Interdisciplinarity: Making Ourselves Attractive to Collaborators

Conference description of the topic: Design has long expressed interest in interdisciplinary collaboration and periods of our history in design education attempted to prepare students for such work. The 1970s showed concern for collaboration among the design disciplines, often organized around a search for common methods. Students learned what it meant to design in various professional practices by taking courses in another design field or by creating the graphic components of large-scale projects that also involved architects and industrial designers.
In the 1980s, our interdisciplinary interests shifted to theory in fields other than design through which we could explain how audiences construct meaning. We borrowed from linguistics, literary criticism, and cultural theory to confront the questions raised by post-modernism. Faculty read and incorporated these borrowed theories into their project briefs, lectures, and assigned readings, and encouraged students to use general education classes to expand their understanding of related fields. Parallel interests in writing directed students to elective offerings in the humanities and to more formal instruction in criticism.

Today's design problems exist at the scale of systems and communities, too big and too complex for any single discipline to address. Our collaborators are likely to be from fields as diverse as anthropology, cognitive psychology, computer science, business, and social policy. Yet the prevailing strategies of design education belong to another time and may leave graduates unprepared to address the interdisciplinary demands of complex, systems-level problems. Further, the approaches to developing student understanding in fields other than design are still those of general education, in which non-design courses parallel the core curriculum but are never truly integrated by design faculty in the work of studios.

These conditions raise many interesting questions, including:

a What skill sets do we expect students to learn in this new collaborative environment?
b How do interdisciplinary practices emerge and what impact do they have on the conventional definitions of design practice and design education?
c How well matched is the traditional pedagogy of the design studio and its values to interdisciplinary work? Do the individualistic traditions of fine arts work against new frameworks for design practice and how might they be overcome?
d What specific experiences prepare students to be good team members and to work in non-hierarchical settings? How do we evaluate such work and demonstrate to students that accomplishment in teamwork matters?
e What coursework is necessary to qualify designers for providing more than visualization services to a decision-making team? What are we doing to prepare students for interpreting research findings and inquiry in fields other than design?

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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Interdisciplinarity: Making Ourselves Attractive to Collaborators

Leslie Atzmon / Eastern Michigan University

There's a newfound fascination with "objects" across the academy. Waggishly dubbed "thing theory," this field has the potential to be an emerging site of interdisciplinary practice for graphic design scholarship and graphic design education. Thing theory can be understood as a deeply pragmatic form of material culture studies in which objects are evaluated for more than just their cultural exchange value. In thing theory the lives of objects are evaluated according to the varied traditions of many disciplines, and the overlap among disciplines makes room for fruitful cross-disciplinary endeavors. Graphic design, with its focus on the way objects make meaning in the cultures in which they are created or used, is specially positioned to play a crucial role in the future development of thing theory.

What does thing theory have to offer graphic design curricula? First, thing theory levels hierarchical or chronological distinctions among media, and in so doing produces a point of view that can foster new directions in design thinking. In thing theory, the "object" category doesn't necessarily divide material objects from immaterial objects; objects can be digital or physical (or even imaginary). Although there are already some design programs whose curricula embrace digital and physical media, most graphic design programs have abandoned physical media in favor of digital media. David Thorburn and Henry Jenkins argue that "medium-specific approaches," oversimplify the relationship between old and new media. A more inclusive approach, they conclude, would stress the ways that media "interact, shift and collude with one another" (2003, 11).

- Could the integration of old and new media in curricula challenge overly simplistic ideas about the demise of physical media by exploring instead the ways physical and digital media shape one another?
- Could such projects export to the material world the sensibilities we graphic designers have garnered from three decades spent in the digital realm?
- Could this design work break down the distinctions between material and virtual worlds at the same time as it embraces the very qualities that make them so different?

Second, thing theory proposes new twists on the complex interrelationships among designers, objects, and users. Christina Lindsay, for instance, argues that users are not a single static entity, but a dynamic and multi-faceted assembly that changes over time (2009, 425-442). These various users have a direct or indirect impact on the life of an object, even after the object is considered to be obsolete.

- What sorts of assignments would incorporate the dynamic interrelationship between object and user?
- What impact would this resituating of the relationship among designer, object, and user have on current design practice, in which the users' interaction with an object is often thought to be a one-way process—i.e., the user responds to the object?

Third, thing theory insists that the study of objects does not "reside neatly in one discipline" and it promotes the meaning-making capacity of the aesthetic and material forms of objects. Elizabeth Edwards casts photographs as both image and object (2009, 331-342). She maintains that the form of a photograph, whether physical or digital or projected, makes meaning in dialog with the photograph's imagery. Thing theory's special interest in visual communication—the way aesthetic and material aspects of objects create meaning for users—makes it a particularly suitable interdisciplinary partner with graphic design.

- How would ideas from thing theory make us rethink the interdisciplinary nature of graphic design?
- What impact would ideas about objects from other disciplines have on teaching design?
- What role would graphic design curricula play in integrating graphic designers' long- standing awareness that the visual qualities of objects make meaning for their users with notions about objects that come from other disciplines?
- How could curricula utilize visual projects alone, the object itself without a separate written component, to enrich thing theory discourse?

This prospectus raises questions about the role that thing theory can play in the development of graphic design curricula. It also suggests ways to think about how graphic design can play a prominent role in shaping and being shaped by a newly emerging interdisciplinary practice.

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Interdisciplinarity: Making Ourselves Attractive to Collaborators

Joerg Becker / University of Illinois, Chicago

¶¶ DILEMMA (here: paradoxon) ¶ Today's institutions must educate students to become designers, to let them learn how not to be designers. Other than that, networking remains a fiction. ¶ We can barely benefit from a network in which we act as designers. Rather, we should neither be more nor less than explorers. If we are to explore, we have to leave our premises—our flags—home. Not only in history books, movements under the auspices of flags turn exploration into exploitation.

¶¶ FROM THE PERSPECTIVE OF A NETWORK ¶ A network—in both science & education—is neither centripetal, nor centrifugal. It is non-directional. A network is a theoretical attempt at creating an independent assistant. This assistant seeks to contemplate more than all participants together could possibly observe. Its operational additions liberally float—as interplaying attractors—between the network's amplitudes. The network is an autonomous organism. ¶ If the operations leading to the additions are directional, the network collapses: the assistant becomes dependent, the organism turns into a machine. Liberal interplay will be trivialized (3) by the duality (2) of categorical censorship (1). ¶ In short: network < 3 < 2 = 1. ¶ Dialogic exchange falls back into monologic operations: inner-systemic logic, grammar and rhetoric. Operations will be framed into cause & effect. Cause & effect will be censored by its preceding category. The network is put on a leash. Liberal experience turns into bigoted expedience. Dependently, all participating professions work on their own. ¶ Instead of melting matters together to let an organism of understanding grow (intussusception), the professions work in a mechanic juxtaposition. The participants are busier with describing the growth of their construction (network), than fusing with the illogical, the unexpected, the impossible—the uncanny. ¶ To nevertheless remain the impression of an interrelated network, monads (gaps) between the juxtapositions will be filled with fictive theories: disconnected from practice and chance. ¶ Instead of searching, we are finding. »Every 'purpose-act' attempts to discover the tools and means that are helpful and necessary to reach the predetermined goal.« (Hans Vaihinger, in: The Philosophy of As If)

¶¶ FROM THE PERSPECTIVE OF OUR PROFESSION It's essential for a network that each explorer offers a different perspective. Only a variety of perspectives among networkers may generate the additions we're looking for. Though, bringing our flags is obviously counterproductive. Instead, we should not worry about variety at all. Variety is naturally tied to the operations that have led to the individual explorers in the moment of interaction. A network's potential doesn't drown in our origins, but rather in what's left when we try to escape our origin. The more closely we follow our premises, the more possessive our purpose.

¶¶ FROM THE PERSPECTIVE OF STUDENTS ¶ 1a) We can only learn not to be what we are, if we understand what we are. (consciousness) ¶ 2a) Who doesn't know what he is (but only who), has no limits to break, except of his own. (self-referential) ¶ 3a) Who has no limits to break, cannot distinguish inside & outside. (blind spot). ¶ 4a) Who cannot distinguish inside and outside, cannot identify, compare, connect, fail, falsify, confirm, learn, etc. (monologue)

¶¶ FROM THE PERSPECTIVE OF EDUCATION ¶ 1b) (1a) cannot be taught, but only initiated. ¶ Understanding is tied to the student's operations leading to his understanding. On the contrary, knowledge is a truth without background, unripe and incapable of adaptation. Analysis before synthesis is the frame preceding a picture. ¶ 2b) (2a) cannot be taught, but only initiated. ¶ Pushing the students to find & cross their personal limits constitutes the essence of their identity. Their personal limits cannot be set or determined by educators. ¶ 3b) (3a) can be taught as »counter-systemic-education« ¶ How to work without! »aesthetics«, for it blinds. ¶ How to cross the logical, for it frames. ¶ How to accept the unwanted or disliked, for it may be necessary. ¶ 4b) Networking cannot be taught. It can only be learned by experience. (dialogic)

¶¶ FROM THE PERSPECTIVE OF EDUCATORS ¶ Education itself must happen as network. Not only among professions, or students, but rather within the student himself, and between the student and the teacher. It can only

happen non-hierarchically. It cannot happen by inundating students with knowledge, or readymade theories and limits. We need to initiate understanding by pure play, comparison, disappointment and breaking personal rules: basically, by synthesis before!!! analysis. Knowledge & theories are not part of education. They're instead results, happening at the end of studies. Studies itself must constitute a network of experience & falsification. ¶ Like this, students learn to detect categories & responsibilities based on their operations, constructions of »realities«, and decisions. ¶ Like this, we foster identification and understanding about their profession: about their system. ¶ Now they can step out of it. ¶ Now they can network.

¶¶ This is what I consider a systemic bottom-up!

Interdisciplinarity: Making Ourselves Attractive to Collaborators

Heather Corcoran / Washington University, St. Louis

DILEMMAS: The argument in favor of collaborative design research is straightforward. Designers have the opportunity to participate as project partners instead of service providers, ask and answer large questions, secure more funding, and have greater, general impact. They get to work with established researchers in fields that do interesting work. But compelling as they are, these benefits pose challenges to the traditions, methods, and educational curricula of the practice of design. Specifically, must designers give up deep, exploratory visual investigations, prototypebased, iterative thinking, and a focus on the process of making to sit at the larger research table? How should designers position themselves on collaborative projects? And how does this positioning affect contemporary design curricula?

Washington University in St. Louis, a major research university dedicated largely to medicine and the life sciences, received over $400 million in NIH funding last fiscal year. The university's new Institute for Public Health is a significant initiative of the Schools of Medicine and Social Work, which seeks collaborative projects across schools. Designers who are willing to work in this context can create significant, funded, opportunities. Subject areas include cancer survivorship, inequality in access to healthcare in St. Louis, environmental impact of the built environment, health communications, and tobacco. But this is a landscape in which statistically based methods and results have proven successful, and are closely tied to funding. While a handful of statistically oriented reseachers may desire to collaborate with designers, the field of design is generally not well understood, beyond its ability to visualize and brand. For example, the idea of focusing on user experience, a potentially useful concept for much of the work of public health, is not a familiar one. This is a compelling, though daunting, place for design researchers to be.

For design students, particularly at the undergraduate level, participation in this kind of research culture is complex. How should design curricula evolve to integrate collaborative design research methods? Specific challenges to consider include:

- What are the benefits of working on larger, collaborative projects for undergraduates who are focused on learning visual design skills? Do students understand these benefits? How can we help them to appreciate the potential?
- How can students learn skills that help to structure and lead those larger projects, not just work on them?
- What are the professional applications of collaborative research projects?
- How can undergraduates maintain a depth of personal learning when the project learning is large, abstract, anD potentially untargeted?
- What classroom formats are most appropriate for studying abstract problems? Is there an argument for mixinG design students with others?
- How can design faculty in an art program gain the traction and understanding necessary to restructure curricula as needed? To engage artists in their process?

Science and health collaborations provide funded opportunities for designers to work on important projects and build curricular programs to support them. But the challenges are significant. I believe that conferences such as this one are a critical place for design educators and researchers to come together to find a common agenda in collaborative design research and curricula.

Interdisciplinarity: Making Ourselves Attractive to Collaborators

John Francis / Boise State University

DILEMMAS: University of California researchers in their 'How Much Information' project reported that print, film, magnetic, and optical storage produced about five exabytes of new information in 2002. Of this new information 92 percent was stored on magnetic media, mostly on hard disks. Five exabytes of digitized information is equivalent to a half million new libraries the size of the Library of Congress with its collection of 19 million books and other print collections. [1] A more recent study by International Data Corporation (IDC) reported that in 2006, the amount of new information created, captured, and replicated was 161 exabytes or 161 billion gigabytes. This is about 3 million times the information in all the books ever written. [2]

Information is growing at such an exponential rate that the ability to identify, understand and manage relevant information, or the future implications of collected data, is a challenge to say the least. Can design alone as a discipline even remotely hope to cope with the complexity and scale of the task? And do we as design educators think we can using our current educational model prepare students for this task without the collaboration of other disciplines?

Information Visualization (IV) is an interdisciplinary field that draws from interactive technology, computer science, psychology, scientific research, visual design and business among others. Information Visualization is based on the premise that "visual representations and interaction techniques take advantage of the human eye's broad bandwidth pathway into the mind to allow users to see, explore, and understand large amounts of information at once. Information visualization focused on the creation of approaches for conveying abstract information in intuitive ways."[3] Can the interdisciplinary field of IV provide a model for visualizing this vast quantity and complexity of information? And if so who will be our collaborative partners in the design of visualizing information, and what will be the designer's role in this collaboration?

If our partners come from the fields that make up IV, such as computer science, psychology, science, etc., how do we conceive of a curricula that prepares students for the their role in this collaboration and their eventual careers? If information continues to grow at the current rate, what methods, systems and tools will design students need to cope with this information growth and from what disciplines will they get them? Not only do we need to ask what the student's role is within an interdisciplinary environment, but how do we as design educators fit into this model for collaboration.

The issues that must be faced for an interdisciplinary collaboration to occur involve several points for discussion:

- How does the interdisciplinary collaboration that is needed for Information Visualization take place within a college education that is based in an art or design department context? If there is no "lead" discipline what is the argument for placing the IV class within the art or design department?
- How do we make the case with other departments within an institution that a collaborative curriculum would be of benefit to all students concerned, and how do we create partnerships with faculty from other departments in this endeavor?
- What design competencies will be needed by students for future careers in Information Visualization and how much do they need to know about competencies in the other disciplines that they will be collaborating with?
- What is the content for the coursework, and by who is it developed and shaped?
- How is each student's role in the collaborative process defined and evaluated?

With the complexity and scale of the technological changes that have created our current "information age," interdisciplinary collaboration is not a choice but an imperative. Ironically until quite recently the quantity and vast amount of knowledge has led to an increase in depth of knowledge and design specialization. But today's problems that have been created by our current technological paradigm, do not make the specialization model a viable solution. The discussions that arise from these questions may not yield immediate results, but are necessary to initiate any meaningful change.

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Interdisciplinarity: Making Ourselves Attractive to Collaborators

Geoffrey Fried / Art Institute of Boston at Lesley University

DILEMMA: In order for graphic designers to make ourselves more attractive to collaborators we need to gain a better understanding of our own field of graphic design, and its place within the more general discipline of design. This is just as important as our need to gain knowledge of other disciplines. Unless we develop a confident description and theoretical basis for graphic design, we remain constantly in danger of borrowing meaning and legitimacy from other disciplines. We also risk fragmenting the field of graphic design itself, if we cannot sort out what we "bring to the party" in a way that covers the wide range of projects graphic designers seek to involve themselves in, both in emerging and more traditional practices.

The current discourse about design thinking and the role of design in innovation reflects increasing knowledge in the field, and a more common – if not complete – understanding of design as a unique discipline. This knowledge is based on interdisciplinary research and dialogue begun in the 1960s and carried forward largely by industrial designers, architects, engineers, computer scientists, social scientists and others. Graphic designers are relative latecomers to this discussion. Many embrace the new discourse with the zeal of converts but seem to forget that the graphic (and sometimes detailed) nature of our work might have something unique to contribute to the more general discussion.

While a general design perspective is crucial to understanding any design activity's value to clients and collaborators, it does not delineate the specific place, value, or skills of graphic design within that more general discipline. As described in the literature of this conference, a number of graphic designers are eager to participate in solving problems of greater scale and complexity. These build on situations of complex interactions in new media and demand that we consider systems and their implications in our work. But as graphic design educators, we need a language that connects these new endeavors with every aspect of our work – a perspective that unifies our activities. After all, our students come to us with a broad range of interests and ambitions. They may all want to save the world, but some want to do it with a poster or ad campaign and others with a new user interface or iPhone application.

We need to develop our own discourse around the manipulation and testing of visual materials in any media: using graphic (visual) means to shape peoples' experiences towards specifically articulated or discovered goals. Graphic design educators should be looking at aspects of our own activities, and relating those examples to general design theory, both as a way of introducing our students to graphic practices and placing those practices in a contemporary context. We need to view these activities not through our usual lenses of aesthetics, fine arts, communications, semiotics, or problem solving but rather as focused examples of idea generation, prototyping, analysis, synthesis, evolution, innovation, and other aspects of design thinking. How to do this in the graphic design curriculum, and how to promote a full shift in point of view towards design thinking, remains to be seen.

The use of typography and images to create identity, understanding, and delight remains relevant in a world of experiences, multiple cultures, and time-based media.But to participate fully in collaborative activities we must better define the boundaries of our own work, even as we attempt to extend them. This will only occur if we, as educators, are willing to promote a complete shift in point of view that not only embraces design thinking, but customizes and integrates it more specifically into every aspect of our own graphic work.

Interdisciplinarity: Making Ourselves Attractive to Collaborators

Colette Gaiter / University of Delaware

HOTSPOT: Eventually there will be no departments in institutions of higher education. Soon there will be no majors. Currently there are more and more interdisciplinary programs, majors, and minors. Real collaboration will follow when students with a variety of skills, ideas, and experience are in the same classrooms for their core curriculum, rather than mixing it up only in external non-major courses.

Existing subject and major categories should be expanded to include core courses that integrate design practice with innovative thinking in multi-disciplinary collaborative projects. Especially in universities, disciplinary barriers should gradually break down to allow cross-pollination of ideas, skills and experience in topic or problem-based (rather than subject-based) classes.

It is more obvious than ever that contemporary global life requires thinking beyond existing knowledge and methods. A recent IBM poll of 1,500 CEOs identified creativity as the No. 1 "leadership competency" of the future. (1) The ability to solve unforeseen problems is at the top of business and policy agendas as we try to stabilize the world's economies, provide employment, achieve environmental sustainability, and manage human-generated and natural disasters. Simultaneously, we want to maintain health and well being for as many people as possible.

We need to educate innovative visual thinkers through new academic structures.

The objectives of collaborative courses might include:

- Applying design processes and methodologies to a range of "non-design" problems
- Applying theory and methodologies of other disciplines to visual solutions
- Encouraging "visual" and "non-visual" students to switch roles to expand their creativity and thinking
- Facilitating peer-to-peer and self-initiated learning methods in addition to teacher-to-student models
- Emphasizing research as an essential tool in solving problems of any kind and getting students fluent in primary and secondary research tools and methods • De-emphasizing output and product — focusing on research, thinking and creative problem solving
- Contextualizing aesthetics as essential to human functioning and well-being, drawing on research done in this area
- Regarding [1] expertise/body of knowledge and [2] ability to research and learn as equally important throughout a professional career

In the mid twentieth century, Marshall McLuhan said, "Our Age of Anxiety is, in great part, the result of trying to do today's job with yesterday's tools and yesterday's concepts."(2) The national push to "return to basics," emphasizing testing and quantitative results, led to the first ever decrease in American creativity since it was first measured in 1958.(3)

A more complex world requires new pedagogy for encouraging the kind of creativity that will produce viable, sustainable and renewable long-term solutions to problems.

To create truly interdisciplinary academic collaborations, making designers and other visual creatives sought after members of problem-solving teams, we need to:

1. Advocate for combining lecture-based with more experiential learning in lab or studio contexts for general education classes. This will require some physical restructuring of learning spaces and reorganization of how class time is spent. For example, part lecture/part lab-studio classes can expand beyond the sciences.
2. Rethink what the "categories" for students and learning should be. Abilities do not need to be restrictive or

absolutely definitive. A student who is visually talented in traditional design skills might study what we now call sociology and apply those skills in that area of research and inquiry.
3. Show that creative thinking is essential to all endeavors, not just to the arts. Conversely, we need to provide opportunities for those who have been tracked or self-selected as “non-artistic” to be visually creative, which will accelerate elevating visual thinking to a mainstream competency, like reading, writing, and math.

Our current model of higher education is hundreds of years old and grounded in a world where the quantity and variety of information and technology did not change at such a fast rate. To thrive and innovate we must develop much more flexible educational structures. We need courses/experiences that encourage students to expand their thinking in addition to developing a repertoire of visual skills. We need to engage students who consider themselves non-artists or designers in visual thinking, opening a huge new talent and innovation pool. Once these kinds of changes are part of academic curricula, then collaboration between designers and “others” will be seen as normal and essential. Just as young people have become more valuable as the technological avant-garde in the workplace, new collaborative truly interdisciplinary models might help everyone move into a new millennium that requires all new thinking.

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Interdisciplinarity: Making Ourselves Attractive to Collaborators

Jimmy Luu / University of Illinois, Champaign-Urbanna

DILEMMA: There is a massive divide between the idea of interdisciplinarity and the task of creating frameworks within educational organizations that allow for, encourage, and sustain true interdisciplinary activity. Many of the attempts in design education to prepare students for interdisciplinary activity has neglected to truly address the complex systems within which these young designers are asked to mature. The need and desire to introduce students in the classroom to collaborators outside their field is too often hindered by logistic, bureaucratic, and curricular barriers that ultimately do not allow them to effectively practice these critical cross-disciplinary exchanges.

In the field, collaboration is often allowed for and sustained because one can't avoid it—it has to happen and it has to work. Here, interdisciplinary collaboration is critical, the focus is narrow, and because the stakes are real (read: there are clients and money involved), every participant is required to buy in, forcing systems to adapt and develop in order to support true interdisciplinary collaboration.

In most educational institutions, however, these kinds of support systems are still underdeveloped or non-existent. Anyone who has tried to coordinate class schedules and curricula across fields of study so that interdisciplinary teams can logistically and conceptually connect realizes quickly that it is a feat rarely achieved with finesse or congruence. On top of this, once students from different disciplines actually meet, too often precious time is spent identifying a common academic language and adapting to a common working methodology before any work can take place.

It seems that interdisciplinary collaboration is something academics dream up at education conferences and strive to implement back in the classroom, but because it's the stuff of theory (where the stakes are low), everyone talks the talk while ignoring how to strategize for walking that difficult walk that pushes against disciplinary history, institutional bureaucracy, and curricular fixity.

In order to bridge the gap between theory and practice, we have to be able to collectively give as much rigor to the mechanics of practice as we have to the ambition of theory. Indeed, we have spent much time working on the "what" and "why" of collaboration, now let's focus on the "how". This calls for finding strategies for addressing the following:

+ Uneven curricula: Working with other disciplines at the curricular planning level to ensure that collaboration is conceived and implemented with equal weight and in even chronology. (How does collaboration fit into each discipline's curriculum, and when does it occur in the students' education within each field).

+ Establishing level playing field for collaborators: Working to prepare students separately within each field of study so they have the proper mindset when asked to collaborate with students from another discipline. (How do we teach young students in all fields a common language—design thinking?).

+ Dealing with bureaucracy: Who has time to coordinate all of this, and how do they manage to do it? What are considered existing successful models of truly interdisciplinary institutions and how did they establish systems that allow for interdisciplinary collaboration?

During the 2008 presidential election, history was made when America elected the first African American president to office. Obama rode to victory on the promise of change for America: ending the war in Iraq, providing universal healthcare, fixing the financial crisis. In the wake of this momentous victory, the sobering reality today is that figuring out how to enact that change is a tedious, long, drawn-out conversation between divergent constituencies, each with their own interests and biases. We see how much it took to pass that infamous healthcare bill, and realize that it is still imperfect at best.

If we can take a lesson from this situation, it is this: change is a two-headed beast. There is the one that is pretty, that we can believe in, that we look to and say, “Yes! This! Now!”. Then there is the less popular one, the ugly one, the one we have to look at during countless meetings, the one wrapped in red tape, the one that needs constant tinkering. This one, we cannot forget about.

Interdisciplinarity: Making Ourselves Attractive to Collaborators

Andrea Marks / Oregon State University

TREND DRIVER: The current trend of university restructuring is a fertile ground for incorporating more cross-disciplinary collaboration for all academic areas on university campuses. Embracing change can be challenging, particularly within large universities. The recent economic downturn has encouraged and even mandated that universities rethink and reevaluate how they operate and what they can do differently. Though change can yield uncertainty, seizing opportunities when change is inevitable is key to developing new and innovative ideas. To this end, academic disciplines on campuses are coming together to form new departments, institutes and schools. These new alignments are forcing faculty to think out of the box in terms of cross-disciplinary collaborations.

This trend coupled with a more widespread awareness and understanding of how integral design is to many disciplines, has opened up more opportunities for design educators and students to develop collaborative, crossdisciplinary projects. University restructuring creates unique opportunities for design programs to consider interdisciplinary collaboration including:

- Development of new design curricula to include more courses in how to successfully collaborate across disciplines
- Development of new design/research institutes on college campuses that help educate and facilitate cross-disciplinary projects
- Creation of cross-disciplinary teams in developing grant applications for large research projects (both faculty and students)
- Rethinking traditional homes for design programs, (i.e. within fine arts departments versus colleges of business or engineering)

With restructuring comes evaluation of existing course curricula and classroom space. Specific courses that address aspects of collaboration, such as cross-discipline working relationships, communication and leadership skills and team building, are essential in both the undergraduate and graduate design curriculum. In addition, the physical setup of a classroom should be flexible and visually promote the idea of collaboration. Tables with wheels, movable partitions and white boards are essential. To reinforce ideas of cross-disciplinary collaborations, projects should be made up of teams of students from various disciplines.

Logistics can play a part in why collaborations do or do not occur on college and university campuses. It will take more effort on the part of the instructor to make cross-disciplinary connections on campus and to that end; faculty should be mentored, encouraged and recognized for their effort at moving outside the typical class project.

Providing a physical space for designers on a university campus can reinforce the importance of collaboration. It is more common to see an environmental health sciences center or a center of genome research and biocomputing on a college campus, than a center for collaborative design research. Design faculty must play a pivotal role in helping other areas of academia see the importance of design across disciplines. Design is still too often relegated to the role of visual maker or marketer, rather than strategist and collaborator. In order for cross-disciplinary collaborations to take place, design faculty need to familiarize themselves with research projects being done on their campuses. Often, the most innovative research projects are being discussed on the university or research office website, press releases or other publications. With the right synergy, an incredible cross-disciplinary collaboration can occur. Imagine a design team working with an anthropology professor on a media campaign in India, or a group of design students working with a team of entrepreneurs from the college of Business? When designers are brought into the initial stages of a research project, grant applications can be worked on collaboratively. Typically, funding for graphic design projects is modest, but by collaborating with faculty in other disciplines, (social sciences, sciences, business, engineering) greater funding opportunities are possible and designers can learn how to develop and manage complex budgets.

A final key issue is the question of where design programs belong within a university structure and if rethinking where a design program resides can affect it's potential for collaboration. Historically, design programs were part

of fine arts departments or housed with other design disciplines. As restructuring continues on university campuses and design becomes more and more of a collaborative and cross-disciplinary field, new models for how a design program should be organized, both practically and philosophically are relevant. For example, what losses or gains would a graphic design program have if housed in a college of business or engineering?

In conclusion, this prospectus points out that the restructuring occurring at universities across the country can provide a unique opportunity for design educators and students to actively participate in cross-disciplinary classroom and research collaboration.

Interdisciplinarity: Making Ourselves Attractive to Collaborators

Chris Myers / Unviersity of the Arts

Catching Salmon

Graphic Design, because it attempts to direct other people's messages, is inherently interdisciplinary from an academic viewpoint. One is often asked to understand, at least conversantly, another person's expertise, and translate that to a specific audience. This is often negotiated through intermediaries in production and dissemination. Accepting that, what this proposed conversation appears to want to address is the more thorny issue of democratic participation exhorted by Buckminster Fuller in his World Game, which he premiered at the New York Studio School of Painting and Drawing in the summer of 1969 with approximately twenty art students from around the country. His teaching assistant was Edwin Schlossberg, and the eminent designer, Herbert Matter, husband of the school's directress, designed the exploded Dymaxion map of the world, which dominated the workroom.

The central premise was that given any group of people, with enough cultural diversity—and at that time, geographic diversity made a discernable difference—their collective inventiveness and native talents would be able to confront and solve, thanks to the rediscovery of the late Berkeley systems scientist and philosopher, Charles West Churchman, what we now call "wicked problems": those big bears in the world that hound us and ensure that they, not us, get the biggest and best salmon.

But most designers will not practice on the level of these high-flying, blue-ribbon panels. There will be smaller notions of these: the development of a farmer's market in a small city, the explanation of the local school boards' tax referendum, the development and design of a parent-driven, charter school. These are collaborative adventures that mix both high levels of expertise with Everyman.

Professionally, a designer might experience interdisciplinary intersections in various ways:

- With those who come from a different field than design and who are unable to interpret their message to a particular audience
- With experts and craftsmen across media and those who implement media
- With those of overlapping expertise, but varied experience levels within that shared domain, but with unique personal and cultural knowledge
- With those within related but differentiated expertise, as in the specializations of design
- Within a standing team with members with specific design expertise and members who do not have specific design expertise or none at all and
- Within a team of varied expertise configured solely for the purpose of solving a particular problem.

These adventures may play out through various management structures.

- Hierarchical levels of authority, where decisions are affirmed up a chain of command.
- Division of labor, where the lines of individual authority and expertise are clearly delineated.
- Consensus-driven authority that places a high price on compromise.
- Negotiated authority, where political skill drives accomplishment.
- Self-organizing structures, the most popular in academia today, but also the most risky.
- Hybrids of the above, achieved through planning, or by accident.

While graduate programs in design, psychology, and business are free to explore the higher reaches and outer borders of these phenomena—even to the exclusion of anything else, if desired—the mission of the undergraduate design education is both more and less charted. The graduate design program can, through admissions and selections, attempt to recreate the Saarinen's Cranbrook or the teams of extraordinary polymaths that designer Florence Knoll configured in the 1950s for her wicked problems. The promise of the professional undergraduate degree program of

arrival at a peer-derived set of skills with an agreed upon knowledge base is reasonably clear—but expertise in the ways of working with and for others who are not like you is not.

Given that the best team members appear to be people who are good at something, what practical considerations can be brought to bear within the undergraduate years, that time of newfound awareness and boundless enthusiasms, that time when you step out onto the ice for the first time?
Do you help them gather expertise that is unique to bring to bear within collaboration or do you go with what they've got and concentrate on their management and negotiating abilities? Or are those two different pathways leading to two different types of fishermen?
If you could do a little, what is most important?
If you could do it all, what does it look like, what could it yield?
What would you advise?

National Association of Schools of Art and Design. NASAD Handbook 2009-10: October 2009 Edition. Reston, Virginia, 2009.

Interdisciplinarity: Making Ourselves Attractive to Collaborators

Paul Nini / Ohio State University

DILEMMA: The BFA degree, typical to the majority of U.S. graphic design major programs, tends to work against the notions of interdisciplinary work and new frameworks for design practice.

BFA degrees are historically based in the Fine Arts, where the majority of U.S. graphic design major programs were founded. Fine Arts theory and practice seem to revolve around the idea of the artist as an individual creator --and many current graphic design major programs embrace this embedded philosophical stance.

Such a viewpoint can run counter to the very idea of interdisciplinary collaboration, and often leads to a insular approach to design practice. Students are usually well-prepared to function as solo designers, but may be illprepared to succeed in settings where they must collaborate with designers from other disciplines, and/or work with individuals from associated fields.

This situation can lead to graphic designers being marginalized within practice, as others may see them as unable to function in collaborative settings. Opportunities are then missed for graphic designers to contribute expertise to problems where multiple viewpoints are essential. Graphic designers may also be frustrated by their limited roles, which can negatively affect professional advancement opportunities.

Most troubling, however, is the "creator-centric" approach that can result in BFA programs, as potential "user-" or "audience-centric" approaches are often entirely ignored. As Milton Glaser has said, when referring to the state of current design education:

"Because it's linked to art, design is often taught as a means of expressing yourself. So you see with students, particularly young people, they come out with no idea that there is an audience. The first thing I try to teach them in class is you start with the audience. If you don't know who you're talking to, you can't talk to anybody." 1
On another note, schools that have more than one design discipline often run those major programs separately, with little to no opportunities for collaboration to occur. As many client organizations create products, spaces and messages, it would be of obvious benefit for graphic design students to work with their peers in industrial design and commercial interior design, and to produce projects that demonstrate how the contributions of these design disciplines can be successfully coordinated and integrated for strategic results.

BFA programs also tend to emphasize Fine Arts elective courses over studies in associated disciplines such as the Social Sciences, Business, and Communications, to name just a few. Again, such structures tend to support the above-mentioned insular view of practice, and work against successful collaboration.

Perhaps the time has come to either significantly redesign the typical BFA degree or look for other degree-types that are more appropriate to collaborative possibilities. The Bachelor of Science in Design (BSD) degree can allow for a more interdisciplinary approach, is currently in use by a few prominent U.S. graphic design programs, and appears to be more widely used in Europe, Asia, and South America.

Regardless of degree granted, if interdisciplinary collaboration truly is our goal, then significant changes that go to the heart of our current teaching approaches must be considered.

1. Martin C. Pedersen, An Interview with Milton Glaser, Posted August 1, 2003, http://www.metropolismag.com/story/20030801/an-interview-with-milton-glaser

Interdisciplinarity: Making Ourselves Attractive to Collaborators

Lee Vander Kooi / Herron School of Art and Design

Shifts in society, technology, and our environment are causing changes in the world today that are difficult to anticipate. The challenges we face are complex, ambiguous, and interrelated. According to John Thackara, author of In The Bubble: Designing in a Complex World, “Complex systems are shaped by all the people who use them, and in this new era of collaborative innovation, designers are having to evolve from being the individual authors of objects, or buildings, to being the facilitators of change among large groups of people.”[1] These types of challenges are often unframed and addressed most effectively through a collaborative inter-disciplinary approach to problem solving; an approach that depends as much on disciplinary knowledge(what) as it does on process knowledge (how). As Helga Nowotny points out in Interdisciplinary Collaboration, “[i]f joint problem solving is the aim, then the means must provide for an integration of perspectives in the identification, formulation and resolution of what has to become a shared problem”[2]

With the increasing complexity of problems and diversity of hybrid groups assembled to engage such challenges, a natural beginning point might be to inquire about the particular type of contribution that design can make to engaging complex systems level problems.

Kees Dorst, Bryan Lawson[3], Chris Conley[4], Nigel Cross[5] and others researching what constitutes design knowledge and design expertise have proposed competency frameworks that help describe what designers know and how they work. Looking across these frameworks one can discern clear agreement. Problem framing is a set of skills that is articulated within each of these frameworks including the ability to identify, reformulate, and organize, as well as the ability to “work at an appropriate level of abstraction”[4] and to “selectively view the design situation”[3] in different ways at points in the design process. Selective focus in framing problems is what helps equip designers to deal with ambiguous challenges during what design researcher Liz Sanders describes as “the fuzzy front end of the design development process”[6].

But an awareness of design knowledge and an ability to articulate design expertise is not enough within a interdisciplinary environment to ensure that collaboration will be successful. Collaboration is a particular kind of work and the necessary skills are different from disciplinary expertise or “content knowledge”. Sharon Poggenpohl notes that interdisciplinary work in design requires “team skills and sensitivity to different epistemic styles”[7]. Building on the divide between what and how; GK VanPatter, Co-founder of Next Design Leadership Institute, distinguishes between “content expertise” and “process expertise” highlighting the very different kinds of knowledge necessary to function effectively as members of collaborative teams[8]. This separation of content and process is echoed in a definition of collaboration offered by Keith Russel. He says “[c]ollaboration is that form of working together where the working together (is the work)…”[7].

In “Learning to work in teams” Christopher Vice discusses some of the skills necessary for effective creative problem solving. These include “understanding how and why people respond differently to problem solving processes” as well as “understanding personal preference in creative problem solving”[9], reinforcing the notion that effective team work requires skills that lie outside of disciplinary boundaries. In terms of pedagogy, one consequence of highlighting the distinction between disciplinary expertise (content knowledge) and collaborative process skills (process knowledge) is that it brings clarity to some questions facing design education programs in considering how to prepare students for professional practice in the twenty-first century.

What experiences are necessary for students to develop values for working collectively and to leverage their design skills to help develop an understanding of a shared problem solving process?
How might students use traditional design skills like visualization with a diverse team to support communication and decision making among its members?
As values continue to emerge for working across traditional disciplinary boundaries design education programs must wrestle with how to equip students with not only content knowledge, but also the process knowledge and process skills critical to effective cross-disciplinary work.

[1] Thackara, John. 2006. In the Bubble: Designing in a Complex World. Cambridge, MA: MIT Press.
[2] Nowotny, Helga. 2005. Interdisciplinary Collaboration. Cambridge, Lawrence Erlbaum Associates.
[3] Dorst, Kees and Bryan Lawson. 2009. Design Expertise. Architectural Press.
[4] Conley, Chris. 2004. Leveraging Design's Core Competencies. Design Management Institute Review. Vol. 15, No. 3, Summer 2004.
[5] Cross, Nigel. 2007. Designerly Ways of Knowing. Birkhäuser Architecture.
[6] Sanders, Elizabeth. 2006. Design research in 2006. Design Research Quarterly 1, no. 1, Design Research Society.
[7] Poggenpohl, Sharon Helmer and Keiichi Satō. 2009. Design Integrations: Research and Collaboration. Chicago: Intellect, The University of Chicago.
[8] VanPatter, GK. 2009. Design 1.0