

Changing Conditions: Emerging Practices

Conference description of the topic: It could be said that the discipline has been slow to understand the full implications of interaction design and service design. Soon after the emergence of interactive technologies, some argued that the primary role of the computer was as a “tool” for replicating conventional production methods. Others questioned whether the skills of a print designer were adequate for creating the conditions for user experiences. And initially, interaction design focused mostly on buying and selling transactions and gaming, with design for education, work, and access to the privileges of democracy following only after the dot-com bust and the growth of social media. It is only within the last decade that design education has acknowledged the importance of screen-based experiences and much of that work is still in the tradition of film and motion graphics, not true interaction.

Service design is a relative newcomer to the field and challenges traditional object-centered notions of design. Service designer Shelley Evenson quotes an IBM report that places more than 70% of the US labor force in service delivery. She goes on to describe how designing a service is different from designing a product:

When designing a product, much of the focus is on mediating the interaction between the person and the artifact. Great product designers consider more of the context in their design. In service design, designers must create resources that connect people to people, people to machines, and machines to machines. You must consider the environment, the channel, the touchpoints. Designing for service becomes a systems problem and often even a system of systems challenge. The elements or resources that designers need to create to mediate the interactions must work on all these levels and, at the same time, facilitate connections that are deeply personal, open to participation and change, and drop-dead stunning.

—Shelley Evenson interview in Saffer (2006), *Designing for Interaction*

The implications of these practices for the future work of design raise a number of questions for educators:

- a What skills and knowledge are necessary to succeed as a designer in a user-centered, participatory media culture? Can these competencies be delivered only through the traditional studio-based setting or are new kinds of courses necessary?
- b What is our understanding of “experience” and how is it apparent in the construction of student assignments? What do students need to know about methods for understanding audience experience and how can they practice such methods in authentic settings with real people?
- c How do we shift student awareness from the moment of interaction on the screen to include larger contexts, systems, and long-term relationships among the originators of content, services, and users? What is the scope and scale of investigation, as well as the criteria to which students should be held accountable?

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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Frank Armstrong / California State University, Chico

The information age has enabled the development of a service economy, where people are searching for meaningful information and experiences as they interact with other people, particularly in a computer-mediated environment. Communication designers need to adapt to this context by learning to create dynamic visual information systems that respond to constantly changing market conditions. There are three related competencies or knowledge areas that will, in the near future, affect the ability of designers to function within a user-centered participatory-media culture: computational thinking, systems thinking and information visualization.

In the past, graphic design students have been taught visual thinking as a means to develop solutions for the design of visual artifacts. Design problems in the future will be vastly more complex, like designing for sustainability, requiring designers to research and analyze layers of abstract information from myriad viewpoints, then construct meaningful visual explanations that lead to understanding. In order to fully participate in these emerging contexts and practices within the graphic design discipline, students will need to learn how to think in algorithms that complement their visual thinking to create more innovative and meaningful visual experiences.

Design students will also need to adapt their problem-solving process to include systems thinking, understanding that everything is interdependent and cyclical, not isolated and linear. In a small way, most advanced design students already understand the concept of typographic systems – how one typographic change affects everything else on a page, which then affects everything else within a book. Designing an interactive service system for a multi-cultural audience is far more complex – designers need to conduct ethnographic research of user experiences, use systems thinking to understand the context of dynamic relationships that exist and apply computational thinking to anticipate the potential consequences for possible actions.

In their daily lives, people are currently confronted with an increasing amount of unstructured or seemingly unrelated visual information, much of which appears to be isolated and indecipherable. Designers in the future will need to comprehend a large systems of dynamic qualitative and quantitative information, then create a meaningful visual form in an appropriate context that elucidates patterns and relationships for diverse audiences. To achieve a position with potential for success in this field, design students will need to learn how to apply their knowledge of computational and systems thinking to the visualization of information.

One dilemma would be the lack of design educators who are currently fluent themselves in these three areas. Design educators will need to have a knowledge of computational and systems thinking, and information visualization, to integrate them within studio projects and participate in critical discussions of assignments with students. A second dilemma would be teaching millennial design students, although being digital native, to appreciate aspects of slow knowledge: "... dealing with context, patterns and connections ..." (David Orr, "Slow Knowledge", *Conservation Biology*, Volume 10, Number 3, June 1996). Motivating undergraduate students to think beyond the moment of interaction and empathize with users would certainly be a challenge.

In conclusion, sustainability and the design of sustainable information systems will be among the primary challenges for participatory-media designers in the future. Design students must have a knowledge of computation thinking, systems thinking and information visualization to collaborate with others and solve such complex-system problems.

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Charmaine Banach / Youngstown State University

HOTSPOT: Learning in a blended (online/offline) classroom is more effective than a face-to-face course because:

- Students gain an authentic user experience different from the usual social networking and/or website interfaces, which translates into more empathy for the end user;
- Studies show that lecture material is better retained when read online with the ability to ask questions and discuss material in a face-to-face environment;¹
- Writing is emphasized in the online environment, helping design students stay on top of critical communication and analytical skills; and
- An online class environment usually combines written and video lectures, online demonstrations, linked resources to important information outside the classroom, as well as the ability for discussion (in a list-serve style).

Today's students feel very familiar with social and online media, yet the online classroom challenges them to complete a long-term task of learning an entire semester worth of content, and long-term collaboration on projects, making for a very different user experience. A blended classroom environment presents several opportunities for curriculum development, such as:

- Allowing students to translate the cooperative and goal-oriented classroom experience when analyzing the framework for a new user interface experience project;
- Creating collaborative group design projects which lend themselves to equal participation amongst individual-members,
- Enhanced assessment capabilities, for both the instructor and peer review;
- Reinforcing important analytical writing skills within a design setting.

Key issues in adopting a blended classroom:

Students are inundated with user interfaces, but can choose to stop using any particular interface on a whim, limiting their understanding of the importance of analyzing and creating effective user experiences. The online component of a blended classroom helps students build a long-term relationship with an interface as they read online lectures, collaborate in discussion, and experience assessment. Giving students an alternate perspective to fleeting social networking and web interfaces helps them empathize with users that do not always get to pick their interface of choice to accomplish critical tasks. Having such an authentic user experience is critical in the analysis and creation of new interface solutions.

Reading and writing online content can be reinforced through offline discussion, through storytelling and through demonstrations which target differing learning styles. Mixing learning mediums keeps it interesting and helps students absorb content better because they are paying attention. Online discussion provides practice for analytical writing and developing ideas. Plus, shyer students often feel less inhibited in an online environment, helping them also become more active in an offline environment.

However a major obstacle to implementing an online classroom is that instructors are unsure how to effectively integrate an online component into traditional design curriculum. For some, it is difficult to write online in a way that compensates for limited facial gestures and bodily cues. For others, it does not feel worthwhile to spend time to learn a new system.

But the blended classroom is an interesting emerging curriculum practice that can help the design student become empathetic with differing user experiences, while helping them better ingest course content and become analytical and effective communicators and designers.

1- Jaschik, Scott. "The Evidence on Online Education." Inside Higher Ed. Washington D.C.: Inside Higher Ed, June 29, 2009. <http://www.insidehighered.com/news/2009/06/29/online>

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Bobby Campbell / University of North Carolina, Charlotte

TREND DRIVER: Design's rapid transition in the last twenty years has included a shift to greater levels of technological interaction, both between a designer and her tools and between an audience and its interfaces. As designers become involved in the development of technology and interactive tools, the role of designers has intersected more and more with the role of programmers. This raises the question of whether and how these two roles should be divided. Should a designer be concerned only with the visual appearance of our interface culture? If a designer should play an active role in the development of the technology of an interface, how deep of an author should a designer be with said technologies? Should a designer be able to directly program or code interactive tools for their audiences? If so, does a deeper awareness of the possibilities of a tool, such as a programming language, allow for a wider range of creative thinking about how such a tool could be deployed?

The traditional role of a design software development company, such as Adobe Systems, has been to create a "translator" between the rigid technological demands of a programming language or rendering engine and the intuitive biological demands of hands-on human creativity. These translations come in the form of software such as Adobe Illustrator, which takes the designer's bezier curve input and develops the calculations needed to produce the image, or Adobe DreamWeaver, which takes the designer's boxes and grids and develops the HTML and CSS required to display the image in a browser. Designers typically take these translations for granted. However, occasionally enterprising creatives will peek behind the curtain and pull forth projects like the "LettError" fonts, the PostScript poltergeists produced by Just van Rossum and Erik van Blokland. LettError typefaces use a more direct interaction with the PostScript programming language to produce unique and even unexpected results. These two designer-programmers were willing to wade into the linear, less visual world of computer code to produce the design result they were searching for. A new generation of interactive designers is equally at home in the codebased worlds of HTML, CSS, JavaScript and ActionScript, with system deployments such as AJAX, to have greater control over the details of user interaction with a site or service.

It is likely that there will be much needed conceptual discussion about the changes wrought on design education by technology, the internet and social media. We may also be able to productively utilize the traditional "making" based design education culture by integrating a deeper engagement with technology. It could be highly useful to expose students to basic, approachable programming concepts that provide a foundation for being active makers in what promises to be an evolving, technological career.

There are several specific questions that would impact design educators' thinking as they work to engage a higher level of technology practice in curriculum development:

- 1 - How do design educators create projects that encourage programming engagement and technological innovation? Are there collaboration opportunities with other educators or other departments?
- 2 - How do design educators balance a need to understand the specificities of a technology platform, such as HTML, with the reality that specific versions of technology are constantly evolving? How do you create a curriculum that doesn't become dated for a particular cohort of students upon graduation?
- 3 - Can such direct engagement with programming ideas have benefits with other technologies as well? For instance, it seems likely that designers will have greater use of rapid prototyping tools in the future as such technologies become more widespread. Will a knowledge of the principles of programming help a designer better utilize a laser cutter?
- 4 - Could basic programming engagement change a design student's attitude about technology? Might design students be more apt to adopt new technologies if they have a deep base in a particular technology?
- 5 - Does such a detail-based involvement with the tools contradict the traditional vision of the designer as an organizer and visionary thinker? Does a specific involvement with the "nitty-gritty" of production in any way remove a designer from holistic "big picture" thinking?

These questions are difficult to answer and would benefit from the expertise and experience of a diverse range of practitioners and educators. Clearly, programming, with its reliance on logic and math, has long been seen as an

opposite pursuit to the more intuitive work of the designer or artist. Promisingly, technology adoption relies on hands-on attitudes already present in the making-based culture of design and art departments. A discussion of these questions would help provide some first principles for proceeding with a greater level of technological ownership on the part of design educators and design students within a department or institution.

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Gerry Derksen / Winthrop University

Processes Interacting between Designer, Developer, and Marketer

There are many cooks in the web kitchen including, designers, developers, marketers, and audiences or contributors. They all have a stake in the outcome of a web project and its continued relevance. What has not been clearly defined is the professional relationship of these different factions nor their process relationship as the project is taking shape. Each individual discipline has its own rhetoric explaining their roles and responsibilities to themselves to ensure a level of competency and professionalism however, overlapping skills, differing points of view and time tables quickly clash straining these relationships.

The marketing of content on the web continually changes as the technology affords different options for interacting with users what Tim O'Reilly calls, "the perpetual beta" (2007). Socialization of companies as part of a market strategy is forcing relationships with customers that, in the past, have not been as sincere as once stated. The notion of "professional friend" as someone who looks after the online community as a partner in product development is new to companies who saw their core competency as product supplier rather than service provider. Developing a plan to implement this strategy takes a long time and insight into the needs of the audience but must also be flexible to accommodate trends and wavering interests of the audience. Deployment of the plan comes at the end of the marketing process. Promotion of the product is a result of understanding audience need, exploring different positions of the competition and exploiting the flexibility of an agile production process. Marketing plans begin to look like starting points with no product "life cycle", that include an end.

Compare this to the web application developer whose focus is naturally on the vehicle of interaction as the product in of itself. Their process starts with the specifications drawn out from the marketing or business plan. Web developers have adopted a more "build-and-modify" approach that is constrained by their own understanding of the problem and familiarity with potential solutions or ability to generate unique solutions. Some web developers may see their position as subcontractor but without their involvement in the planning stage, ideas outside the scope of projects could be avoided or scaled to a feasible size. In addition, the developer's process has a short planning stage resulting in default strategies or known solutions that make development more efficient but not always the most appropriate.

What is the role of designer in this process? We dutifully teach the design process that follows some variant of plan-create-iterate-implement schema, however, we do not know how that fits within developers and marketers processes? The more engaging role for designers is one of liaison between the marketer and the web developer because we have understood two concerns of these disciplines that we can translate for all stakeholders. The first is the understanding of the audience and our ability to interpret their interests in the design. The second is the functional aspect of technology and its impact on the user ability to achieve their goals. This position of liaison is achieved by understanding the processes of marketing and development and examines the design process to aid both the design of the project and the other disciplines to move forward in their own work. The visual interpretation of these processes and their underlying goals is the focus for designers in interactive media but only parallels the origins of design education nor has "process interpreter" typically been the domain of designers. If designers assume this position of liaison, we are also poised to assume the direction of user testing of interactive media. Our established relationship with the audience is enough to easily collect data while refining the design solution. The audience feedback immediately influences the design accelerating the entire process. If we do not take this broader approach to designing interactive media designers will be relegated to sub-trade who decorates sites at the end of the process.

Finally, these additional responsibilities offer the possibility for designers to take a more active role in the process of creating interactive media. It also requires more skills or a change in how we see ourselves as designers and what skill set is important to be a leader in the process. It is the aim of this prospectus to begin to identify short falls in design education and prioritize a list of skills for interactive media designers.

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Pamela Napier / Herron School of Art and Design, Indiana University

Interdisciplinary Collaboration and the inclusion of Values

DILEMMA: Whether engaging challenges at the level of society and culture, a complex organization, or an individual in a community, human-centered participatory design principles can facilitate engaging a diverse range of people, perspectives, and values. This range provides a wealth of knowledge and expertise during interdisciplinary collaboration.

While challenges today require an integrated, systems-level perspective that takes into account multiple physical, cultural, social, technological, economical, and environmental factors simultaneously, during collaboration it is especially important for people to be able to share and understand what values and perspectives are being represented in the very beginning of the design process. In this participatory, value-driven terrain, personal values are an increasingly integral part to successful cross-disciplinary collaboration. Design researchers Daniel Christian Wahl and Seaton Baxter point to Horst Rittel's view on wicked problems, and argue that all design decisions are fundamentally worldview and value-system dependent. [3]

However, this working environment produces new obstacles to overcome in order to: develop a shared understanding and appreciation for the different perspectives and values of those involved; collectively shape how to view and develop a problem space; visually and verbally make sense of and connect those values and perspectives to the design process, and the larger context of design challenges; collaboratively make socially, culturally, economically and environmentally responsible decisions throughout the design process.

Articulation, "sensemaking," and integration are all challenges which must be dealt with in order to successfully collaborate across disciplines, and to truly embrace a human-centered approach.

First, many students are either unaware or unable to articulate how their own values and perspectives affect the decisions they make, or how they connect to the larger contexts in which design problems are situated. Second, within multiple disciplines, values have been mostly explored and made sense of in terms of user experiences and interactions with products or services. And third, students do not have an explicit process or set of guidelines to follow to enable the integration of multiple values and perspectives in a collaborative setting, nor are they being taught essential process and interpersonal skills that enable safe, open modes of communication and understanding at the beginning of the design process.

There is a unique opportunity within design education to investigate the nature of skills, tools and methods that enable a collaborative inclusion of values. Core design skills and competencies such as visualization and reflection occupy important roles in the ability to visualize and connect ideas, relationships, information and perspectives to various contexts.

Visualization, as a core competency of design, can be engaged in many different ways to use form to represent and embody ideas, and as a way to make fuzzy situations clear, and clear ideas tangible. Ethnographic research methods and tools for human-centered co-creation such as context and experience mapping, and "maketools" such as collaging, [1] are ways to augment designers' and collaborators' ability to understand and frame contexts, as well as facilitating and visually articulating a shared understanding of their values.

Designers may inherently reflect at different points in a process, but reflection-in-action as an intentional part of designing, and an important component to integrative thinking, too often gets put off to the side due to time and other external factors. Reflection-in-action, as defined by Donald Schön, requires thinking with a combination of dialogue, writing, making and doing. [2] This allows collaborators to visually connect and make sense of values, thoughts and ideas, while reflecting-in-action about the decisions that are being made.

With an emphasis on human-centeredness, and the emergence of values as an important part of interdisciplinary collaboration, there are some questions to be engaged: how do our values inform and influence the decisions we make throughout the process of designing? Within multidisciplinary collaboration, how can different values and perspectives be managed, while contributing to responsible, ethical design decisions? What might successful collaboration of this kind be like, and what kinds of tools and methods are engaged?

These questions in turn represent opportunities within design education to investigate how skills and competencies specific to design thinking and design expertise, can make the relationships between values, processes and contexts visual and tangible; how personal and holistic values can be integrated into the design process; and how to create deeper meaning and enduring understanding.

* As defined by GK Van Patter and Elizabeth Pastor of NextDesign Leadership Institute and Humantific;

[1] Sanders, Elizabeth. Generative Tools for context mapping: Tuning the Tools. Third International conference on Design and Emotion. Loughborough, Taylor & Francis, 2003.

[2] Schön, Donald A. The Reflective Practitioner: How Professionals Think in Action. USA: Basic Books, 1983.

[3] Wahl, Daniel Christian and Seaton Baxter. "The Designer's Role in Facilitating Sustainable Solutions." Design Issues 24:2 (2008): 72-83.

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Chris Paul / IBM Lotus User Experience Group

The practice of design, throughout its history, has had to evolve as the methods, expectations and mechanics of the discipline have transformed. The how, why, what and who of design practice is starkly different today than in previous generations. Recent transformations influenced by advancements and movements within data-driven design, social media, crowd-sourcing, etc require designers to work with a new mix of practitioners: technologists, software engineers, user researchers, technology executives, etc. These new collaboration partners are challenging the ways designers create and communicate...and thus creating challenges for design educators as they strive to prepare students for what to expect in the workplace. What are the 21st-century skills designers must master? Are we educating designers to succeed in today's complex business environment? Are traditional design and studio courses doing enough to prepare students to address today's design challenges?

Historically speaking, design practice has been transformed, relatively slowly, by external influences: cultural, commerce and industrial in nature. However, in the last two decades, fundamental change has come much swifter. The rise of desktop publishing, the role of the computer in design and the rise of social media are example of game-changing catalysts. While the core tenants of the design process itself have remained stable, the means by which designers achieve the "end result" has shifted, requiring designers to develop new methods and skills to meet current needs. In parallel to this change in mechanics, designers are interacting with a wider and more professionally diverse set of design collaborators.

As a result the changing dynamics of design work, many designers are asked to play increasingly fundamental roles in the development of complex systems, products and environments. They are required to intimately understand and contribute to the design and development of software for business intelligence, analytics and data visualization, systems for business collaboration and networking, and user experiences honed for specific form factors, operating systems, and user populations. Today it is rare for a design to be realized by the interaction of just one of two disciplines. The traditional "designer and printer" partnership is long gone as the predominate paradigm of our industry. The diverse talents of multi-disciplinary teams (often made up of 12 to 15 different disciplines) are required to forge new products and experiences.

Quickly changing environments and requirements create challenges and opportunities for expanding traditional design education practices, raising these questions:

- What methods can educators enlist to facilitate design students gaining collaborative experience with nontraditional design disciplines?
- How can educators help prepare designers to critically engage in dialogue with other disciplines? - How much is enough? The role of nontraditional design and technical coursework in design curricula.
- How can educators promote the concept that collaboration with nontraditional design colleagues is fundamental to strong design?

In conclusion, this prospectus is meant to initiate a dialogue on how best to prepare design students for a dramatically different work culture within which they and their work must succeed.

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Renee Seward / University of Cincinnati

HOTSPOT: The teaching of the qualitative research methods such as role-playing user experiences early in the design curriculum holds inherent value in building an awareness in students to the larger contextual and systems issues involved in designing experiences.

Jean M. Twenge in, *Generation Me*, describes the cultural shifts that has defined the attitudes and behaviors of the current generation of college students. She explains the costs and benefits of this shift to this generation, who unlike the baby boomers has an increased focus on individual self. She asserts that at times this “Me” focus supersedes all other concerns. Twenge closes her book with a number of suggestions for how institutions can better prepare to deal with this emerging culture of college students, which she has labeled, the Generation Me. This “Me” attitude presents a challenge for design educators who seek to develop in students the necessary knowledge to succeed in the emerging user-centered culture. Teaching qualitative research methods hold several benefits to developing user-centered designer. These benefits include: a means to teach strategy development that is grounded in problem-solving methodology a way of breaking down initial assumptions, generalizations, and misperceptions toward a problem that a students might have a channel to front ends the consideration of usability factors a way to place the initial priority on design thinking (the verb) rather than the actual design solutions (the noun) a means of developing user empathy in students for others a way to engage students in the learning through discovery a means that challenges students to ask questions like “does it work?” “why? or why not?” as opposed to the subjective analysis of “I like it because I just do”

There are several key issues that have to be considered in introducing such practices into the design curriculum. First, when is the best time to introduce these practices? Many current education models lead students through a curriculum that begins with simply learning form making then transitioning them into the other design process considerations over a four to five year span of time. The benefit to this model is that we were doing an excellent job in educating students in how to make beautiful forms. Yet the cost is that little consideration was being given to the communication of an innovative concept and the usability of these forms. More importantly, this model endorsed the idea of accepting initial assumption and generalization, which becomes hard to breakdown in students in their later years of education. I argue for the introduction of qualitative research-oriented methodologies early in the design curricula, to be taught concurrent with form making which I believe results in teaching an authentic design process from the begin.

Another issue in need of consideration is how can students practice these method is an authentic experience. I assert there are many things we can learn from the medical field when creating these authentic user experience activity. We share many similarities in the process of understanding the context of a problem as the medical field does. This may require us to leave the studio walls and begin developing opportunities for students to spend time with users. When circumstances don’t permit the actual student-to-user engagement we can still learn much from the role-playing activities that the medical field utilizes. For example, to simulate macular degenerative patients nursing students are required to wear goggles that have been clouded on the sides by magic marker and lenses blacked out in the center with a dot the size of a dime (this simulated experience is something developed by Second Wind Dreams, a national organization that offers educational tools for caregivers) and are ask to perform a task. In similar respect we can develop hands on scenarios for students to engage in while performing task analysis. The last issue in need of consideration is how to define criteria that holds students accountable these practices. I argue that having student present and write about the conclusions they have drawn from such activities will show evidence of how well they are learning the importance of such practices.

In conclusion this prospectus argues for an integrated approach of qualitative research methods such as roleplaying user experiences from the beginning of the college experience.