

# Shifting Paradigms: Tools and Systems

**Conference description of the topic:** Design strategist Hugh Dubberly describes a paradigm shift from a mechanical/object-driven design process—in which there is top-down designer control and a finished, “almost perfect” end product—to an organic/systems ethos—in which ideas move from the bottom up and in which an evolving system is “good enough for now.” This shift argues for the design of tools and systems that adapt to users’ needs, preferences, and changing conditions.

Implicit in designing new tools and systems is the role of ever-evolving technologies. Mobile and sensor technologies, which can respond to unconscious gestures and changing environmental conditions, may not require visual systems for interaction. New augmented reality maps fuse geographic databases with live video feeds and images circulating through social networks. This shift raises questions about the role of a discipline that, historically, has been all about visual representation and the controlled planning process for arriving at a highly-refined artifact.

The consequences for this shift to designing tools and systems raise questions about educational practices:

- a How do bottom-up design processes challenge the traditional values of the design studio and conventional perceptions of the designer’s role that underpin much of present design education?
- b Through what means and methods are users/audiences engaged in the design process and how do design students learn meaningful ways to collect and value their input?
- c What do we mean by “design innovation” in an environment that is driven less by unique artifacts and more by enabling tools and systems? How does the studio reinforce these changing definitions through the intent and structure of student assignments?
- d If the end state in a reconfigured design process is “good enough for now,” how do students learn to assess design performance and by what criteria do they determine success?

**The following prospectuses were submitted for consideration and their authors were selected as co-authors for the October 2010 AIGA Educators Conference – New Contexts / New Practices – at North Carolina State University, Raleigh, NC.**

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## Shifting Paradigms: Tools and Systems

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Laurie Burrus and Haven Lin-Kirk / lynda.com and University of Southern California

HOTSPOT - The integration of online education that focuses on craft and skills with design curricula that focuses on mastery, expertise, and practice holds great potential for helping students and faculty understand the shift in contemporary education from the institution as gatekeeper of all knowledge to the facilitator of “best” design practices and pedagogy, critical thinking, thought leadership, and conceptualization. Opportunities exist to reinvent education utilizing old and new systems based on affordability, accessibility, and agility.

Today’s students are well versed in the use of the Internet and “see” it as easy access to almost all information. They understand the web - its interactions among people, technological devices, and the creation, flow, and sharing of information from Wikipedia to YouTube to Face book. Therefore, it seems reasonable that the already-familiar practice of online knowledge networking and resources that leverage skills, professional position, and life-long learning would be natural and necessary to the design student’s education.

Online education coupled with traditional design education presents a number of specific opportunities for curriculum development, including:

- Solving the issue of time – so much to teach, so little time, how to do it all;

- The ability to practice anytime, anywhere, in according to needs, desires, and goals; to learn anonymously without shame or blame;
- Adding additional “voices” to the classroom with documentary-style videos that bring industry practitioners into the design program regardless of location, budget, or space;
- Meeting the needs of both the design major as well as the non-major who upon graduation will require visual literacy and technology learning skills in order to successfully communicate across all devices from mobile cell phone to boardroom teleconference in the global marketplace;
- Identifying resources for just-in-time learning, the significance of online libraries and contextual searching;
- Returning the studio to a collaborative team processes among student designers; and
- Adaptability of online content, i.e. tutorials and tools, to needs of studio instructors for all courses concentrating on design concerns such as storytelling, experiencing information, effective presentation skills, ideation/conceptualization, and design research and processes.

In other words for the first time, the critical convergence of both the on-site teacher/student/studio model with the online learning library available anytime, anywhere, opens up possibilities to the teacher becoming the mentor/facilitator, the student becoming the researcher/team member while being connected to an ever-present and ongoing world of “design experts” and “industry best practices” that best suit the individualized and customized learner-centric model of education.

It seems critical that students recognize the importance of tools and systems early in their design studies. Some of these new principles include: 1) understanding the relationship of content with the implementation of digital practices, ecologies, and toolsets; 2) teaching the pursuit of knowledge and skills as a life-long motivation for personal and professional success and a cornerstone of mastering ever changing but contemporary design practices; and 3) inverting the old educational model from top-down to student-centric. Thus the challenge to design educators is how to make this learner-centric approach that embraces both on site and online learning integrated into curricula – particularly in foundation study, where the input to students needs to be a four-pronged approach – the instructor (and the resources of the institution), tools, craft, and skill sets, industry level proficiencies and relevance, and exemplary project based learning.

The use of an online learning library (such as lynda.com) in collaboration with traditional design institutions (USC Roski School of Fine Arts) offering design programs to majors and non-majors makes for an attractive, all-encompassing solution for students, design instructors, and institutions. The industry/education partnership is less about the old

model of course/textbook and more about the discovery of a new design education landscape. What will it look like with the integration of digital libraries, resources, online “experts,” team and community sharing practices, side-by-side with the face-to-face instructor?

Finally, many of these issues are resolvable now and meet the needs of beginning students, while accelerating their learning as they take responsibility for their own online learning. Questions as to how to teach self-learning and motivation, how to craft a learning path, and how a design instructor will integrate other “voices” into his/her studio come to the fore. The students’ toolkit will look different, change frequently, and will be “owned” by the student. This type of partnership between industry and education is at the forefront of design learning – usages and applications will vary as those engaged in this effort bring the “whole” learning experience to the design student. In conclusion, this prospectus raises the idea of a new kind of collaborative environment. It signals the end of the institution as “gatekeeper” and the opening of the “floodgates” of online knowledge and points to a cross roads where education is reinvented and the design student is at the center of his/her learning.

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Kristen Hall Coogan / Boston University

**TREND DRIVER:** Designers are wired with an increasing number of communication platforms, some as intimate as mobile devices, others as public as full scale architectural spaces and surfaces. Designers of traditional forms of graphic communication are encouraged to consider these adaptable, technology driven mediums and the environment in which they function. A designer's concern with static variables like paper size, typeface and material is now expanding to include dynamic conditions under which a user experiences content. Context and environment become the forces driving the scale and function of a designed user experience.

Historically, users were consumers of design, whereas now they increasingly participate in the process and production of design. This democratization is redefining the way design functions. In this newly emerging setting, a designer creates the conditions for interaction within a given environment while users actively construct design experiences. Users become part of the actual design process—creating interactions, experiences, identities and networks—by entering this space and participating in content generation. In the end, the process becomes the product and the user becomes the maker.

From a design problem standpoint, there are two variables at play:

**A. THE ENVIRONMENT** The environment has a direct impact on the scale and form of the user experience, whether it resides on a hand-held device or as a fully immersive space. What is the space where the design experience resides? How and when does the consideration of this space enter the design process? How does the context impact the way we define public–private, group–individual and user–maker?

**B. THE DESIGNED EXPERIENCE** Once the environment is evaluated, a designer develops the system. A designer will consider the input and output variables and determine a set of operational constraints. A designer provides tools or materials documenting responses which collectively becomes customized content. Interactivity and connectivity are the objectives. Assuming a continued lessening of the physical and metaphorical divide between the user and the maker, how do we codify and discuss such an organic and open-ended model? Given that users have an expanding opportunity to participate in the production and development of content in design, how does this impact the way students navigate a design problem?

This trend in graphic design has a significant impact on design education because traditional curricular models focus on the production of refined artifacts in broadcast mediums (to an increasingly diminishing extent). In order to remain relevant in a vastly changing design environment, academic models need to address the shifting paradigm. But how?

**A. CURRICULUM** If the new product is a design experience—comprised of systems and tools governed by the environment in which they exist—how does this translate to a curriculum model, from foundation years to advanced education? Are elemental design products (systems and tools) synonymous with smaller spaces (environments) containing fewer variables while complex design products reside in larger spaces with a longer list of considerations?

**B. INTERDISCIPLINARY** Designing a user experience spans a broad list of subjects, from computer programming, computation, industrial design, architecture, typography, imagemaking, usability and communication/human interaction. As experts of a specialized area in graphic design, how do we adequately instruct students to think across multiple disciplines, especially those dealing with real and virtual architecture?

**C. AUDIENCE** A model where the user and maker are closely connected necessitates a greater degree of empathy toward the audience. How does this connection impact the process and output? What kind of expectations will a designer have of an audience? How will success be measured?

The current curriculum model focusing on the design of refined artifacts needs to change in response to the onslaught of technology-driven design platforms. A discussion concerning context/environment as a newly relevant and defining design variable should serve as a entry point to an imminent shift in the structure of design practice and education.

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Patrick Hogan / Savannah College of Art and Design

Questions:

1. How do professors stay current and up to date within a context of shifting paradigms, in fact, a context of rapidly shifting paradigms? Are those who are fully engaged in academia and have little or no time for practice rendered obsolete? The trend seems to be that the gap between theory and practice grows wider, if so how can professors be current if they are far removed from practice?
2. The competencies of 2015 cover a wide range of disciplines and the trend seems to be that more and more knowledge is required for practice. How can all this be covered in three years, or ideally four if the foundation year is under the control of the department? It would seem that attaining these competencies within current academic timeframes consist of a broad and shallow approach. Is such an approach sufficient? What subjects take priority? Where does form-making fit in all this?
3. If the current trend of technology as a design medium continues, what would be the minimum, optimal technological knowledge a senior would need upon graduation? Can the digital experience be structured to give concepts and experience that can be quickly adapted to change? For example, a curriculum path that is set at the start of a four-year experience could well be out of date by the end of that experience. Can key adaptable technological concepts, techniques and contexts be identified and taught?

Situations:

1. This question is most noticeable in tenured faculties. Imagine a scenario of several faculty members who are five years or less from retirement. The logical conclusion is that the bulk of their careers predates current situational contexts. Yet these members are senior, hold valued positions on the faculty and frankly in this economy are considering extending their retirement date. As elder members, their ambition and cognitive abilities have declined to the point where they really are not interested in acquiring new technological and theoretical skills, yet at the same time they see the need. How can this group, or any other educator in the same position be assisted?
2. Give a quick look at the competencies for the designer of 2015 and add up the separate areas of scholarship, in addition to traditional areas of form-making and the identification and solving of communication problems, arguably you could find; a. sociology b. human factors c. psychology d. computer science e. business administration f. system theory g. Linguistic and rhetorical studies h. Ethics... ...to name a few. In the time allotted for undergraduate education, how can these multiple areas be covered in enough depth to enter them into long-term memory? Each one alone could (and do) fill a curriculum by itself.
3. Depending on the college and it's curriculum, students can be graduated with little to no knowledge of online design or they can be at the other end of the scale, literally knowing far more than their professors. Taking into account the rapidity of change in technology, is it possible to identify and develop core competencies in digital media, competencies that could adapt to the rapid pace of change?

Key issues

1. What is a graphic designer? What does it mean to be 'graphic', in this day and age?
2. Are four years enough? Does specialization need to occur far sooner in the educational model? Is it possible, or desirable to be a 'generalist' anymore?

3. How can the high-level theory and concept of the designer of 2015 relate to the boots on the ground? Change is happening all around us and as a result things are fuzzier than ever. High-level rhetoric looks and sounds great but how do you actually accomplish it when you're aging, have multiple doctor appointments in a week, multiple committee assignments for your Fridays, the pressure of a tenure portfolio to worry about, students with wildly varying skill level...in short, a pretty full plate?

4. How important is form-making? What about the skills of typography? Font design? Hand skills? Are these traditional graphic design topics losing their relevance and if so what does that mean for our discipline?

5. And what about this thing called 'web design'? Is that even an appropriate term anymore? How far to students need to go to be able to achieve rapid prototyping in digital forms? With luck and hard work, a conference could open windows to possibilities of answers to these and many other questions. As such, this inquiry is meant to illuminate and advance the issues and as always, continue the dialog.

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Joseph Kukella / Art Institute of Pittsburgh-Online Division

**TREND DRIVER:** The current studio model integrated into design curricula may not be an adequate tool for the preparation of the coming generation of design students. The world our students live and work in is becoming increasingly connected via digital tools and virtualized social networks. The notion of long-distance collaborative work is a fast growing trend. However, we continue to educate design students in large, physically co-located groups based on a process that focuses on intense periods of individual work punctuated by group meetings, critiques, and reviews at regularized intervals. This is hardly an accurate reflection of the current state of the professional design studio.

Traditionally, design work has been undertaken in the physical studio environment with personal interaction, group ideation, and face-to-face communication as its hallmarks. The studio model for design education has long sought to mimic this as a means of fostering these same modes of interaction both because of its appropriateness to the work being done as well as to serve as an introduction to the ways in which students could expect to work in the profession. However, distributed design teams based on long-distance collaboration are on the rise. This parallels the rise in popularity of online studio courses in design degree programs (either fully online or on-the-ground classes augmented by significant online resources). While neither of these models can take advantage of the physical studio, they present distinct and popular advantages of their own. Once they graduate, the current generation of design student is more likely than ever before to be engaged in asynchronous, long-distance, online based design teams. This is especially true for students who go on to work in collaboration with software developers, designers, and producers. The centralized physical studio space is giving way to decentralized and dislocated connections through the cloud. Are the tools, techniques, and spaces that we use to teach these students well suited for this kind of interaction?

If new curricular models are to fully prepare students for their profession, they must reflect the changing design team environment. The challenges we face in adjusting the studio model to better reflect the current state of affairs include:

- Students in online-only or hybridized courses are ill-served by the current state-of-the-art course management-tools designed for generic university classroom use;
- Institutional reluctance to modify class schedules and physical spaces to better reflect the nature of the work; and
- A faculty body inexperienced in this new mode of work; The studio has long been central to the education and development of the student designer. The physical importance of the studio is fast being supplanted by a new set of processes and tools. If we are to continue to prepare students well for the professional world they are entering, the studio itself, and its relation to the curriculum must change too.

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Jennifer McKnight / University of Missouri, St. Louis

**DILEMMA:** The influence of media seems to be shifting student's basic understanding of what it is to be creative. When students go to make, many are so oversaturated by ideas, images and media many mistake "mashups" and "covers" for creativity.

Referencing and reworking historical ideas may be our inheritance from Post Modernism, but increasingly we have been seeing today's would-be creative heroes brought low by the sticky ethics of creation versus quotation. This summer the pop powerhouse Lady Gaga was called into question for fair use on her song My Alejandro (and for fair use on just about everything else, for that matter), and last year's issue over Shepard Fairey's Obama poster seems to suggest that there is a new category under creativity.

- Students don't always seem to have a problem with mash-ups and rip-offs. When they don't realize that these ideas aren't original is it an issue with design history curriculum?
- When students do seem to realize that ideas are quotations, they don't seem to care. It doesn't diminish the work for them. Is this a problem, or merely a shift in focus?
- The progression of design tools have come to make these mash-ups more and more subtle .
- In an environment where we are trying to move design out of the Art Garret and into a shared experience, is this a bad thing, a necessary evil, or possibly even growing pains of an important shift?
- Does interdisciplinarity by its very nature require a certain amount of meshing together of community ideas and aesthetics that popular media-and our students-are responding to?
- How can educators create ethical guidelines to describe the relationships and differences between interdisciplinary work and outright borrowing?
- Is a discussion of originality strictly an arts construct? Is it inconsistent with a bottom-up design process?

It seems that as long as design institutions are situated within art departments these kinds of questions will haunt design departments, be brought into question when judging both curriculum and academic research, and might even raise questions in the workforce of more traditional communities. If we are to instigate a move of more design departments away from the arts, these kinds of distinctions need to be made clearer.

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Isabel Meirelles / Northeastern University

**TREND DRIVER:** The past two decades have seen a growing need for the design of systems that work towards facilitating the way we store, access, retrieve and analyze data. Digital technology has affected and expanded the way we create and consume information: from what data we can gather, how we analyze them, to who is involved (both as makers and users). From the democratization of tools (1) to the interconnected computer network (2), technology is acting as a catalyst for a new generation of data visualization that needs the digital medium for both its production and distribution.

Data visualizations are good at providing context and uncovering trends and patterns that can facilitate decisionmaking (3). It is not surprising that visualizations currently play a major role in helping us navigate and make sense of the information overload we experience daily. It is a two-way road: new technologies have fostered the development of novel methods for visualizing data, at the same time that there is a need for cognitive artefacts that can provide theoretical models for dealing with the ever-more present data-rich and hyper-connected environment.

If in the past it was possible to manually structure and visualize data, nowadays computation methods are intrinsic to how we deal with very large data sets, whether in the design of exploratory tools or for communication purposes. The term Big Data (4) well expresses the state of the field and the challenges ahead of us.

The central question is how to prepare not only future generations, but ourselves included, to deal with the data proliferation: from learning how to structure and analyze data to developing skills and methods for effectively visualizing information. It is critical to foster understanding of relationships between visual thinking, visual representation, and visual communication. How can we promote informed criteria to support the design process of structuring, representing, and communicating information in static and dynamic media?

Data visualizations are no longer analytical tools for experts alone, rather, they range from online navigation tools to museum installation, from iPhone gadgets to social network systems. We see tools developed by a wide range of people, from programmers to designers, from sociologists to architects, and in most cases by interdisciplinary teams (5). However, the wide range of applications does not guarantee their quality. A fundamental question remains: What are the implications to the design community, more specifically to design education? Are we preparing students to contribute to this burgeoning effort in data visualization? How can we advance the study and development of visual analytics?

There is a need to acknowledge the interplay of technology and analytical tools in the design pedagogy. Programming has become a necessary knowledge in modern information visualization practices. There is also the need to integrate other fields of knowledge into the design process of structuring, analyzing and representing information. At least two areas are fundamental in my view: visual perception and programming languages. Does it mean that the new designer will need to be both media and visual literate? If so, how will we achieve these goals?

This prospectus described how new technologies have increased the possibilities of communicative expression and how it has affected traditional tools, processes and procedures of accessing, organizing and communicating information. Are we (designers/practitioners/educators) prepared to deal with the data overload and the demand for visual analytic methods and practices? What are the necessary competencies? How do we design curricula content in order to prepare future design generations?

Notes:

1. For example, nowadays anyone can use personal computers to interact with complex data sets in real time (unthinkable few years ago), at the same time that programming languages have become more accessible thus broadening the range of those involved in developing applications.
2. Two recent developments have changed how we deal with the already interconnected digital environment: the Web 2.0 and the Semantic Web, technologies that have enabled, among other issues, access to increasing volumes of data, from open data sets to data generated by our daily interactions with digital media.

3. For example see: Andrienko, Natalia & Gennady. 2006. Exploratory analysis of spatial and temporal data: a systematic approach. Berlin: Springer-Verlag. Card, Stuart, et al (Eds.). 1999. Information Visualization: Using Vision to Think. San Francisco, CA: Morgan Kaufmann. Ware, Collin. 2004. Information Visualization: Perception for Design, Second Edition. San Francisco, CA: Morgan Kaufman.
4. The Economist February 27th 2010: A special report on managing information.
5. Published resources that showcase recent data visualizations include: Klanten, Robert et al (Eds). 2009. Data Flow: Visualising Information in Graphic Design. Berlin, Germany: Die Gestalten Verlag. And Data Flow 2 (2010). Steele, Julie & Iliinsky, Noah. 2010  
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Stacie Rohrbach / Carnegie Mellon University

Courses that enable and invite students and instructors to augment learning sessions while they are in progress serve as excellent opportunities for introducing and exploring the design of systems through immersion in the mechanisms themselves.

On a daily basis, a vast majority of students and educators participate in popular designed systems, such as Facebook and Wikipedia. They alter the content and use the systems to build meaningful and enjoyable learning experiences that address their ever-changing personal needs, desires, and expectations. Although their augmentations are performed individually, the collection of several participants' changes function as a unified whole, which continually alters the system in ways often unimaginable by a single person. Therefore, it seems appropriate to explore structuring courses similarly to common, popular designed systems that include fixed and variable components—drawing attention to their functionality throughout each class.

On-the-fly augmentation of courses and the highlighting and documentation of these changes by educators and students provide several opportunities for teaching and learning the functionality of designed systems in ways that are familiar, intuitive, and logical. For example, the conscious and active participation in a course as both designers and the audience can help students and instructors:

- understand and appreciate the fixed components of a course—such as learning goals, meeting times, and portions of the content—and explore and define the variable components (described in the following points).
- supplement and deliver course content. As a result, the instructor is not the sole bearer of knowledge.
- adjust the structure and sequence of learning activities to address the needs, preferences, and expectations of the participants.
- recognize that the lessons grasped through the trial-and-error process of augmenting the system are valuable learning outcomes, moving beyond the sole appreciation of a common artifact.
- communicate learned knowledge and skills through activities that mimic their current participation in designed systems, which take written, verbal, and visual forms.
- become aware of the importance of their personal involvement in the course, which encourages them to take ownership of their education.
- appreciate the participation of others in the course system, recognizing that the efforts of the collective whole affect its success.
- collaboratively define assessment metrics that align with course learning goals and conduct self- and peer-evaluations using the agreed upon terms.

Introducing students to courses that have a bottom-up structure at the beginning of their design education can help dispel misconceptions of designers as simply crafting visuals, and encourage the retooling of studios to align with the changing roles of professional designers. This approach will likely challenge the familiar teaching practice of many educators, which often is characterized by a fixed curriculum that they create and deliver. Thus, retaining complete control of courses is an obstacle that educators will need to overcome for the described approach to teaching systems design to function effectively. Educators will need to become comfortable learning with their students and accept the uncertainty of course activities.

Despite the organic nature of the proposed bottom-up educational structure, instructors will need to describe the learning goals of courses that follow this model, propose potential methods for achieving them, and suggest ways of assessing students' efforts. Hence, educators will need to build appropriate course frameworks that are flexible and adaptive, describe them well, and effectively argue their value to students, colleagues, and administrators for all of them to adopt and support the approach.

This prospectus explains how courses can function as designed systems and argues their value as a hotspot for teaching and learning the design of systems in ways that are logical, intuitive, and familiar. Thus, instead of adding to curriculums that are frequently overloaded with content, the approach defined in this prospectus utilizes existing course components, highlighting their structure as a way of exploring the design of systems

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Shawn Kathleen Simmons / Kent State University

Pressure is being applied to students from all directions — parents, the economy, peers, instructors, the media — and many are relying on strategic learning methods to get the best grade and move on a fast track to a successful design career. In order to engage these stressed students in deeper and more significant learning experiences, and to prepare them for an ever more complex design world, some universities are transforming their design programs to include self-directed projects that allow students to become authors of their own content and take a more proactive approach to their research and results. This certainly prepares students for the current design environment, but in my opinion this reliance on design authorship has several problems that might be resolved by adding an additional layer of analysis, one that includes self-analysis and possibly self-education, to the classroom experience.

My first issue with the authorship-style assignment is that, to some extent, students are being educated beyond the current (and nearsighted) expectations of the marketplace. Several students have come to me in frustration at being taught independence and authorship in school only to find upon graduation that all available positions are more constrained and less exciting than what they were trained for in school. It seems that academia may have progressed past corporate expectations in this case. To supplement their 9-to-5 drudgery, my students often work on personal projects which are successful in occupying their creativity and desire for authorship, but regardless of that, they find these circumstances frustrating. A second issue is that this bottom-up paradigm may not be the final resting place for design thinking — after all, who's to say that the paradigm won't shift again, and as quickly as this previous shift happened?

I am by no means suggesting that we should stop teaching students the bottom-up perspective or preparing them for the inevitable time when the corporate world fully recognizes a need for nontraditional designers. However, I would argue that what's more important to design education is that we engage our students on an additional level, one that would prepare them not just for the present or next few years, but also for the greater future. To do this, I argue that teaching students the process of self-authorship<sup>(1)</sup>— the action of self-aware analysis of one's learning style and evolving process — will provide them the basis for continuing to learn on a much deeper level beyond their university education. Through the process self-authorship, students develop the flexibility to adapt to the current environment and to any changes in the industry, no matter where it goes in the future.

While in the past I have only incorporated the use of self-authorship into the classroom in the form of Metaprocess Books (books that include self-reflective writing and analysis about learning styles and personal process at semester's end<sup>(2)</sup>) into my classes, I could see self-authorship being added throughout a semester as well. To do this, educators would have to make their syllabi entirely transparent to the students and carefully define the overarching goals of each class rather than focusing on developing projects. Instructors would then need to shed the role of the teacher and trade it for that of moderator or guide, conductor rather than master. Students would then participate in a meta-level analysis of their education, possibly using texts from the field of education, which would allow them to discover and internalize the project goals and possibly participate in building the goals themselves. Instructors could guide students not just in choosing a client, audience, problem or solution of a project in an authorship-style assignment, but also in what they are going to learn during the project itself. If students were expected to actively participate in the building of their education and understanding of their learning style, I argue that we could mold students who would deeply learn, and who are prepared to self-educate after college and be ready for whatever new challenges arise on the design horizon.

This isn't to say that I want to scrap decades of successful teaching methods for this new and mostly untested strategy, but I do think that self-authorship has a place in design education and I hope to have the opportunity to discuss my thoughts further in this forum and consider how it might be incorporated into the transforming landscape of design curricula.

(1) for more information on self-authorship in liberal arts, see David C. Hodge, Marcia B. Baxter and Carolyn A. Haynes, "Engaged Learning: En-abling Self-Authorship & Effective Practice", *Liberal Education*, Vol. 95, No. 4 [Fall 2009] (2) for more information, see [http://ucda.com/proceedings\\_10.lasso](http://ucda.com/proceedings_10.lasso) for my paper "Documenting Meta-Process"

## Shifting Paradigms: Tools and Systems

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Barbara Sudick / California State University, Chico

**HOTSPOT:** Restructuring the way we teach design to be a bottom-up rather than a top-down process will help students to better understand the shifting paradigms in design practice from designing objects to designing tools and systems.

In his book *The Medium is the Message*, media theorist Marshall McLuhan discusses the clash that occurs when we try to do a job demanded by a new environment using old tools. Although McLuhan was talking about the shift from print to electronic media, he may well have been talking about the shift in design education in the 21st century. How can students understand complex systems and the design of a bottom-up process in a learning environment that is still hierarchical and top-down? In order to meet the demands of an environment in flux, McLuhan suggests that “education must shift from instruction ... to discovery<sup>1</sup>.”

Discovery is very much a bottom-up approach in which decisions rise from the collective involvement of a number of people. It encourages experimentation and innovation. Edward deBono used the metaphor of digging many holes to describe the bottom-up process that he refers to as “lateral thinking<sup>2</sup>.” Rather than digging the same hole deeper, lateral thinking explores many new ideas – a student can play without purpose or direction in a nonjudgmental environment. Lateral thinking is a generative process, concerned with transforming or restructuring existing patterns by changing the relationships between components of a system.

Instruction currently reflects the traditional top-down approach that is still used to teach design. This approach is shaped by the hierarchical social structure that co-evolved with the tools of an object-driven environment. Excluded from the decision-making process and bound to follow the instructions of those higher up, designers became fixated with the end product and simply making something look good. In this kind of sage-on-the-stage scenario, teachers tell students what they need to know and lead them through a controlled analytical and linear process to get there. Discovery, experimentation and innovation are frequently lacking in the process. In order for the design classroom to be restructured in a bottom-up approach, educators may consider the following:

Can we let go of the authoritative instructor/student model and allow ourselves to become co-creators or collaborators with students in the design process? What would happen if we change the physical structure of the classroom from rows of desks all pointed in the same direction to one that reflects a more democratic approach? How can we help students to delight in the play and discovery enabled by new multi-sensory tools? Can we allow students to identify opportunities rather than having an instructor tell them what to design? If we use lateral thinking and focus on discovery rather than instruction, can we suspend judgement and change the way we assess student achievement?

In conclusion, this prospectus raises questions about the basic structure of design education and suggests a different approach to pedagogy that may help students understand complex systems and learn about designing tools and systems in the 21st century.

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## Shifting Paradigms: Tools and Systems

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**DILEMMA:** Graphic designers render visual communication solutions through an individual or team-based creative process. Verbal and visual content is created or sourced, and then amalgamated into the necessary solution. But a majority of that information exists at the electronic level, in most computer web browsers as user profiles or cookies and on many mobile phones. How could that information be used so visual communications, advertising, and marketing speaks directly to the user?

In Cyrus Farivar's 2007 article "Could Facebook Change Web Advertising?" Forrester analyst, Jeremiah Owyang cited how Google had been serving ads based on keywords in their search results and their Gmail email system. Owyang surmised that Facebook could serve ads based on preferences and networks. Today, that is a reality, and advertisements do appear on the Facebook recommendations column based largely on the personal information users enter into its system. Facebook continues to come under scrutiny about these matters. Other places exist where software can collect, store, and (possibly) use personal information. Any or all of these elements create a user profile with specific location-based data as well as demographic information.

**Cookies** Most web sites collect information from pages you visit or forms you complete. These come in the form of cookies: "A cookie is a small bit of information used by some web sites. When you visit the site that uses cookies, the site might ask your browser to place one or more cookies on your hard disk" (Mozilla.org). Sometimes, a site you visit will allow third party cookies to enter the picture. Such that you visit site ABC.com and an image is loaded from XYZ.com, and XYZ.com stores a cookie on your computer (Mozilla.org). Presently, cookies may collect the operating system of your computer, internet address, and the website that got you to the cookie. On the surface, these seem like insignificant pieces of information, but take one look at the cookies stored in your browser, and a personality begins to take shape. It's akin to a web history. Profile Example: glancing at the cookies in my web browser shows a range of art, design, and business websites, as well as sports websites; and the pampers.com cookie suggests that I may have children.

**Location Based Software** FourSquare promises to "give you & your friends new ways of exploring your city", but in operational terms this means: the location-based software maps and times the places you visit and shares this with those in your network. The 2010 South by Southwest event entitled "Location-Based Marketing and Advertising: Targeting the Mobile Consumer" had technicians and technology firms who work with location-based systems promise that the future is now, and these systems have gone global. Navteq Media Communications, who was featured in the event, continues to explore ways to get users into "a particular franchise or brand" (South by Southwest 2010 podcast). Translation: how can we directly reach users with marketing and advertising based on their location?

**Immediate (or On-The-Fly) Response** Wieden + Kennedy have recently proven the power of one-on-one communication with their use of The Old Spice Man's twitter and video replies. Twitter enabled real-time replies to users' questions in a text-based environment. And YouTube hosted video replies to certain users, in many cases addressing them by the user's name and hometown. Future Possibilities: advertisements will speak directly to me without feeling intrusive.

**An Advertising Odyssey** In his 1995 book *Being Digital*, Nicholas Negroponte longed for a computer that he knew, that learned about his needs, and understood verbal and visual languages. Now, it seems that systems know us, our needs, and where we go, and in some cases they disperse that information to external parties. Even customizing advertisements to each user. Negroponte went on to identify future situations where "...the advertising will be so personalized that it is indistinguishable from news" (Negroponte, 170). Negroponte also predicted the advent of header-based news and advertisements, which we now see in e-mail campaigns, text messages, twitter messages, CNN Headline News, and on our mobile phone browsers.

But when will matters of form and even aesthetics come into play? Moreover, could they? A user photographs a lot of outdoor images of grass and green leaves. She posts them to Facebook and also sends them out through Gmail on her Verizon phone. She has personalized much of her phone's interface with the color green, as well as sans serif fonts to display menus because to her, they feel contemporary. And she is a contemporary woman. In theory, the visuals and information stored in those areas could help create an advertisement with predominantly the color green and a sans serif typeface. This advertisement would compel her to update from her old Verizon phone to a new one. In terms of language, it uses lingo that she's tweeted about lately, such as the word "plight" which a British friend got her hooked on. And it even gives her a location within walking distance for her to visit and test the phone.

Ultimately, we own our data and our preferences. But as history has proven, advertisers and marketers will find ways to use that data in order to reach, recruit, and/or retain new constituents. Is this as much about design research as it is about profiling users through technological tracking? Or something else? How can we prepare today's students for these challenges? Or ethically, do we teach students to avoid them?

Sources:

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