

NASAD working group

The Future of Design and Design Education

Strategies for assessing the responsiveness
of design programs to the context of practice

Working group members:

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Thank you all for coming to this presentation on major futures issues for institutions. The NASAD Working Group on the Future of Design and Design Education has been meeting for several years to address the issue of the future direction of design and design education.

I'm Karen Hughes, from the University of Cincinnati, and have been honored to work with my esteemed colleagues:

Eric Anderson, Carnegie Mellon University
Meredith Davis, North Carolina State University

Susan King Roth, Virginia Commonwealth University

and David Weightman, Univ of Illinois, Urbana Champaign

NASAD working group



Many of you probably attended our session at last year's National Meeting in Cincinnati, in which we reported our findings and made recommendations. Today we will take that a step further and talk about strategies for assessing the responsiveness of design programs to the context of practice.

Building upon that information presented last year, we will present a set of questions we hope design educators and administrators will ask themselves as they develop curricula for the future. We will illustrate with examples of how various design schools have addressed these questions, in hopes of sparking recognition of how you might implement changes in your own Design curricula.

In terms of educational focus and program quality, this is a session about reality assessment, policy analysis, and curriculum development. This will not be a presentation or discussion about accreditation standards, but rather about directions charted and decisions made at the local level.

We are presenting information and ideas with the understanding that each institution must find its own way forward. There is not a one-size-fits-all answer to the questions and issues we are addressing.

We hope to leave time for a few questions, but there will be breakout sessions tomorrow morning for those who wish to continue to learn more about how to implement solutions through innovation in their curricula. Please see the annual meeting program for details. We hope many of you will join us.

NASAD working group

Issues defining the contemporary context for design practice:

Complexity

Innovation

Technology

Globalization

Relationships

Our presentation is organized around five key concepts identified by the Working Group:

Complexity

Innovation

Technology

Globalization

Relationships

Following these introductory comments we will discuss the overarching force of “Complexity,” along with four key areas we see as emerging forces for design education.



How do we begin the process of addressing these issues in undergraduate design education?

Each of these areas will be explored through questions about how your curriculum responds to them, and most will be illustrated with examples drawn from peer institutions. There is no one “right” solution for any of these questions, and we could spend all day showing you the breadth of ways various institutions are addressing them. I’m sure many of you could provide your own examples to supplement ours. What we hope to do here, though, is to provide enough examples from various design disciplines and types of institutions to enrich our conversation.

Perhaps your institution has already taken solid steps toward addressing globalization, or you have programs that have partnered with other disciplines. Or you have individual faculty who have taken the creative initiative to develop innovative projects to address collaboration and innovation. Or your curricula has undergone or is undergoing review to assess the changes needed at a system level. You may have done some or all of these...or none. In any case, there is no doubt that there is still a great deal of effort needed by all of us to assure that we are creating programs that are relevant as we move forward.

Complexity

Today design is practiced in an interconnected world of unprecedented complexity.

Designers have to be mindful of physical, behavioral, social, cultural, technological, and economic factors, in addition to traditional visual, functional, formal and human concerns.

Design today goes on in an interconnected world, at an unprecedented level of complexity, so designers have to be mindful of the interaction between factors that are visual, physical, social, cultural, technological, and economic.

Design is a complex process, and today's design problems are complex, requiring multiple disciplines to solve them.

It became clear to our group that complexity is a component of design that spans the other four areas we will focus on. It permeates the fabric of design activity, regardless of discipline.

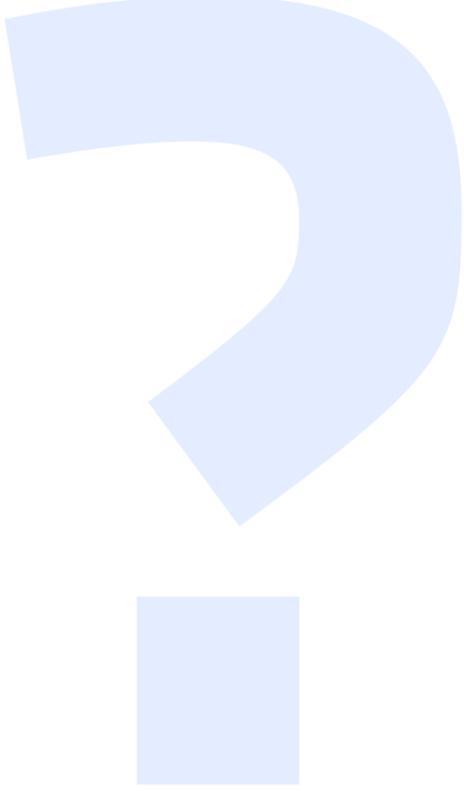
So each of the following four topics will address complexity as a matter of course.

Innovation

Innovation is an imperative for economic, social, and environmental survival.

Innovation demands more than creativity and involves payback, whether measured in economic or social terms.

The pace of innovation is increasing faster and faster and forcing us to adapt, knowingly or unknowing – whether its through the artifacts we use, ways we learn, or how we behave. Innovation is about “thinking differently” an old slogan from Apple that reflects well an expected outcome, one that is better. However as designers our role is to work with others to drive purposeful innovation – Innovation driven by studying and understanding human needs and concerns and responding with smart products, services and overall experiences that users and producers find valuable socially, economically, and environmentally. If social, economic or increasingly environmental needs are missed, survival is in question.



To what degree does your curriculum require students to **frame problems and strategies that are consistent with the contemporary context for design?**

- Are students asked to identify challenging problems that are both complex and ambiguous?
- Do they determine how much of the context to take on?
- Is form evaluated as a response to context?

Innovation / project example

What are new opportunities to address rarely marginal population? This student example from Art Center conceived and developed Cadence as a prosthetic and pedal for cyclists who are below-the-knee amputees.

**Art Center College
of Design**

Prof. Fidolin Beisert
Student: Seth Astle

The Cadence prosthetic helps restore proper cycling movements and efficiency and improve safety



Innovation / project example

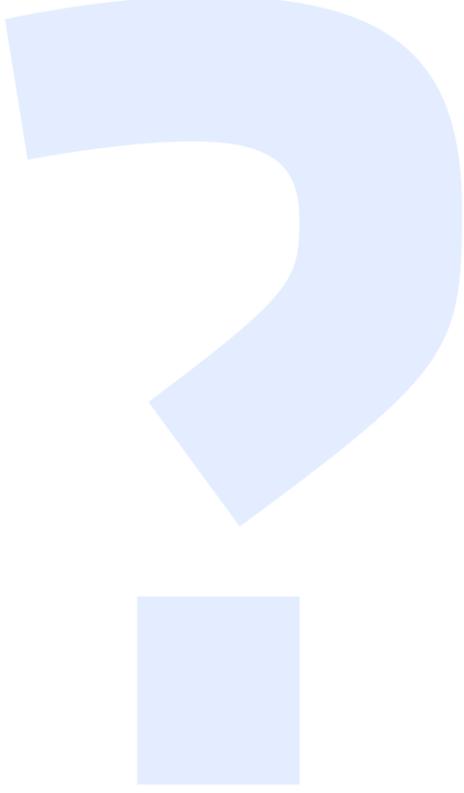
Art Center College
of Design

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Innovation



How and where in your curriculum do students **acquire and demonstrate the broad range of methods and thinking behaviors that are characteristic of current design practice?**

- Are they exposed to these methods/behaviors at the foundation level?
- Are modes of inquiry distinguished from procedures and products?

Innovation / project example

This iPhone app was designed by Lindsey Young at UIUC to assist speech therapists in High schools in their work with students. Rather than design a new electronic device, Lindsey capitalized on the capabilities of the iPhone to produce a new educational interface at minimal cost

University of Illinois
Urbana-Champaign
Industrial Design
Prof. David Weightman
Student: Lindsey Young

Training aids for speech therapists at K-12 schools





Where and in what ways does the curriculum require that students **demonstrate the value added** by their design solutions?

- Are students asked to make presentations that describe the positive return on creativity in terms of how useful, usable, desirable, economically viable, technologically feasible, and sustainable their solutions are?

Virginia Tech
Prof. Ed Dorsa,
School of Architecture
+ Design

Students:
Reid Schlegel,
James Connors and
Oscar Salguero

A Shoe With A Different Footprint Creating shoes so Haitian children can attend school; researching medieval models and sustainable materials



Public education in Haiti is free but many children are unable to attend school because they can't afford the shoes required. These first semester junior students from Virginia Tech said they had no idea about shoes, the construction of shoes, or how to design a shoe. Yet, using family and missionary contacts in Port Au Prince, they develop a shoe concept and a business plan for Haitian school children.

They were inspired by an old book on old medieval shoes, and understood that they needed to create shoes that were simple yet desirable. Their goal was to bring pride and independence to these children, and provide the opportunity for education. Their plan consisted of using local resources and producers to form a symbiotic relationship to produce a shoe design made of colorful cotton fabric and used bicycle tires. "Every time I see a student doing something important, I get inspired," says Ed Dorsa, Associate Professor of Industrial Design. "We have enough iPods. We don't have enough stuff for people who really need it."

Arizona State University
Innovation Space
Industrial Design
Prof. Prasad Boradkar

Learning to design for value added

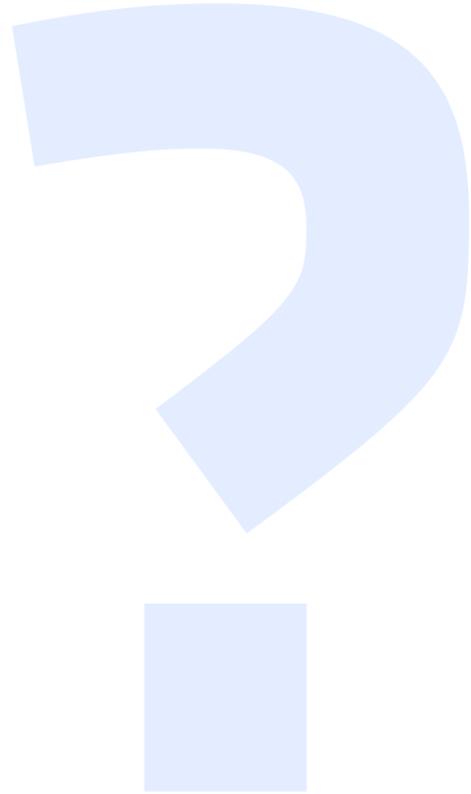
To allow student observation, the class asked an EMT company to bring an ambulance to the university.



In this image students are working on a project that focused on designing new products for emergency medical technicians (EMTs).

In order to help students with observations and interviews, Prasad Boradkar, Associate Prof of Industrial Design and Director of Innovation Space asked PMT Ambulance to bring an ambulance to Arizona State University.

This image includes an EMT worker walking students through the process of responding to a call. He is talking about the difficulty of getting patients onto the stretcher, and then into the ambulance. By exploring the problem space students are able to generate multiple solutions to solving the problem resulting in innovative but practical solutions.



To what degree are your students asked to **account for different scales of impact and the future consequences of their design solutions?**

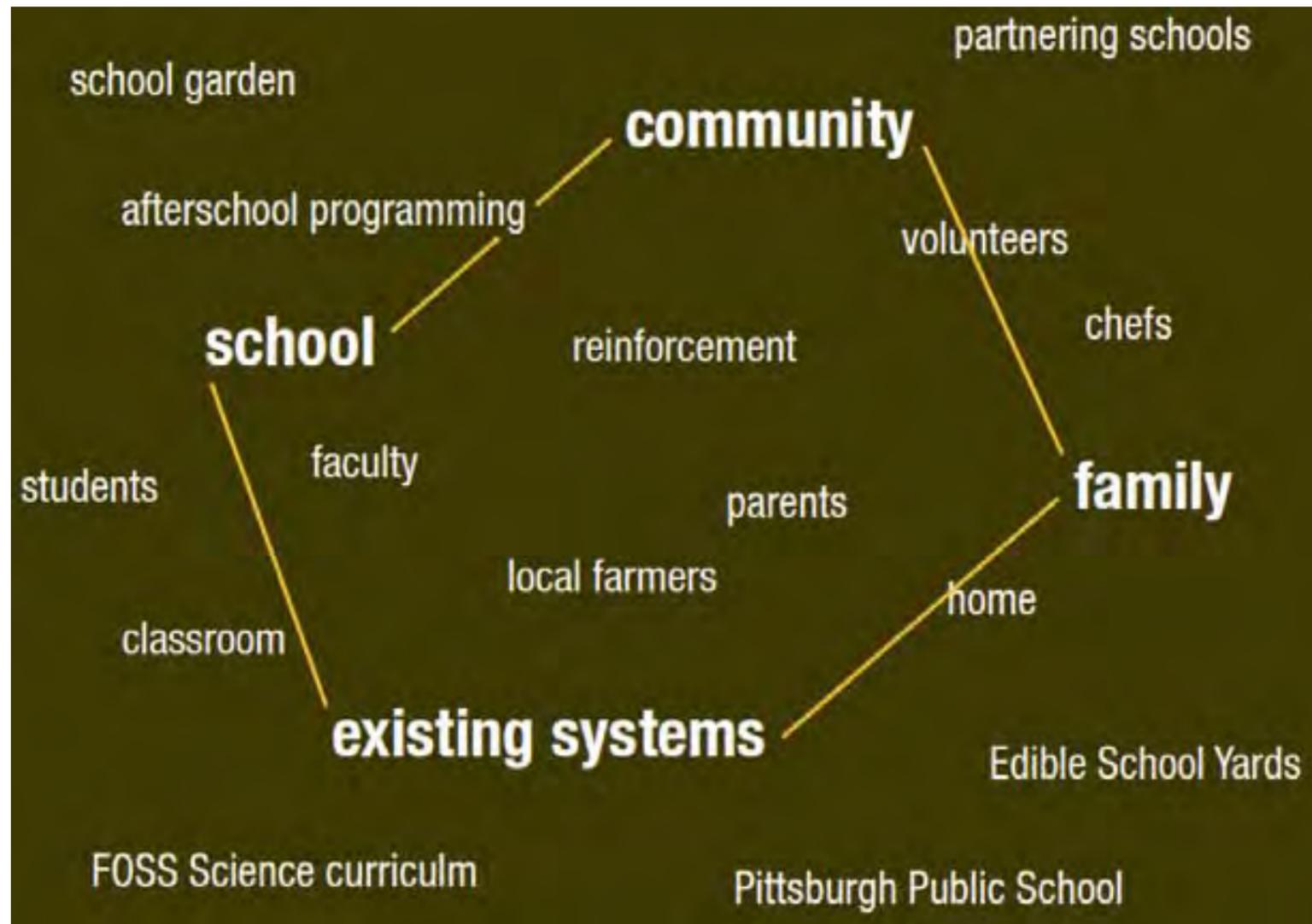
- Does the curriculum ask students to analyze problems and evaluate the impact of solutions at the level of components, products, systems, and interacting systems?
- Are students asked to project the consequences of design solutions into the future, thinking about issues such as adaptability and sustainability?

Innovation / curriculum example

Carnegie Mellon University
Prof. Eric Anderson
Industrial Design
Prof. Kristin Hughes
Communication Design

Junior product studio
and Community
Outreach Center

How can design thinking be used to align stakeholders and frame sustainable goals?



Many young people lack awareness about food production processes – they think food comes from packages. Therefore, fresh food has little value to them. This unawareness leads to poor nutritional choices that increasingly manifests into many common, but serious health problems. One way thought to address this was to prepare fresh lunches in the school and use the process as a learning opportunity. However, through research and collaboration with stakeholders including local farmers, advocacy organizations, and schools, faculty from Carnegie Mellon learned that the real need was a systems redesign and a solution that was independent of inadequate school kitchen facilities and a curriculum unprepared to integrate teaching nutrition.

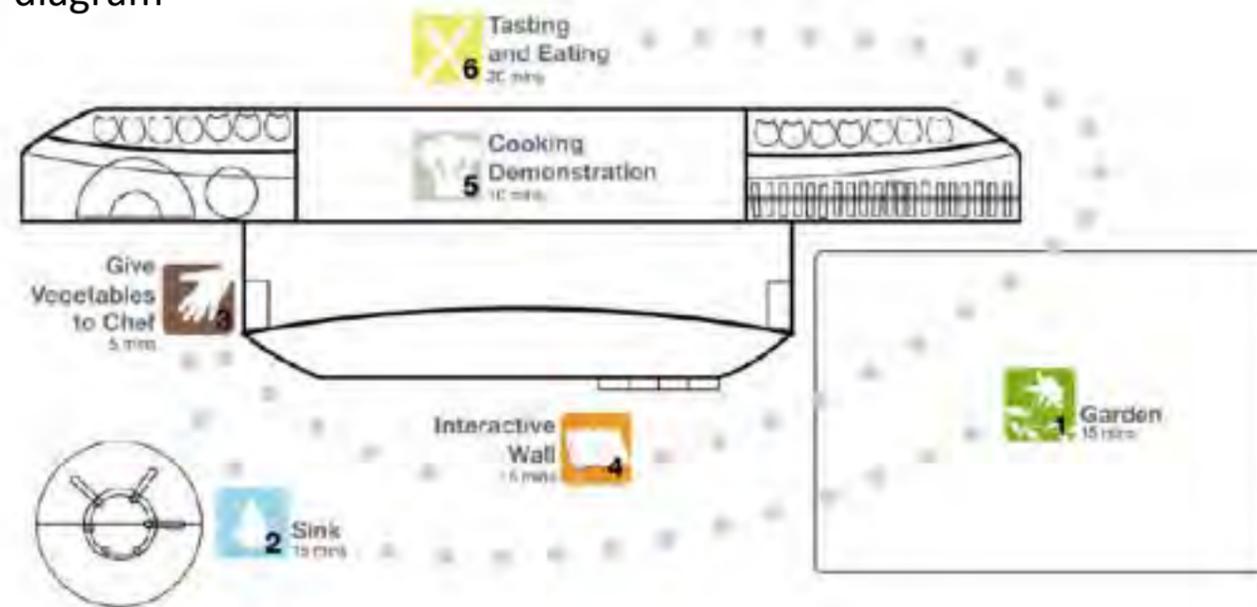
Innovation / curriculum example

Carnegie Mellon University
Prof. Eric Anderson
Industrial Design
Prof. Kristin Hughes
Communication Design

Junior product studio
and Community
Outreach Center

Mobile Teaching Lab

Group A - Flow diagram



With the focus on 3rd and 4th grade elementary schools students, industrial design students, working in teams, were charged to design the look and function of a community-supported mobile teaching lab. This lab, an extension to classroom learning, had to accommodate STEM goals through a scenario that included: motivating overburdened and under resourced teachers and administrators to embrace new teaching support models; tools to aid teaching nutritional values of fresh produce; ways to plant, grow and harvest produce; and how to design a harvest celebration experience for the community that considered the realities of all stakeholders. The illustrations show an example of a harvest celebration flow diagram and the 7 different teaching stations. The team developed the overall theme and students individually took one station to design and develop in detail.

Innovation / curriculum example

NC State University Bachelor of Graphic Design program

Curricular logic

Approach:

Sophomore curriculum enters study through the object

Junior curriculum enters study through the system

Senior curriculum enters study through interacting systems

Emphasis

Project examples

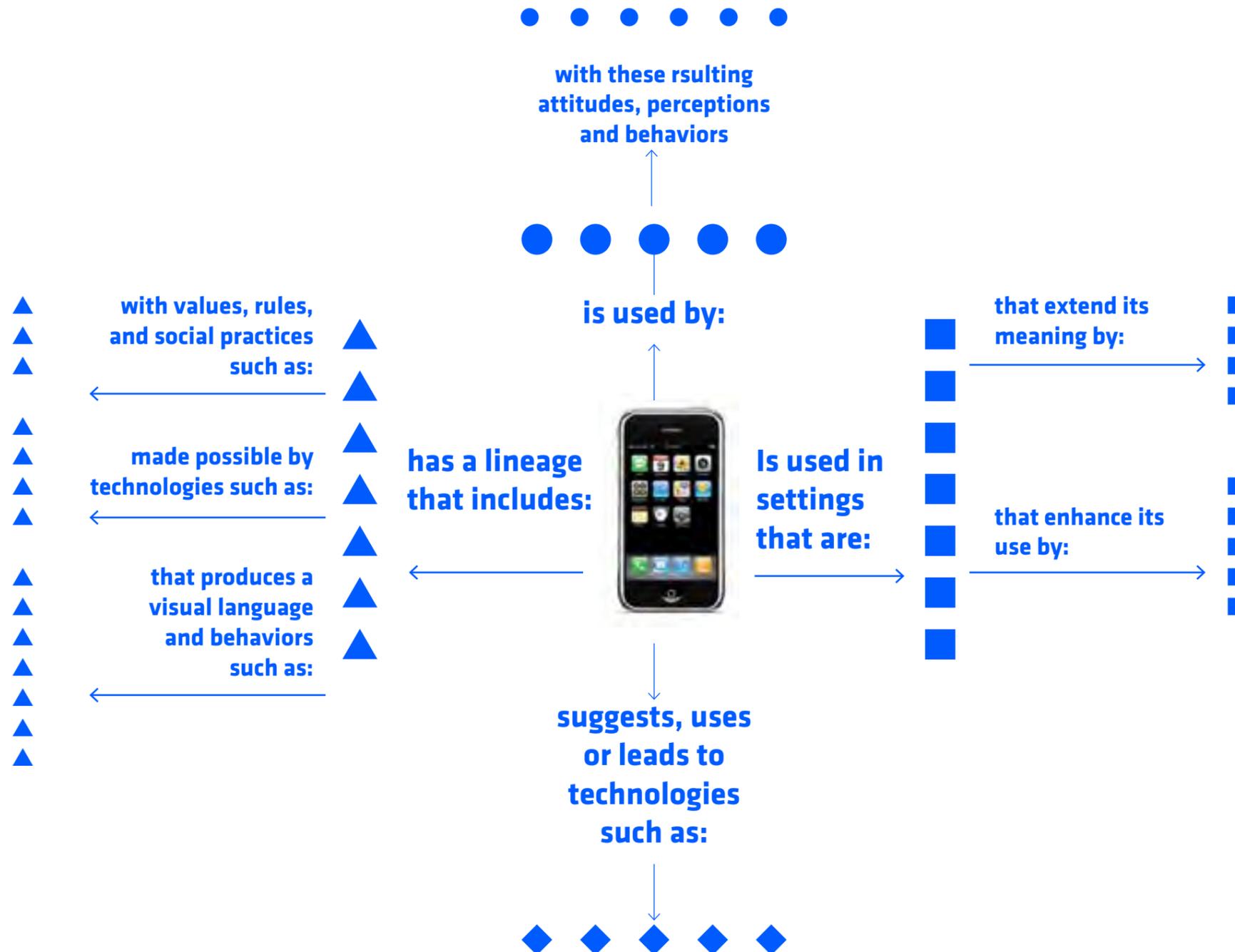
Technological system	Timeline of technological innovation
Cultural system	Posters comparing cultural implications of two points on the timeline
Cognitive/social system	Product instructions
Physical system	Map of an activity
Technological system	Interaction experience (web, mobile system)
Cultural system	Branding (identity system)
Cognitive/social system	Service design system
Physical system	Wayfinding system
Technological system	Networking and collaboration application
Cultural system	Advocacy application
Cognitive/social system	Learning application
Physical system	Settings and environmental applications

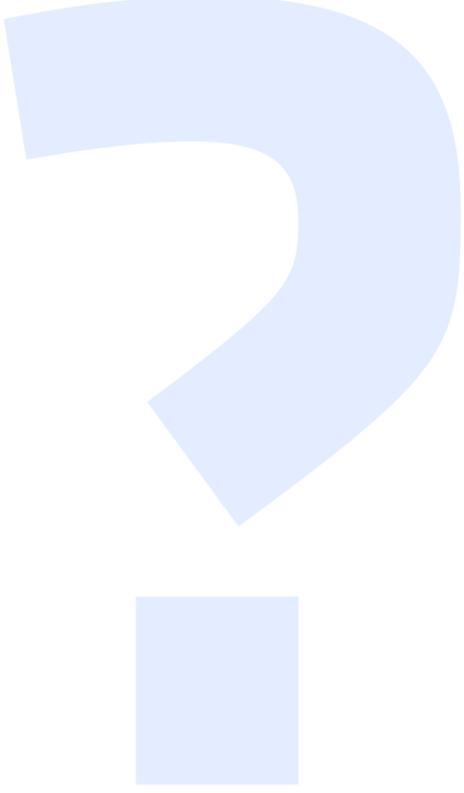
The Bachelor of Design program at NC State foregoes the traditional simple-to-complex organization of curriculum in favor of immediate entry points into complex systems. Sophomores enter systems at the level of objects, juniors at the level of a single system, and seniors at the level of interacting systems. The first sophomore project asks students to a concept map of the system to which the object belongs. Here, Rachael Huston's map of the washing machine identifies issues of gender-related appliances, notions of wealth and convenience in the middle of the 20th century, and sustainable practices.

Innovation / curriculum example

NC State University Bachelor of Graphic Design program

Sophomore mapping
activity. All semester
projects arise from
these maps, which are
based on assigned
objects





In what ways do your faculty and administration create a supportive culture for innovation?

- How do pedagogical practices reward risk taking?
- How are emerging professional practices integrated into undergraduate curricula?
- How do facilities, scheduling, and policies support faculty and student innovation?

Innovation / curriculum example

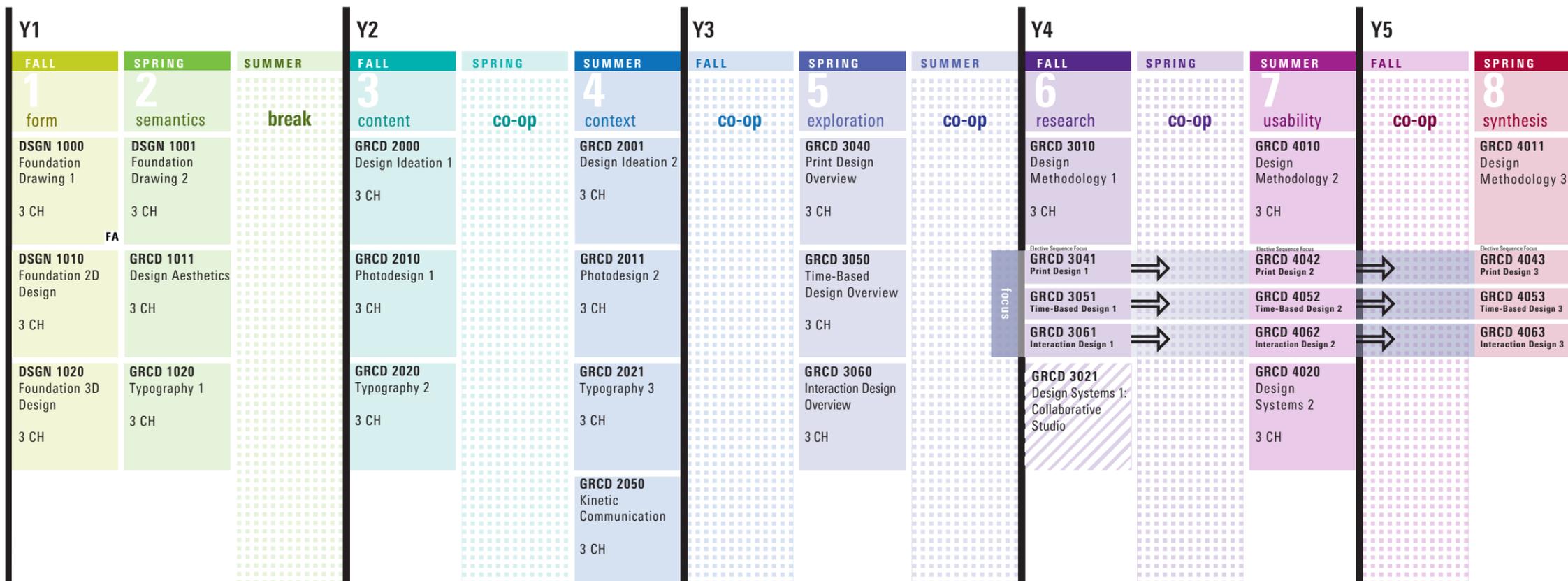
University of Cincinnati
School of Design

New curricular structure

Each semester is identified by conceptual framework:

form
semiotics
content
exploration
research
usability
synthesis

Each Design discipline designates a specific 6th semester course to interdisciplinary projects, with all design disciplines sharing this dedicated time course block.

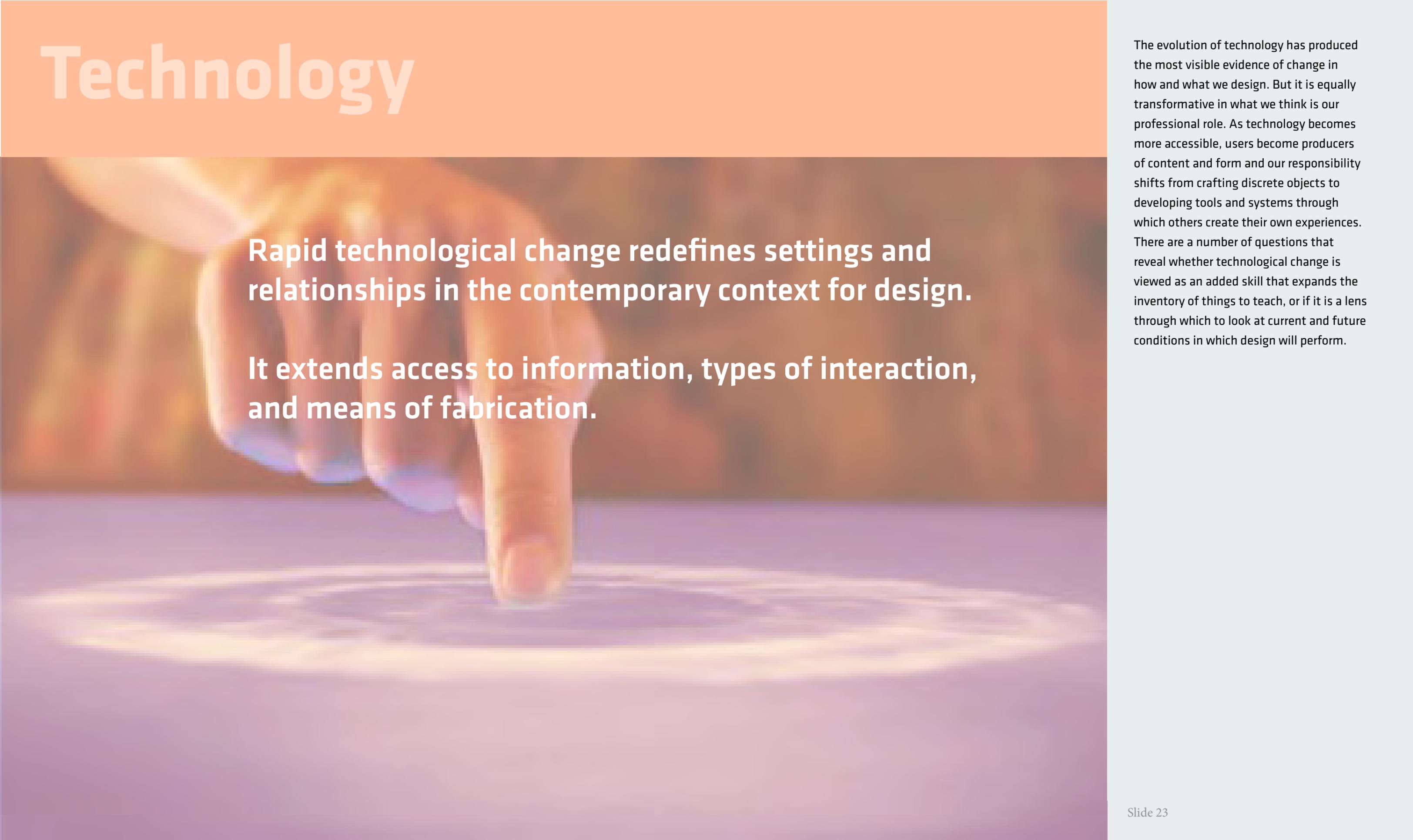


The University of Cincinnati, along with other Ohio State, Ohio U, and others, are making the switch to a semester system in fall 2012.

The School of Design began two years ago to redesign its entire curriculum, initiating the innovation at the school level rather than with individual programs.

A specific 6th semester course was dedicated to interdisciplinary collaborations, assuring that all students would benefit from this, and eliminating the previous logistical problems of common class times. By building this into the curriculum, faculty are encouraged to develop innovative collaborations with their peers.

Technology

A hand is shown from the top left, with the index finger touching a glowing, circular digital interface. The interface has a purple and blue gradient and shows concentric ripples emanating from the point of contact. The background is a soft, out-of-focus orange and yellow light.

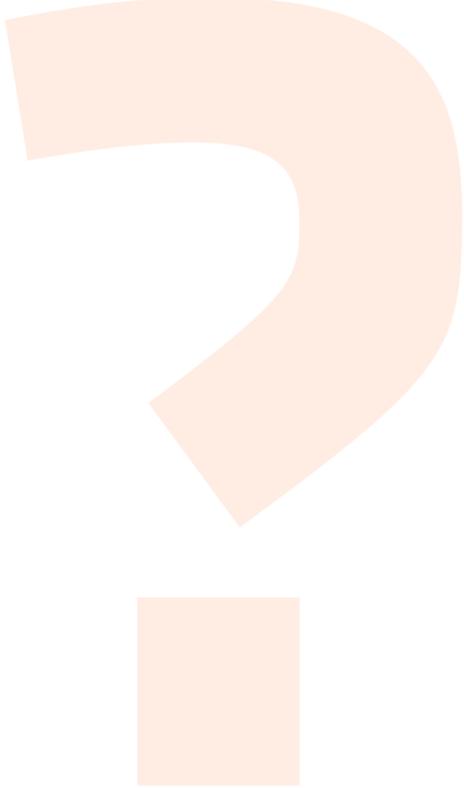
Rapid technological change redefines settings and relationships in the contemporary context for design.

It extends access to information, types of interaction, and means of fabrication.

The evolution of technology has produced the most visible evidence of change in how and what we design. But it is equally transformative in what we think is our professional role. As technology becomes more accessible, users become producers of content and form and our responsibility shifts from crafting discrete objects to developing tools and systems through which others create their own experiences. There are a number of questions that reveal whether technological change is viewed as an added skill that expands the inventory of things to teach, or if it is a lens through which to look at current and future conditions in which design will perform.

Technology

Design students may have careers that will be 50 years in length. Think about the technological change that occurs in just the four years of their undergraduate matriculation. So how are they prepared to learn new technology, knowing any specific software program could be outdated even before they graduate? And how early does the program begin that instruction?



How do instructional approaches develop students' abilities to **learn new technologies in an environment of constant change?**

- Is the program teaching how to use specific software and processes or how to adapt to changing technologies in the future?

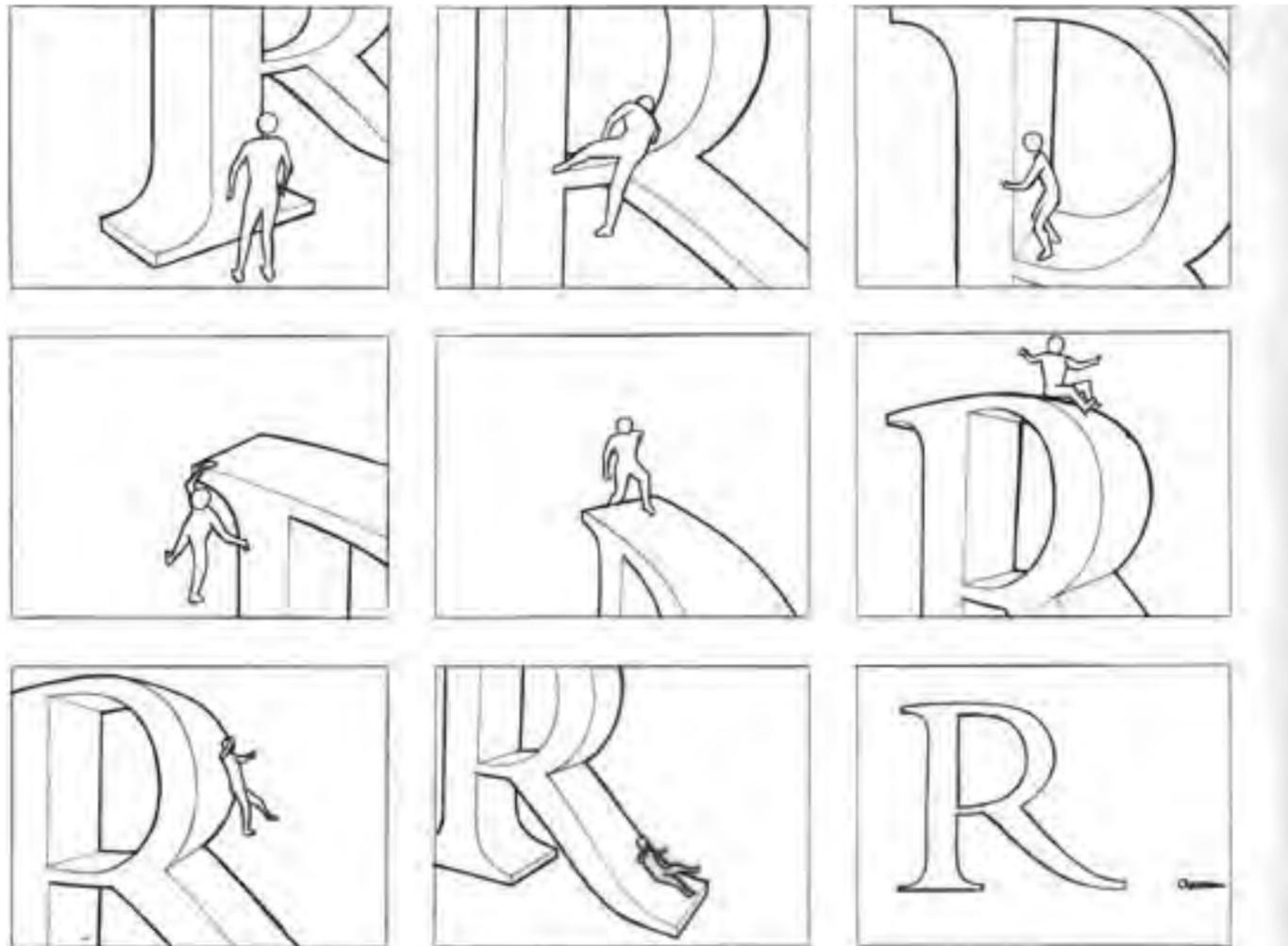
Technology / project example

Carnegie Mellon
University
Prof. Eric Anderson
Matt Zwicka

1st Year Drawing &
Visualization Studio

Goals include:

1. analysis, deconstruction and reconstruction of a letter form through analogue drawing



Teaching students to be visually intelligent and not masterful with any particular tool or technique is a valuable skill in today's environment of constant change. In this first year project letterform analysis, story-creation, and story telling is the driver of visual representations. First students use traditional drawing to analyze form through deconstruction and reconstruction. The figure is introduced as an element to support a nine-frame storyboard.

Technology / project example

Physical modeling is done as another mode of representing, comparing and learning. Then photography is used as a tool for studying and translating the storyboard considering sequence and rhythms.

Carnegie Mellon
University
Prof. Eric Anderson
Matt Zwicka

1st Year Drawing &
Visualization Studio

2. physically making the letter form
creating a clear, smooth flowing narrative of a figure
interacting with the letterform using 9 interesting frames
that explored multiple points of view through drawing.



Technology / project example

Last, the photographic storyboard is used to drive the creation of an animation. Here you see screen captures that work to align with the original 9 frames.

Carnegie Mellon
University
Prof. Eric Anderson
Matt Zwicka

1st Year Drawing &
Visualization Studio

3. Translating the 9 frames into digital photos



The learning goals in this project include teaching students that the value of tools will depend on the desired outcomes; and that they have to learn to adapt to ever changing projects and the wide array of tools available and that will become available in order to be successful.

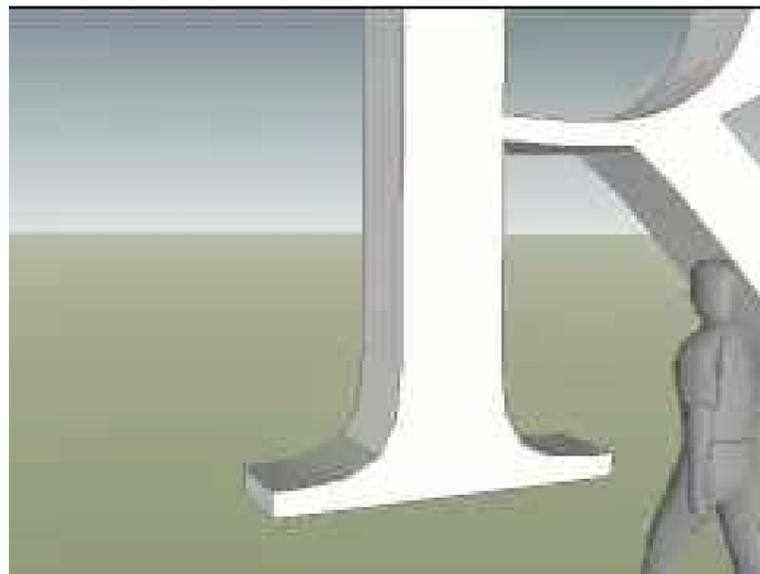
**Carnegie Mellon
University**

Prof. Eric Anderson
Matt Zwicka

1st Year Drawing &
Visualization Studio

4. Creating an animation with the 9 frames as key cells.

Tools and technology: analogue drawing, physical modeling and finishing, photography, digital animation software.





What curricular experiences ask students to **design for emerging and participatory technologies?**

- Do projects address the design of tools and systems, as well as the design of discrete artifacts?
- How do new forms of “sensemaking” influence curricular discussions of user/audience behavior and traditional assumptions about use or interpretation?

Technology / project example

Western Washington
University

SixthSense for Autism
Student: Tim Byrne

Using gestures and leveraging our knowledge about everyday objects and how we use them in our interaction with the digital world.



This is an augmented reality device for older children with autism, inspired by Pranav Mistry's SixthSense technology out of MIT. This device is intended to provide gestural, audible and visual prompt support for the child to increase attention span. Through gesturing environmental information can be captured and data translated into audio prompts shared with the child in discrete ways. Its projector feature allows many surfaces to be used for prompting visual information. This projection can be worn in multiple ways therefore can travel with you and provide a sense of independence. This concept is an example of what Mistry says is the merging of technology and body.

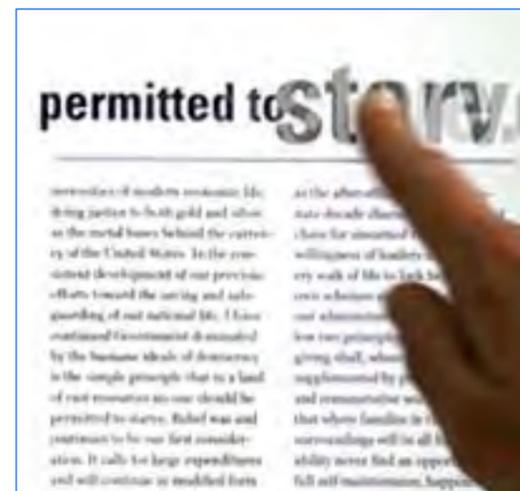
Technology / project example

It is not enough to deal other with the present under the pace of technological change. This typography project asks students to speculate on how reading a magazine on the iPad is different from reading it in print.

North Carolina State University
Prof. Katie Meaney

Sophomore-level
typography class

The iPad is a time-based, digital medium; typography and readers perform differently than in print. The design of this online journal allows readers to enlarge individual typographic components while remaining anchored to the primary text.



Technology / project example

North Carolina State
University
Prof. Katie Meaney

Sophomore-level
typography class

In this online magazine, the slight bleed of text hints at the horizontal page scrolling behavior of the system.



How do students learn to be critical users?
Do they understand, for example, that
Adobe InDesign is bounded by the principles
of the modernist grid and the Illustrator is
not. And can they overcome the blind spots
created because InDesign programmers
decided users should establish that grid by
entering the dimensions of the margins,
when legibility is determined instead by the
width of the columns?

Technology / project example

North Carolina State
University
Prof. Katie Meaney

Sophomore-level
typography class

This publication allows readers to layer type and image to make better use of screen real estate while maintaining readable sizes.



In this example, NC State professor Katie Meaney asked students how reading a magazine on the iPad would be different from reading it in print. This is not simply an assignment to reformat a publication for reading on screen but an investigation of how a system demands certain behaviors from readers. The first example allows the reader to enlarge a word or phrase while keeping it anchored to the primary text. In the second example, the edge of the next page encourages the reader to scroll horizontally. And in the final example, the system layers image and text to see both at reasonable sizes.



How does the curriculum prepare students to **evaluate technologies and their applications** in the design process?

- Are students asked to assess the principles that underpin the use of technology and what particular technologies do or don't do well?
- How do students learn that technology is not "value-free"?
- What strategies are used in the curriculum to reinforce the ethical and legal applications of technology?



What kinds of projects ask students to **anticipate the future of technology?**

- Where in the curriculum do students address technological trend analysis?
- Are they asked to justify their predictions of technological trajectories with evidence?

University of Cincinnati
School of Design,
Fashion Design/Product
Development
Prof. Phyllis Borcharding

Students explored uses of technical fabrics for specific populations and their physical needs

- **Active Ageing** is defined as :
 - “the process of optimizing opportunities for health participation and security in order to enhance the quality of life as people age... allowing people to realize their potential for physical, social and mental well being through course”
 - --World Health Organization, 2002
 - **Baby Boomers** are approaching this age with gusto
 - Need for designers who understand the new technical textiles to design sports apparel to let them live their lives the way THEY want to!
 - they’ve changed everything in their path so far!!!

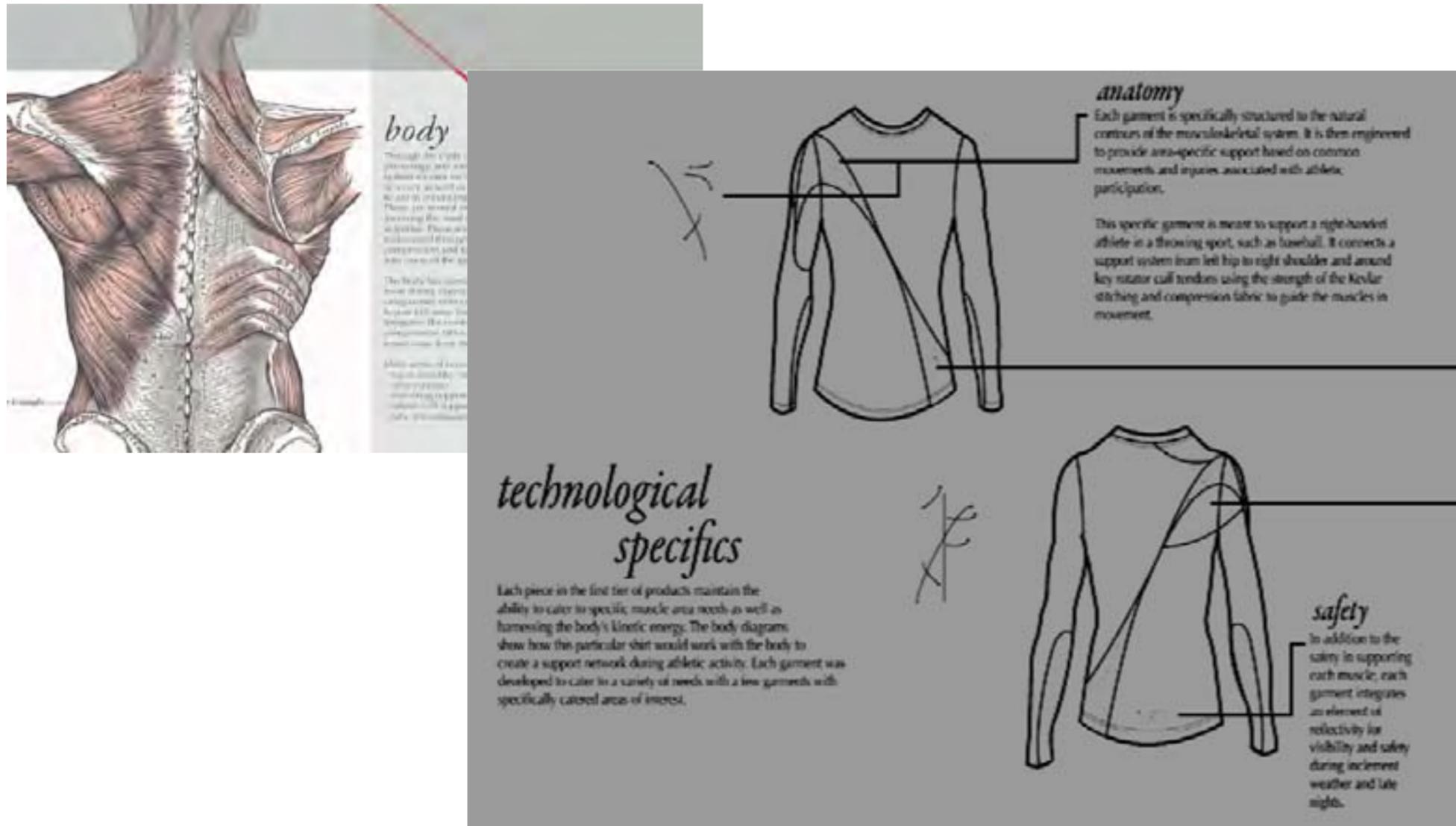


Technology / project example

Technical fabrics
University of Cincinnati: Fashion Design +
Product Development

University of Cincinnati
School of Design,
Fashion Design/Product
Development
Prof. Phyllis Borcharding

Students studied anatomy and properties of technical fabrics to solve age-related problems



Globalization

The global flow of information, people, and goods encourages the free exchange of people and ideas.

The employers of today's students have increased expectations of international awareness.

The global flow of information, people, and goods encourages the free exchange of people and ideas. Those who employ today's students have increased expectations of international awareness, and graduates increasingly are in demand around the world. As a result, expanding student experiences with world cultures not only prepares them to be informed, knowledgeable citizens of the world, but prepares them for professional practice in other countries as opportunities increase. Programs and institutions have offered study abroad programs for decades and some require an international experience as part of the undergraduate curriculum. In addition to study abroad programs, design projects and courses offered within the major or across disciplines increasingly offer opportunities for students to explore other cultures through the development of products, services and environments for populations around the world.

Globalization



What types of direct experiences do students have with people and places that acquaint them with the **diversity of cultural perspectives and the global context?**

- Does the curriculum encourage or require firsthand experiences in non-traditional environments?
- Are students required to engage in an international experience?

Globalization / project example

University of Cincinnati
School of Architecture
and Interior Design
+ University Honors
Program

Prof. Michael Zaretsky

The Roche Health Center is a zero-energy health center being constructed by local villagers using no power tools in rural Tanzania.



University of Cincinnati: Honors program, Architecture, Industrial Design
Honors students from students from accounting, architecture, industrial design, biomedical engineering, graphic design, interior design, philosophy and Spanish/ Arabic, and medicine
recently enrolled in course called “Humanitarian Design” taught by Michael Zaretsky, assistant professor in the School of Architecture and Interior Design.
During the course, the students were challenged to research how design can be used to solve problems in the Developing World. They then traveled to Tanzania in order to develop their ideas with the local communities as part of the non-profit Village Life Outreach Project.

Globalization / project example

University of Cincinnati
School of Architecture
and Interior Design
+ University Honors
Program

Prof. Michael Zaretsky

Various disciplines were brought together to design the building and its systems. Students interviewed local people to understand their needs.



Humanitarian Design students worked on, tested and developed projects related to infrastructure, health, nutrition and more. For instance, an industrial design student originally proposed an irrigation plan to help women's groups grow food that could, in turn, be used to feed schoolchildren, many of whom came to school in order to have something to eat. Almost immediately, she learned that irrigation was not possible due to the frequent droughts in the region. However, she also learned of new attempts to create a better convection oven for the baking of bread, an oven with multiple, vented chambers that used a minimal amount of wood to function. If adopted widely, it promises to cut down on deforestation in the region.

Globalization / project example

Virginia Commonwealth University
DaVinci Center for Innovation

The Project Simple \$500 operating table project for Bangladesh involved students in Design, Business and Engineering at VCU.



Social Objective
Develop cost effective medical equipment for the least developed countries worldwide.



"An idea that is developed and put into action is more important than an idea that only exists as an idea."
Buddha

■ Least Developed Countries Worldwide

Project Simple was a research and design project proposed by a VCU Engineering student from Bangladesh and developed in collaboration with students from Design and Business.

Based on the need for low-cost healthcare equipment in Bangladesh, the project focused on operating tables that could be assembled in the field and be transported on motorbikes, the main source of transportation in remote areas.

Globalization / project example

Virginia Commonwealth University
DaVinci Center for Innovation

It included a visit to operating rooms in Bangladesh by one of the student team members, research on all aspects including the way such a product would be used in the field and transported on motorbikes (!)



Project Focus

Operating Room Table

- Broad Application
- Maximum Impact
- Most Challenging



University Preliminary research was conducted in Bangladesh including visits to hospitals and crowded operating rooms. The challenge was to develop a table with broad applications for use, maximum impact on improved healthcare, and economically sustainable.

Brainstorming took place to identify systems, components and materials in existing products that supported weight, were easily assembled with basic tools, and collapsed into small, portable, relatively lightweight structures.

To make the project even more challenging the cost of this table was constrained to approximately \$500.

A business plan was developed that supported local production of the table, and was economically sustainable.

The end result was a table prototype that supported both healthcare needs and local industry. The prototype was produced and product development continues to the next stage.

Globalization / curriculum example

North Carolina State
University
Prague Institute

Initiative of the
College of Design

Study abroad programs



Globalization



What components of the curriculum prepare students to design for global audiences and markets?

- How are audiences defined in the briefs for design projects?
- How does instruction in design history account for context and culture in the discussion of design?
- What courses outside the design program develop understanding of different cultures in the global context?

Globalization / project example

University of Illinois
Urbana-Champaign
Prof. Mahdu
Viswanathan

Joint ID/MBA year-long course called “Design for the Bottom of the Pyramid,” with field study to India.



Globalization



What courses develop students' understanding of the relationships among design, manufacturing, and distribution in the global context?

- Where in the curriculum do students discuss the global dispersal of work?
- How are students asked to account for the impact of design on the global context, including the issues of resource use and environmental outcomes?

Globalization / project example

Shoe Polytechnic in Italy Parsons The
New School

**Parsons The New
School for Design**
Prof. Howard Davis
School of Fashion

Senior students in BFA
Fashion Design were
selected to work with
the Shoe Polytechnic in
Italy. They were able to
have two of their shoe
designs produced in
Italy

Global collaboration



Globalization



How are students prepared for **emerging employment opportunities** in the global context?

- How does the curriculum introduce a large-scale view of work?
- How does the institution establish professional relationships that facilitate the future placement of its graduates in international companies?

Globalization / project example

Kent State University
School of Fashion
Design
Ferragamo Museum

Solidifying Global Relationships



Kent State's Fashion program developed a relationship with Leonardo Ferragamo in helping provide opportunities for their students to engage in internships in Florence, with planning now underway for a 'Ferragamo Summer Fashion Workshop Series' there.

By developing programs abroad and cultivating professional connections such as internships, schools can help prepare students for employment in the global context.

Relationships

There is a shift from designing discrete objects to designing services and systems through which people create their own experiences.

Design processes are increasingly organic and evolutionary with different goals than the finished perfection of modernism.

We need to prepare design students for a world of work in which relationships outside the design studio are very important. These include relationships with users and consumers, and also relationships with all the other disciplines that are inevitably involved in the creation of products, services or experiences. This is also a world in which problems or opportunities are rarely easy to define, often wickedly avoid definition and in which ambiguity is frequently the norm that our students and faculty need to get used to.

Relationships

At the IDSA conference in San Francisco a few years ago, Jane Fulton Suri of IDEO outlined how their work was moving from designing for (people) to designing with (people) and ultimately by (people). In other words, moving from providing to facilitating. Another example would be the Apple developers pack for App creators – you don't design the App, you design the tools that people use to create their own

How does your curriculum acknowledge that design practice is now about **designing for, with, and by people?**

- In what ways do the formulation of problems and student analysis reflect an increasingly participatory culture?
- How do students learn about collaborative processes and shifting hierarchies in the workplace?



Relationships / curriculum example

Design Coalition/MICA Collaborative
Maryland Institute College of Art

MICA

Prof. Ryan Clifford,
Design Coalition course
fall 2010

Student: Kallie Parrish

A collaboration between
MICA students enrolled
in Design Coalition, an
elective, and a local
non-profit, The Kids at
Collington Square.



Relationships / curriculum example

University of Illinois
Chicago

Prof. Stephen Melamed

Interdisciplinary Product
Development studio

Interdisciplinary Product Development

IPD is a year-long curriculum that partners with organizations to generate innovation for the sponsor and provide a real world educational experience for students from Business, Design, and Engineering



Relationships / curriculum example

The IPD program at UIC brings together students and faculty from Design, Engineering and Business to work on industry sponsored projects in their newly-established Innovation Center. This mirrors the development process in industry and is an important educational opportunity for the future careers of the students who participate

University of Illinois
Chicago

Prof. Stephen Melamed

Interdisciplinary Product
Development studio

IPD Sponsors include:

Whirlpool Corporation

Rehco, Incorporated

Copco / Wilton
Industries

Pactiv Corporation
(Hefty brand)

Motorola (mobile
communications)

Elkay Manufacturing

Cobra Electronics

Dell Computer



Relationships

Empathy - the ability to see and feel things from the perspective of other people is a very valuable skill for designers to develop, essential for success in the area of human-centred design



What curricular experiences encourage students to **develop empathic understanding** of a broad range of people and conditions?

- How do students learn that not everyone is like them?
- What research methods are used to inform the design process about people and settings?

Relationships / curriculum example

Carnegie Mellon University

Prof. Eric Anderson,

Junior product studio and Community Outreach Center

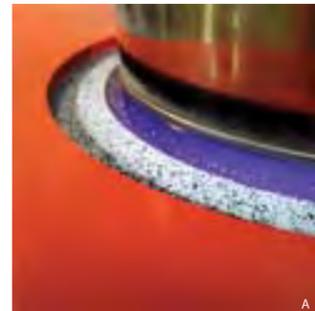
Students developed an understanding of inclusive design through direct research



A key measure of success for consumer products that are designed for broad markets is how well principles of universal design have been addressed. However, despite initial goals, many products fail to truly address a universal user. While more products are becoming inclusive of consumers with physical or hearing disabilities, fewer address the needs of consumers with visual disabilities.

Industrial design students of a first semester junior studio were challenged to conceive or redesign a consumer housewares product that addresses the needs of blind consumers while being universal in its function and appeal. The class worked with the Director of Access Technology for the National Federation of the Blind, and a local blind organization, and the Carnegie Library for the blind served as assessable experts and critics. Students engaged in exercises that included a blind-fold analysis that helped them become more empathetic to the challenges of the blind as well as think more innovatively about the physical qualities of form and product interactions.

Kitchen/
Laundry



Glass top stove surface mat & controls - Jason Howell



Enhanced microwave control features - Zoe Bridges



After market stove burner safety rim - Ben Wojtyna

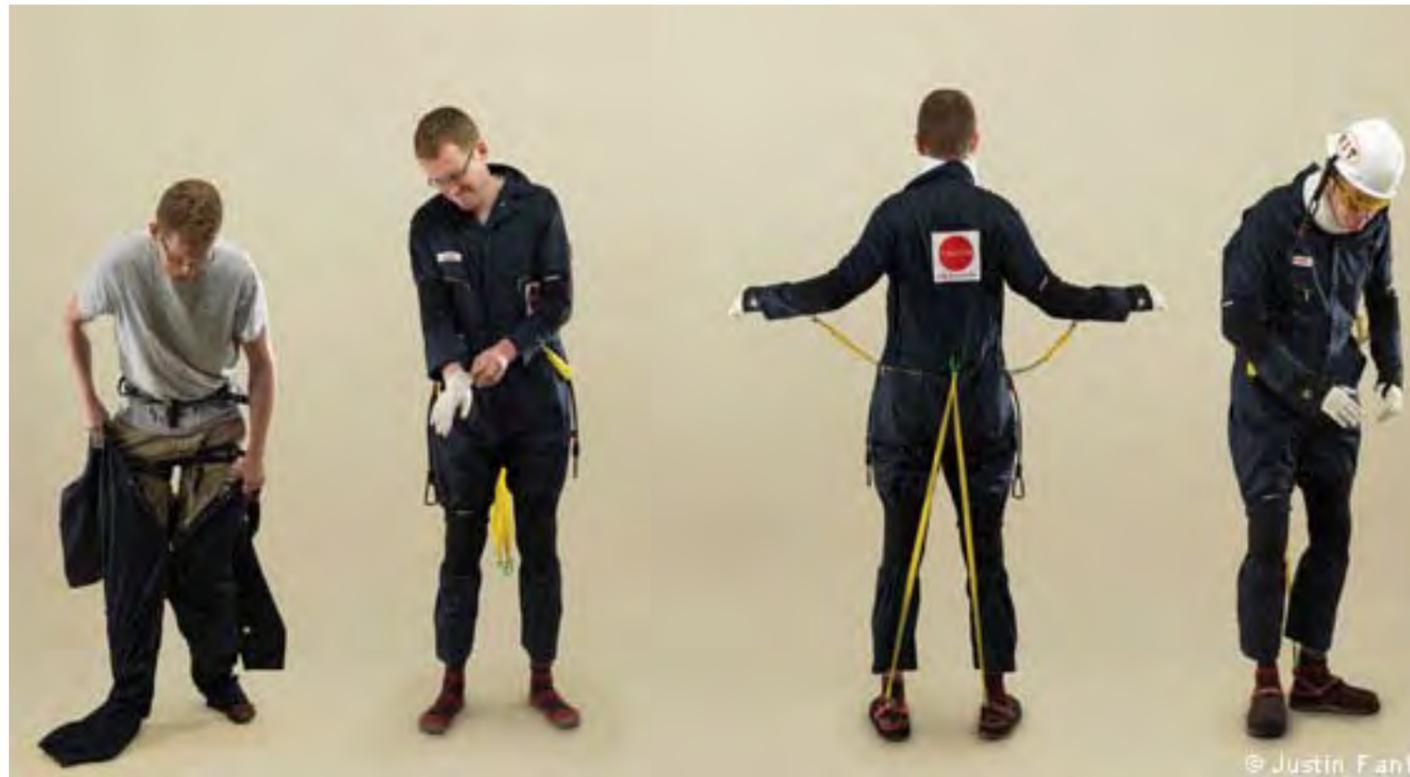
Relationships / curriculum example

MIT AgeLab
Prof. Joseph Coughlin

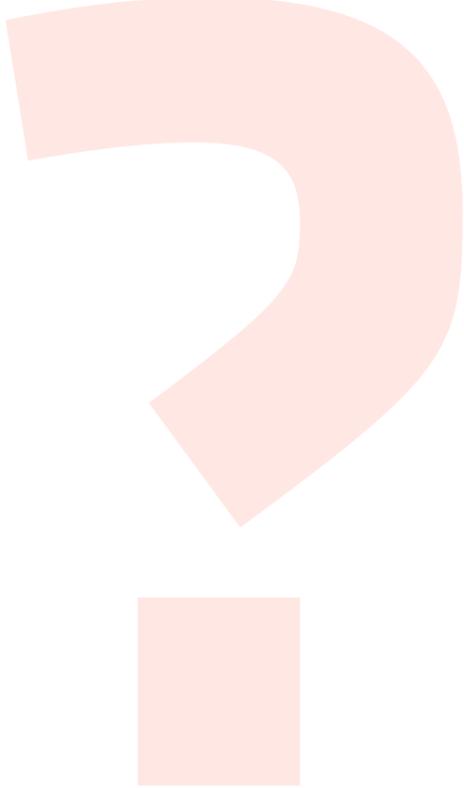
Agnes Aging Suit

As the world's population gets older, how are we going to manage?

The AgeLab at MIT specializes in design for differently abled people, particularly the elderly. Agnes is a suit designed to be worn by designers to give them direct experience of the way in which aging affects the body. It limits joint movement, visual perception and motor skills to develop empathy in the designers who put it on, improving their understanding and resulting in more effective design solutions



Relationships



How are your students made aware of **different value systems and modes of inquiry that people bring to the design process?**

- How does the curriculum provide for interdisciplinary team process?
- How is their work in teams evaluated?

Relationships / project example

University of Tennessee
Carnegie Mellon
University
Prof. Kristin Hughes

The Sixth Extinction in Motion is a 6-week communication design project that brings together scientists, design educators, students and filmmakers, challenging them to create two-minute video animations that can be shared online, highlighting the current mass extinction and what can be done to prevent it.

Collaborating through a blog to research and design persuasive communications around large issues.
Engaging undergraduate communication design students in a co-creative, collaborative and face-paced iterative process



The Earth is currently in the midst of a massive die-off of plant and animal species referred to as the 6th Extinction. Not since the dinosaurs went extinct 65 million years ago has there been such a worldwide collapse of biodiversity. Scientists around the world are working hard to figure out what needs to be done to prevent these extinctions. However, the scientists don't have the time or the necessary tools to communicate their findings to the general public in a clear and actionable way. Undergraduate communication design students at Carnegie Mellon and the University of Tennessee engaged in the distant a collaboration project to address social change. Multiple stakeholders were directly involved including scientist. They believe that by harnessing the emotional connection people have with flagship species such as polar bears, lions, tigers, sharks, whales and many other animals we hope to encourage behavioral change that will not only reduce extinctions but will also help reduce the problems associated with climate change. The end results were a series of videos. This slide shows three frames of one. Many of the scientists now used the videos to raise awareness for their species as well as raise money for their conservation projects.

Relationships / project example

The University has pioneered collaboration between disciplines in the design of medical products over a number of years, resulting in many innovative devices and a number of patents

University of Cincinnati
Biomedical Engineering
Program
Prof. Mary Beth Privitera

Medical Device Innovation and Entrepreneurship Program

Four colleges collaborate:
Engineering, Design, Business,
Medicine



Relationships / project example

Collaborative animation project between MICA students and students from Miami University of Ohio.

**MICA [Maryland
Institute College of Art]**
Prof. Zvezdana
Stojmirovic
Miami University [Ohio]
Prof. Helen Armstrong,

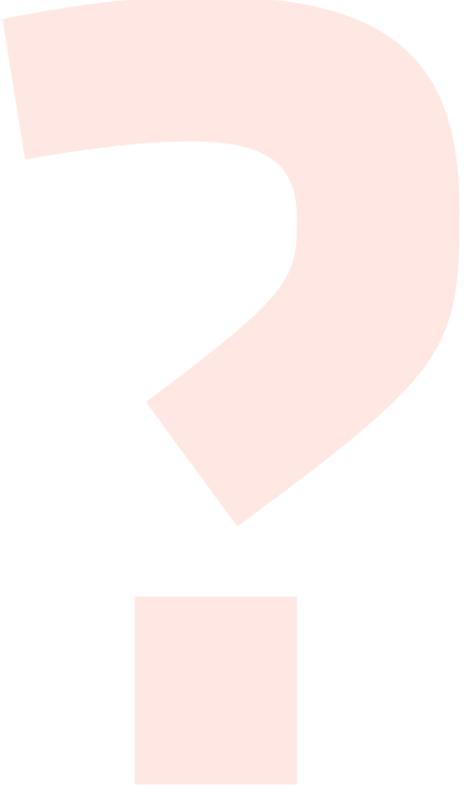
This animation
about *collaboration*
will be included in
Professors Armstrong
and Stojmirovic's
forthcoming book on
participatory design
[Princeton Architectural
Press].

Participatory Design



Relationships

Working in team is really valuable to prepare students for their future careers. Ideally this should be in inter- and multi-disciplinary teams. Evaluation can be a challenge, but it is a surmountable one.



In what way do your students engage in the **dynamic relationships among products, services, and experiences that define contemporary design practice?**

- In what ways do projects engage students in systems thinking?
- How do students deal with adaptive and adaptable systems?

Relationships / project example

Juniors in the Bachelor of Graphic Design program at NC State design systems for branding, interaction design, and service design on the basis of audience motivations and behavior. In the first example, Betsy Peters describes a system for first-time homeowners to share garden tools.

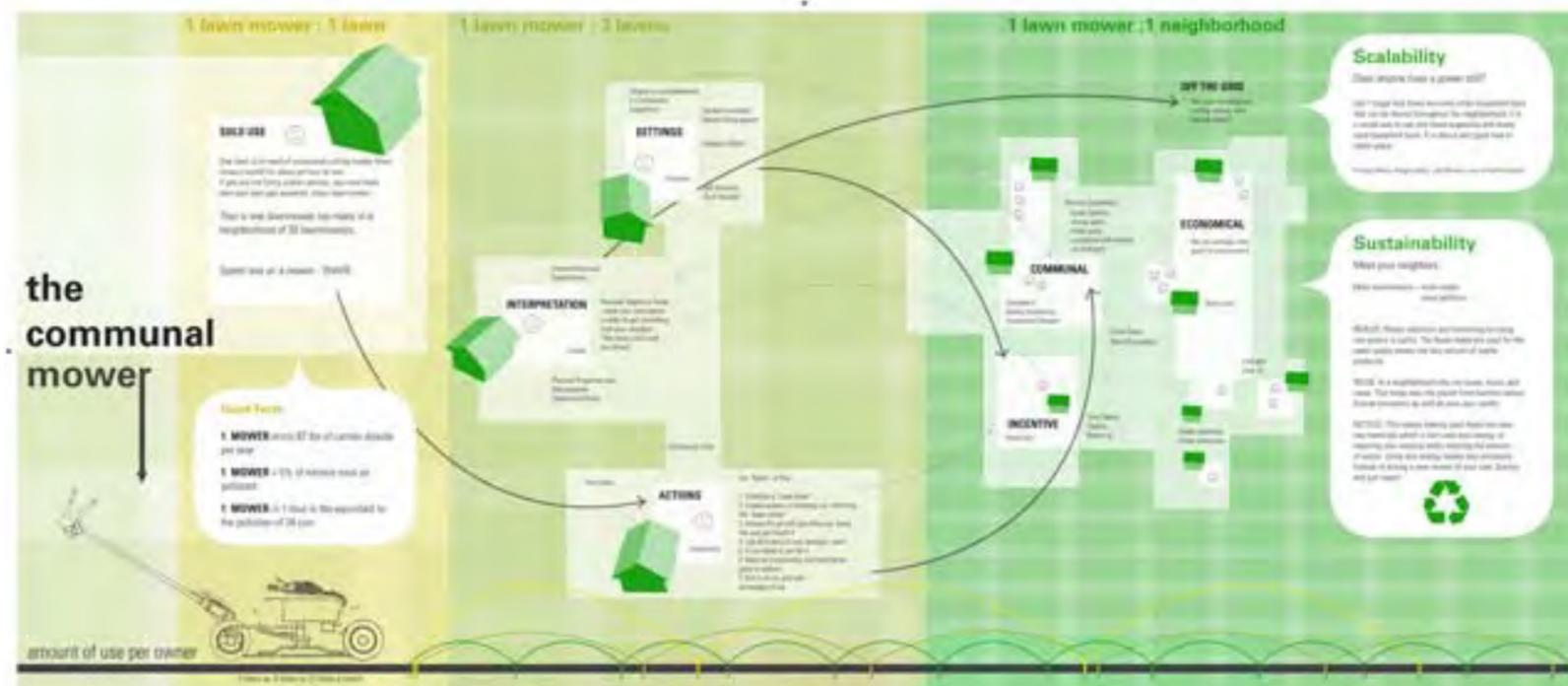
North Carolina State University

Prof. Meredith Davis

Prof. Santiago Piedrafita

Junior-level studio

Students design systems, based on definitions of user experience. This poster describes a *bartering* system that allows neighbors to share tools.



Relationships / project example

In the second example, Heidi Adams, Suzanna Brinkley, and Nicole Brown show a mobile passport system for new residents to learn about services and businesses in the city.

North Carolina State University

Prof. Meredith Davis

Prof. Santiago Piedrafita

Junior-level studio

Students design systems, based on definitions of user experience. This is a *search* system for city newcomers that integrates brand, interaction, and service design.



NASAD working group



SUMMARY

How will you meet the challenges in developing curriculum for design education in the contemporary context:

Complexity [occurs throughout]

Innovation

Technology

Globalization

Relationships

NASAD working group

Design in America is a student-led organization founded by Liz Gerber at Northwestern University in Chicago, which connects students with social design opportunities in the US. It involves students from many disciplines and the cover of Fast Company highlights four of them !

