv} *Ibid.*

^{xvi} *Ibid.*

^{xvii} *Ibid.* 93.

^{xviii} See McDonough, *supra* note 14.

^{xix} U.S. Green Building Council. 2007. *Why Build Green?*

^{xx} IDSA. *Okala Curriculum: Student Course Guides, Presentations, Readings*. <http://www.idsa.org/whatsnew/sections/ecosection/okala.html> [6 May 2007].

^{xxi} Minneapolis College of Art and Design. *MCAD: Sustainable Design Online*. <http://www.mcad.edu/showPage.php?pageID=1311>. [6 May 2007].

^{xxii} See McDonough, *supra* note 14.

^{xxiii} *Ibid.*

^{xxiv} Hamlett, Phil. 21 May 2007. “Re: sustainability and education questions.” Email to Eric Benson. [hereinafter referred to as Hamlett].

^{xxv} *Ibid.*

^{xxvi} McDonough, *supra* note 14.

^{xxvii} Steffen, Alex, Al Gore and Bruce Sterling. 2006. *Worldchanging : A User's Guide for the 21st Century*. Chicago: Harry N. Abrams, Inc.

^{xxviii} An Inconvenient Truth. Dir. Davis Guggenheim. Perf. Al Gore, Billy West (II). 2006. Film. Paramount.

^{xxix} Hamlett, *supra* note 25.

^{xxx} *Ibid.*

^{xxxi} *Ibid.*

^{xxxii} *Ibid.*

^{xxxiii} Bellisio, Nina. 23 May 2007. "Re: questions." Email to Eric Benson. [hereinafter referred to as Bellisio].

^{xxxiv} *Ibid.*

^{xxxv} *Ibid.*

^{xxxvi} McDonough, *supra* note 14.

^{xxxvii} Bellisio, *supra* note 34.

^{xxxviii} *Ibid.*

^{xxxix} *Ibid.*

^{xl} *Ibid.*

^{xli} McDonough, *supra* note 14.

^{xlii} Bellisio, *supra* note 34.

^{xliii} *Ibid.*

^{xliv} An Inconvenient Truth. Dir. Davis Guggenheim. Perf. Al Gore, Billy West (II). 2006. Film. Paramount.

^{xlv} Bellisio, *supra* note 34.

^{xlvi} *Ibid.*

^{xlvii} *Ibid.*

^{xlviii} *Ibid.*

^{xlix} *Ibid.*

^l *Ibid.*

^{li} *Ibid.*

^{lii} *Treehugger*. <www.treehugger.com>. [6 May 2007].

^{liii} Bellisio, *supra* note 34.

^{liv} Trask, Crissy. 2006. *It's Easy Being Green: A Handbook for Earth-Friendly Living*. p. 13. Utah: Gibbs Smith.



Eric Benson Photo by Noga Sachs

Curriculum Vitae

Academic Experience

The University of Texas at Austin

MFA Design, Design and Sustainability, 2004 – 2006

2006 Foresight Design Award Winner

2004-2005 Deans Fellowship

2005-2006 The Susan Vaughan Foundation Endowed Scholarship

Activities and Societies: AIGA, IDSA, CAA

University of Michigan

BFA, Graphic Design, Industrial Design, August 1993 – May 1998

1998 Palazzo Memorial Award winner for Industrial Design

Activities and Societies: IDSA, AIGA

Work Experience

Assistant Professor of Graphic Design

University of Illinois

August 2006 – Present

Sustainability Task Force Member

AIGA (American Institute of Graphic Arts)

2006 – Present

Teaching Assistant

University of Texas at Austin

January 2005 – May 2006

Senior Designer

Whole Foods – Austin, TX USA
August 2005 – December 2005

Senior Designer

Texas Instruments – Dallas, TX USA
March 2003 – August 2004

Senior Designer

Dawson Duncan – Dallas, TX USA
November 2001 – March 2002

Senior Designer

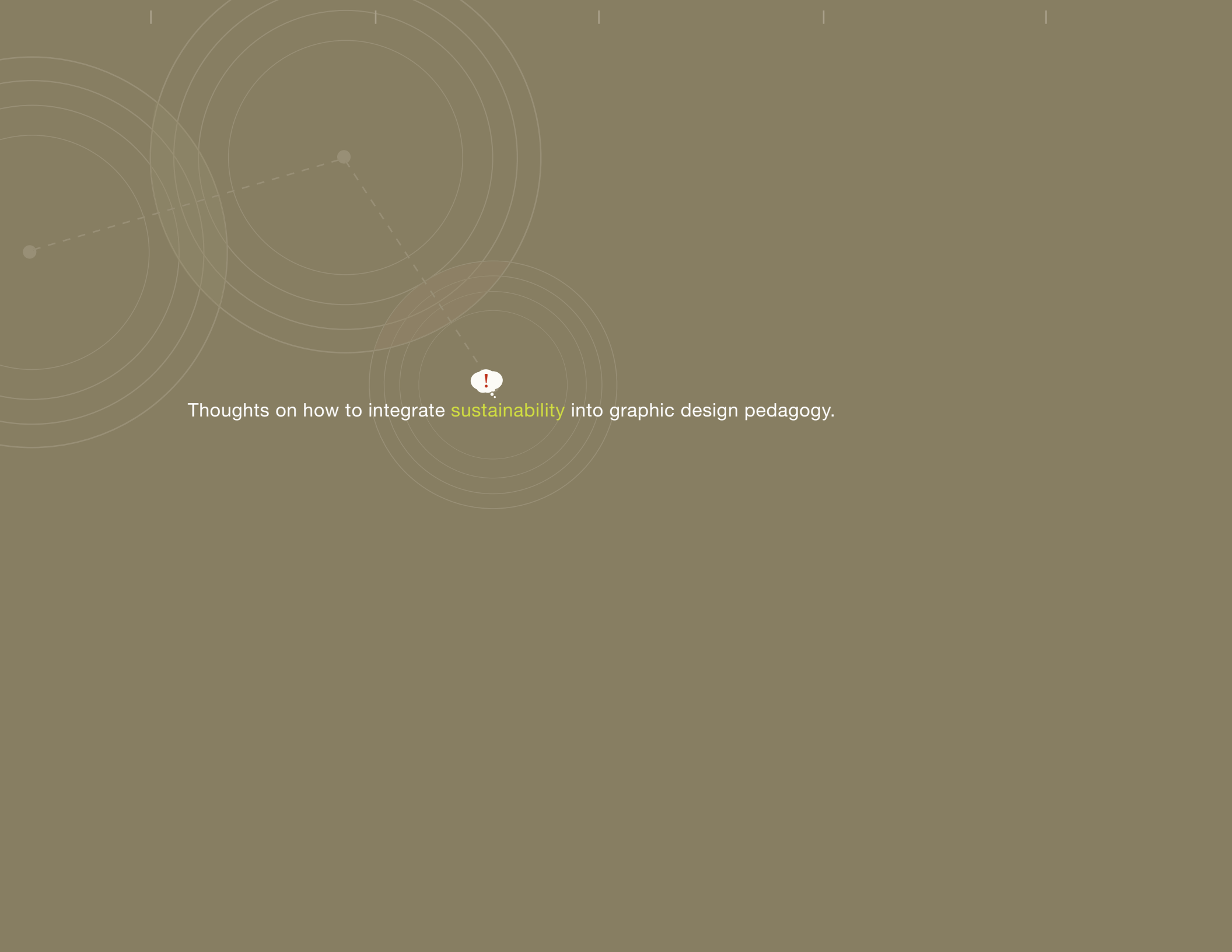
Razorfish – Boston, MA USA
March 2000 – February 2001

Honors and Awards:

2007 UIUC Research Board Grant (\$3,650 US)
2007 UIUC Travel Scholars Fund (\$2,380, \$380 US)
2007 UIUC FAA Grant (\$500 US)
2006/07 UIUC Brodie Grant Winner (\$500, \$500 US)
2005-2006 The Susan Vaughan Foundation Scholarship
2004-2005 University of Texas Deans Fellowship
2004-2005 Elizabeth McGoldrick Surginer Endowed Scholarship
1998 Palazzo Memorial Award Winner for Industrial Design

Exhibitions

"Reconnecting: The U-M Art & Design Alumni Show", University of Michigan, Slusser Gallery, Ann Arbor, MI (Design) – 7/07
"Other Heroes", Jackson State University, Jackson, MS (Drawing) - 4/07
"Subvertisements", California State University, Northridge, CA (Design) - 3/07
"Tossed and Found", Outside In, Portland, OR (Design) - 3/07-Present
"MFA 2", Creative Research Lab, Austin, TX (Design) - 05/06
"Fever" Show, Creative Research Lab, Austin, TX (Design) - 07/05
"Four Day Weekend", Fort Worth, TX (Paintings) - 09/04 - Present
"Summer Collective", Gallery ArtSpace, Dallas, TX (Paintings) - 07/04
Atys Gallery, Ann Arbor, MI (Furniture) - 02/98
"Baggage Claim", Slusser Gallery, Ann Arbor, MI (Design) - 05/98

The background features a series of overlapping, thin, light-colored circles of varying sizes. A dashed line path starts from a small grey dot on the left, moves right, then up and right, then down and right, ending at a white thought bubble containing a red exclamation mark. The text is centered horizontally below the path's end point.

Thoughts on how to integrate **sustainability** into graphic design pedagogy.

Thoughts on how to integrate sustainability into graphic design pedagogy.

Environmental and social issues are forcing
us to rethink the way we make things.

Thoughts on how to integrate sustainability into graphic design pedagogy.

To make 1 ton of paper, it takes
98 tons of resources. *(Environmental Defense)*

Thoughts on how to integrate sustainability into graphic design pedagogy.

Average American uses 748lbs
of paper per year. *(Environmental Defense)*

Thoughts on how to integrate sustainability into graphic design pedagogy.

Every year 68 million trees are
felled to produce 65 billion pieces of mail.

(Environmental Defense)

Thoughts on how to integrate sustainability into graphic design pedagogy.

Paper manufacturers are the third largest industrial polluter of air and water. (EPA)

Thoughts on how to integrate sustainability into graphic design pedagogy.

Global population is expected to grow
by 2.6 billion people by 2050. *(UN statistics)*

“They say times
change things, but
you actually have to
change them yourself.”

Andy Warhol

Thoughts on how to integrate sustainability into graphic design pedagogy.

Agenda

- ▶ Setting the baseline: Defining sustainability
- ▶ How does sustainability relate to the graphic designer/graphic design student?
- ▶ What are other disciplines doing to integrate sustainability?
- ▶ Case Study 1: A sustainable project
- ▶ Case Study 2: A sustainable design class
- ▶ Best practices
- ▶ Going forward

Thoughts on how to integrate sustainability into graphic design pedagogy.

Definition of sustainability

To allow for current economic needs to be met while preserving biodiversities and ecosystems to maintain the same quality of life for future generations.*

*

Living on nature's profit.
To preserve all life on Earth.

Thoughts on how to integrate sustainability into graphic design pedagogy.

Sustainability asks us to:

- › Respect and care for the community
- › Improve the quality of life
- › Conserve Earth's vitality and diversity
- › Minimize the depletion of non-renewable resources
- › Change personal attitudes and practices to keep within the planet's carrying capacity

Thoughts on how to integrate sustainability into graphic design pedagogy.

**Sustainable design has to be environmentally safe,
economically viable and socially equitable.**

(Triple Bottom Line)

Cradle to Cradle – follows nature's model (cycle)

How does sustainability relate to Graphic Design?

100%
PCW



Post-consumer Waste (PCW)

PCW is paper that was recovered after used by a consumer and thrown away. *About 50% of the paper we use today is recovered or recycled.*



Kenaf

Kenaf is a 4,000 year old NEW crop with roots in ancient Africa. A member of the hibiscus family (*Hibiscus cannabinus* L), it is related to cotton and okra, and grows well in many parts of the U.S. It offers a way to make paper without cutting trees. Kenaf grows quickly, rising to heights of twelve to fourteen feet in as little as four to five months.



Cotton

Cotton papers are superior in both strength and durability to wood pulp-based papers, which often contain high concentrations of destructive acids.

How does sustainability relate to Graphic Design?



Processed Chlorine Free (PCF)

Paper is made from fiber recycled from post-consumer waste and unbleached or bleached without chlorine compounds. PCF paper is the most environmentally friendly type.



Total Chlorine Free (TCF)

Paper made from 100% virgin fiber (including alternative fiber from sources other than trees) that is unbleached or bleached with non-chlorine compounds. TCF cannot apply to recycled papers, because the source fiber cannot be determined.



Elemental Chlorine Free (ECF)

Paper made from virgin or recycled fiber that is bleached using alternative chlorine compounds as a substitute for elemental chlorine, which serves to reduce harmful byproducts.

How does sustainability relate to Graphic Design?

Vegetable based inks

These inks are also based on a renewable resource and contain less VOCs than petroleum inks and soy inks. Vegetable inks were common place before cheaper petroleum inks replaced them. They are the best choice for sustainable printing.

Soy based inks

Soy is a renewable resource that contains far less volatile compounds as petroleum based inks. They are easier to cleanup and pose far less environmental risks

Petroleum based inks

Petroleum based inks are a non renewable resource. They are the most common inks used in offset printing. They emit volatile hydrocarbons during printing and are difficult to cleanup when released into the environment.

Thoughts on how to integrate sustainability into graphic design pedagogy.

Why is sustainability important?

We throw things away to
make things to throw away.

Thoughts on how to integrate sustainability into graphic design pedagogy.

Why is sustainability important?

We essentially make beautiful trash.

Entrance to Landfill
Scales

Thoughts on how to integrate sustainability into graphic design pedagogy.

Why is sustainability important?

Road's End

Dump Site

Puente Hills Landfill, Whittier, CA, USA

**33% of U.S. municipal solid waste is discarded packaging.
300 lbs of packaging per person per year in the U.S.A.**

Thoughts on how to integrate sustainability into graphic design pedagogy.

What other design disciplines are doing. What can we learn?

Architecture:

Buildings consume 70% of US electricity and 40% of our natural resources*. (*U.S. Green Building Council. 2007*)

- › *Undergraduate* – Lecture heavy introductory studios.
- › *Graduate* – Sustainable design studios. M.Arch. degree programs in sustainable architecture: Cal Berkeley, Carleton University (Canada), Harvard, Kent State, MIT, and Oklahoma (more coming).

Thoughts on how to integrate sustainability into graphic design pedagogy.

What other design disciplines are doing. What can we learn?

Industrial Design:

- › *Undergraduate* – Has tested an undergraduate sustainable design course entitled “Okala” in approximately forty American universities. Okala means, “life sustaining energy” in the indigenous Hopi language.
- › *Graduate* – MFA programs that allow for sustainability-specific thesis exploration.

Thoughts on how to integrate sustainability into graphic design pedagogy.

What about graphic design?

The conversation is just beginning.

Thoughts on how to integrate sustainability into graphic design pedagogy.

Case Study 1 : A sustainable design project (Mode tea: sustainable packaging)

Advanced Graphic Design 1 (Senior Studio), Fall 2006

5-week project (intro lecture, *Cradle to Cradle*, materials research, digital/3-D mockup)

Project successes:

- ▶ Student research presentations helped form a greater sustainable foundation
 - ▶ Good research/results for a first time packaging and sustainable-based project
 - ▶ *Cradle to Cradle* reading helped reinforce project concept
-

Project pitfalls:

- ▶ Lecture was overwhelming – break into smaller sub-lectures
 - ▶ Involving other readings/media would help reinforce issue and inspire
-



Austin Happel – BFA 2007, Materials: PLA (Polylactic Acid) Corn-based plastic, vegetable ink. Containers stackable for shipping/display/storage, lightweight, can reuse or compost

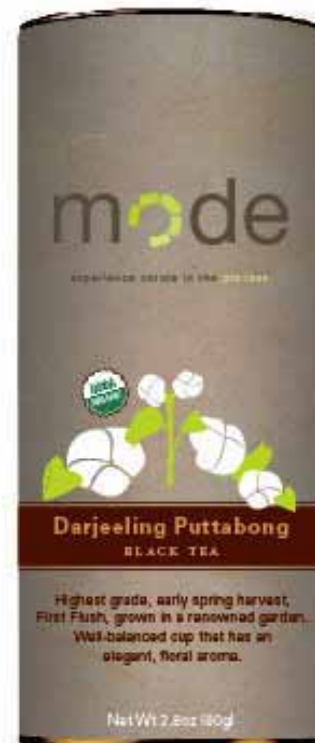
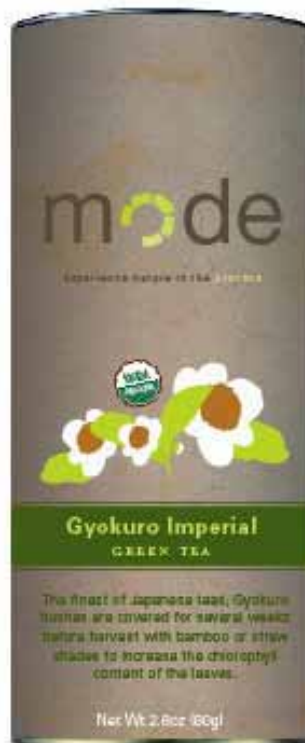
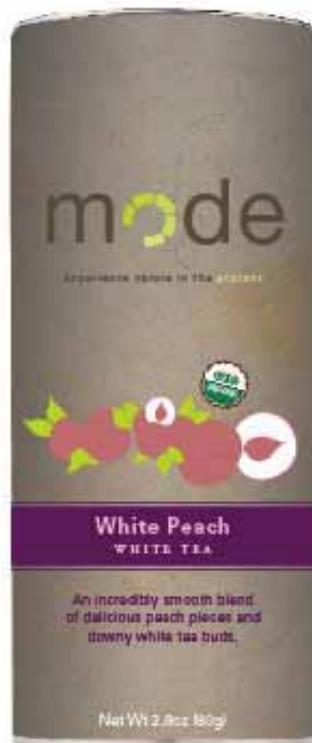


Austin Happel – BFA 2007, Materials: PLA (Polylactic Acid) Corn-based plastic, vegetable ink. Containers stackable for shipping/display/storage, lightweight, can reuse or compost



Clint Micelli – BFA 2007, Materials: Wildflower seed paper, recycled paper, vegetable ink. Containers stackable for shipping/display/reuse, tea/paper can be composted/planted

mode



Gina Lee – BFA 2007, Materials: 100% PCW/PCF recycled paper, vegetable ink. Containers are tin and can be reused. Paper label is perforated with coasters



Cara McKinley – BFA 2007, Materials: Glass, 100% PCW/PCF recycled paper, hemp string, vegetable ink, and PLA Corn-based plastic lid. Containers can be reused.

Thoughts on how to integrate sustainability into graphic design pedagogy.

Case Study 2 : A sustainable design class

Graphic Design and Sustainability: Phil Hamlett, Academy of Art University in San Francisco, Spring 2007
Lectures, *Cradle to Cradle*, other readings/media, essays, research, design a communications piece

Project successes:

- ▶ “This Week in Sustainability” presentations kept students interested and current
 - ▶ Reading and research produced “real” results in the end
-

Project pitfalls:

- ▶ Possibilities were too open leaving students pondering form before content
 - ▶ Simplified project would have been more effective as a learning tool
-



You can't wipe your ass
with a spotted owl.

— and other object lessons regarding —

Graphic Design and Sustainability

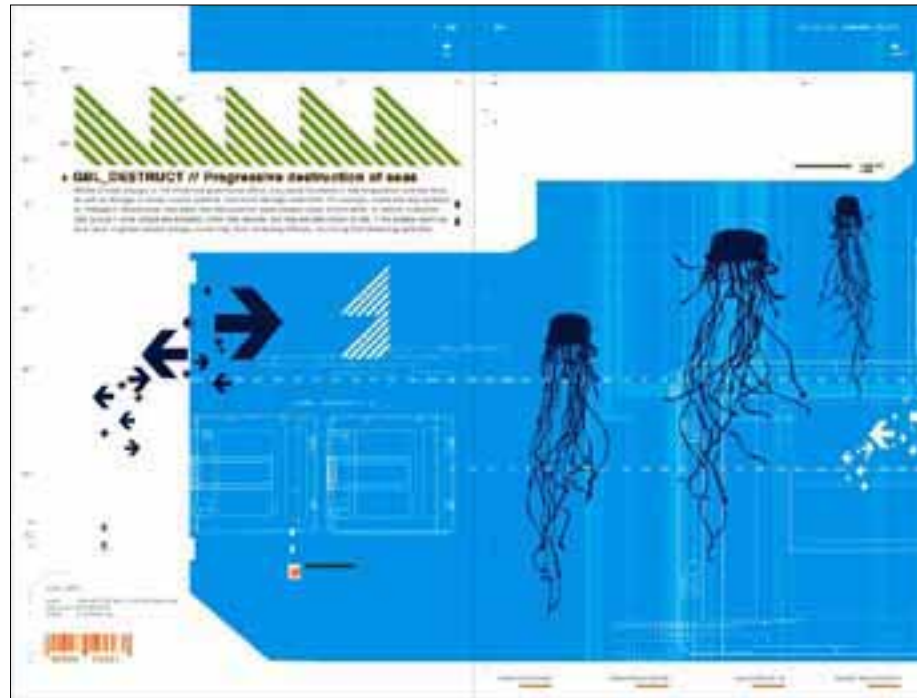
GR.699 Special Topics class this Spring with your instructor

Phil Hamlett

Sustainability is a rapidly growing concern for many designers. This class will examine the topic across a wide range of possibilities: from the nuts and bolts of daily design activity to the larger marketplace dynamics and global concerns within which designers operate. This class will focus on inspiring new design thinking that capitalizes on growing marketplace demand for this kind of knowledge and awareness.

Graphic Design and Sustainability is a special topics class, which means it can be taken as a studio by advisement, or as a directed study. There will be class projects and emphasis will be placed on securing portfolio-quality outcomes, but consideration will be granted to those wishing to utilize the class to augment their thesis deliverables as well. This is an advanced class and has a *minimum* pre-req of GR.601 Elements of Typography and GR.600 Visual Communications Lab. Registration closes on Friday, December 22nd — so get to it.





Global Warming Fact Book

The topic of global warming is *the* issue of our times, one that will have a profound effect upon our collective future. School of Graphic Design student Gabriel Nguyen's urgent design statement commands attention through its careful use of a variety of graphic storytelling devices: conceptual illustrations, factual examples and information graphics are used to alert readers of the gravity of the planetary situation. The book's heavy look and feel demands consideration, while the intricate text and detailing rewards extended review.



Student
Vincent Lo
www.vilo56.com

Course
Graphic Design & Sustainability

Instructor
Phil Hamlett

RoHS Certification Branding Guidelines

The RoHS Directive (2002/95/EC) is a set of guidelines that governs the consumer electronics manufacturing industry, restricting the use of six hazardous substances in electronic products. Manufacturers claim compliance to the RoHS, but there are no recognizable brand standards to which companies can adhere. Graduate student Vincent Lo reinterpreted the RoHS standards and created a branding and audit system that gives visual unity to the compliant products and a way to display the exact amount of hazardous substances found within.

Thoughts on how to integrate sustainability into graphic design pedagogy.

Best practices:

- ▶ Keep teaching tone optimistic
- ▶ Make projects tangible. Enforce use of eco-friendly materials in concepts
- ▶ Educate yourself
- ▶ Keep projects/solutions simple
- ▶ Use existing case studies to inspire
- ▶ There are no limitations only “opportunities”
- ▶ Show sustainable materials (papers, bioplastics, bamboo, etc.) in class

Thoughts on how to integrate sustainability into graphic design pedagogy.

Best practices:

- ▶ Emphasize for the students: to delve deeper, ask questions
- ▶ Develop reading list. Assign it. Designers need to read more
- ▶ Keep up-to-date on the topic and have students present weekly reports

Thoughts on how to integrate sustainability into graphic design pedagogy.

Best practices: Ideal introductory undergraduate curriculum scenario

- ▶ Principals taught in foundations & required course (Junior/Senior standing)
.....
- ▶ Lectures/reading/films – responsive studio projects
.....
- ▶ Confined project parameters that open up as semester progresses
.....
- ▶ Stimulating, jarring but positive course content
.....
- ▶ Up-to-date news/topic presentations by students
.....

Thoughts on how to integrate sustainability into the graphic design pedagogy.

Going forward: Recommended reading/viewing to get started:

- ▶ *Cradle to Cradle: Remaking the Way We Make Things.* McDonough/Braungart.
 - ▶ *Natural Capitalism: Creating the Next Industrial Revolution.* Hawkin/Lovins.
 - ▶ *Paper or Plastic: Searching for Solutions to an Overpackaged World.* Imhoff/Carra.
 - ▶ *Worldchanging: A User's Guide for the 21st Century.* Alex Steffen.
-

Films

- ▶ *design: e2.* Tad Fettig. PBS.
 - ▶ *An Inconvenient Truth.* Guggenheim/Gore.
 - ▶ *Gone Tomorrow: The Hidden Life of Garbage.* Heather Rogers.
-

Thoughts on how to integrate sustainability into the graphic design pedagogy.

Going forward: Recommended online resources to get started:

▶ *www.re-nourish.com*

▶ *www.designcanchange.org*

▶ *sustainability.aiga.org*

▶ *www.lovelyasatree.com*

▶ *www.themightyodo.com*

▶ *www.worldchanging.com*

Thoughts on how to integrate sustainability into the graphic design pedagogy.

Sustainable design has to work.

“We need to develop
good habits about how
and why we design.”

Mark Dzierzk (IDSA)