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<code> conference \ 1 March 2006

Graphic Design Under Pressure: Education Adapts

Graphic design students have a false expectation that mastering software will yield them sound results, and take them from the classroom into a winning professional practice. Students believe that "fast and easy" solutions are what design is all about, and now more than ever, students have grown dependant on digital tools for solving complex graphic problems. Design curricula must challenge students to arrive at solutions through comprehensive experimentation and analysis, emphasizing process before product—engagement before answers.

In the visual communication domain, a graphic designer acts as an interface between a message and an audience. The graphic designer will create and produce a range of media to facilitate a message from its sender to the receiver: printed posters, books, magazines, or packaging; digital websites, motion graphics, or user interfaces; environmental signs, identity, or wayfinding; and theatrical or cinematic media. Creating solutions for these domains takes time, but thanks to computer technology, the designer can generate an array of visuals quickly and sometimes effortlessly. This sense of empowerment gives young designers the false impression that click, drag, copy, cut, paste, and print equals design.

Graphic design education, as many other art disciplines, feels the pressure, and at times is undermined by the accessibility of slick software and hardware. On the surface these terms are positive and desirable for a consumer population, yet the contradiction is activated when we unpack the effortless, integrated, affordable product that will be faster and more productive. These products provide shortcuts and "do it yourself" templates, suitable for some consumer populations, but not desirable for students who must learn how to investigate a problem

comprehensively. In one of the most extreme cases of computer-aided design, Nigel Cross boldly asked *if the computer could take over the role of the designer?* in his article "Can a Machine Design?" During his analysis he discovered that we might not want the computer to do everything that human designers do.[1] However, his research of the computer-aided design experience provided him with insights to our cognitive abilities. The pressure increases from students, administration, and some professors to teach the software, and the logic behind a technocentric method of education—where all processes revolve around the computer—ranges from staying current to producing quality work.

Many graphic design professors were encouraged to make a choice, beginning in the early nineties, between *Is the computer and its software a tool?* or *Is the computer an element which enacts specific principles in visual communication?* Early in the debate, the decision seemed easier because the technology was shiny and new, but little was known about its application and long-term effects on design practices. Students embody a duality of understandings because they know and understand the practical and marketed channel of the technology. Consumers—students included—are easily seduced by the illusion that software/hardware manufacturers have their best interest in mind: to make their work better (or make them work better) in less time, through less stress. Complicating matters is a cultural perception that nearly any form of labor can be done through a "hurry up" state of affairs—witness the breadth of television programs, such as ABC's *Extreme Makeover Home Edition*, that have an entire house remodeled or built in under an hour. Using the computer to generate something that looks finished can be deceptive especially if the student is incapable of giving concrete answers about how or why the solution relates to the problem at hand. The hidden language of the creative design solution requires the access to a range of meaning-making

resources many that are metaphoric, multi-layered, and qualitative.[2] These resources operate s the bridge between the message source and the audience; the quality of the signal has a direct impact on the obtainment of closure. Students need an awareness of the audience they are designing for, focusing on the curricular and project objectives of each course. Quality then is dependent on the creative problem solving and use of these tools, not on the fashionable computer application, nor the finished product's veneer. Developing efficiencies in software and/or hardware are sometimes the learning goals in certification programs or training institutes, but these programs privilege a base of knowledge that is centered within operations, not ideas. Graphic design is composed of conceptual problem solving, idea generation, technical operation, and professional business practices.

In instances where the goal is not to learn the operations/functions of the software but to create or challenge ideas, the feature-focused approach operates as a hurdle to advanced practices and understandings. If we chase the technology, we will always be subject to the chase and few if any will have opportunity to lead. Another consideration that is often overlooked is that visual society changes and expands at a different pace, many times much slower than new releases in technology. While technology affords particular advances in what is possible, image wise, visual society does not make parallel allowances in what it is ready to see or accept. The changes in technology are instigated by the marketing plans, feasibility reports, and production schedules. Users of this technology are not directly responsible for its growth and change, and as a result one falls into the center of the visual storm, incapable of seeing when and how visual understanding and technology change.

Do we as instructors give in to the savvy marketing programs and its wide-eyed bedazzled followers? If we do, where do we end up in another twenty years? If not, how do we

facilitate learning that addresses the advancements in technology and the perceptual changes in a visually communicative society? This is not the first time that graphic design education has wrestled with the tide of change; businesses must constantly grapple with adapting. The digital era is unprecedented, but the thinking needed to interpret and construct communicative imagery is a consistent practice, and if students can master that practice then we have an opportunity to develop for the future and bring a new literacy and thinking forward with our students, who have a passion for technology.

Embrace the principle then master the technology. The myth *If I learn the computer then I can produce creative solutions* lends itself to course offerings solely on PhotoShop, Flash, or other trendy software. These classes and the software are expensive, time consuming and temporal. All the creative software packages expire in roughly two-year cycles with various updates throughout the two years. Students are concerned about the level of proficiency they need to achieve in a 10 to 16 week course. What happens when the student learns the menu structures and operations within a certain package then the following semester the course they took changes or now is taught using a new software application? Does the student need to take this new course? This tension can easily be avoided. Build the course around the practical principles of visual communication, instead of teaching the rectangle or the polygon tool; use the visual element of shape. When the student learns how shape operates in the 2D and 3D visual space, it is easy to introduce materials however complex. Once they grasp the complexity of the elements and their governing visual principles, it is easier to introduce a variety of digital tools. Students become independent of the digital tool, focusing their creative energy on the conceptualization of the visual solution.

And though this concentrated effort, the student will seek out innovative solutions to complex problems rather than working through concretized options supplied in abundance by software's push-button solutions. The success of a professional graphic design solution is measured and quantified and expands from a set of predetermined criteria, not the software's abilities or inabilities. It is beneficial for a student to learn how to find the nature of a problem, its functional parameters, and the intended audience(s) before they are consumed finding the histogram in PhotoShop. Creative solutions that showcase the technology demonstrate excellent software acumen, but lack the sensitivity and considerations to the problem. Generally these solutions are rushed because the conceptualization stages are minimized in order to maximize the time for building. Students populating graphic design departments throughout the nation sit in the glow of a backlit screen with headphones on, feverishly clicking at the mouse and keyboard. Instructors interrupt students from their trance-like state—with the hope that they can communicate their process and idea development—with a question as simple as, "What are you doing?" The question is intended to stop the student and have them visually and verbally communicate their thought process and idea development. The silence is broken by the student, who points at the screen and says, "What I am trying to do is . . ." and after a couple of minutes it is easy for all involved to see that something is missing. An instructor asks, "Where are your sketches?" The sketches are an exhaustive and essential process of visual thinking, but the student replies, "I can't do sketches because I think better on the computer." The student's response may be plausible if the educator is seeking abstract theorizing—the act of working through various possibilities, investigating relationships of form, experimenting with complex iterations of an idea are appropriate, desirable, and crucial in the process of conceptualization

Why is it important to conceptualize with a pencil and paper? Thinking is thinking, no matter if it is on the computer or in a sketchbook, but the digital variations are lost with a single click, drag, and save command to overwrite their history. There is no *paper trail* to come back to and evaluate at a later time. "While you are sketching, the visual realm reigns, theories are neglected, and all other tools and accessories are kept away until the appropriate time of execution." [3] The process work functions as a map, providing insight to the key choices and decisions that will guide the idea into a finished product. In addition to the permanence, a student will work through problems using internal dialogue: the visceral-self is competing with logical-self for supremacy. The pencil and paper is ubiquitous to the point that it is invisible: there is no screen, there are no key commands, and surely no menus. The industry offers some possible tools for sketching and conceptualization, but none of them have the immediacy and low learning curve of pencil and paper—and none of them bare noticeable human qualities.[4]

However, design students will need to understand and appreciate a range of software applications at a foundation level. In the classroom, instructors planning to go head to head with the filters in graphic applications, the audio play list and any vector animation on the web are in for double duty. When developing curricula, instructors will ask, "What might help in dealing with the problem of using software? Should we teach it 'outside' the class, i.e., done as workshops by techs, or as a totally separate 'nuts and bolts' unit?" No matter the course, its timing, or its content, students must learn how to master software on their own. This does not imply that they should be sat in front of a computer to learn about the intricacies of Photoshop and other Adobe products by stumbling through all the menus and palettes on their own. Rather, we suggest instilling self-reliance. When it comes to learning software, students can be divided into two categories: self-reliant and instructor-dependent. The self-reliant student will dabble,

toy, and experiment until they reach some level of mastery with the given tools; peers will rely on them for help either during or outside the class.

While self-reliant students walk themselves through issues and troubleshoot without hesitation, instructor-dependent students feel the teacher must direct them in times of need, and when instructors continue to help students with even the smallest problems, they will hinder the student's growth because this prevents them from exploring and unraveling on their own. For designers, the willingness to discover and take risks is a valuable asset that mirrors the design process itself. Play yields inquiry, forcing one to ask questions about the matters at hand and then observe, act, and react in order to reach an objective. Whether the media is pencil or computer, instilling self-reliance and the play principle are invaluable attributes for the student to gain. At an early level of development, students must learn to cope on their own with technology's dynamism. By having a media course at the foundation level, students would be exposed to the fundamentals, history, and usage of the computer as a creative tool from the outset. Said course would have weekly lectures about historical and technical data, with breakout sessions for studio work or lab sessions moving them through one piece of software to the next: bitmap and continuous-tone renderings; working with vectors and Post-Script data; and combining the aforementioned with motion. Only after passing this class, would students move into advanced instruction or their focus area, such as graphic design.

But merely creating a new course or changing the entire curriculum won't guarantee a changeup in a student's design process; they may invariably start with the computer and rely on software around the clock even at the earliest stages of development and investigation when commitments to the computer may prove frustrating. This technocentric method will close their creative process, and cut them off from valuable research methods and practices, so intervention

must happen where the instructor will redirect the student to keep them fresh, motivated, and on the right track. Intervention would interrupt the student's normal design process and replace a technical operation, such as using the computer, with a looser means of visual generation that will help them render ideas without having to think about how the computer will make it all come together. At the classroom level, deeper inquiry through brainstorming sessions will get students to talk with one another instead of gazing at a screen in isolation.[5] Brainstorming will also have a valuable impact over the long term because it teaches students to work in broad terms at the outset, having an expansive view of the problem and its context rather than one limited to the tools inherent in software packages.

Requiring students to perform other experiential tasks such as interviewing—where they can hit the ground running and get first hand information from reliable sources—teaches them that design and the work they do has social and cultural relevance. Mapping will also yield favorable results, especially if the process involves the entire class. Through information mapping (described by Robert Horn in 1966), students would source material that relates to the problem at hand. The visual or textual data builds up piece by piece on a wall, evolving and growing into something that early on, appears out of hand. However, through a macro viewing—where students can see large amounts of information and images—they will begin to draw relationships by grouping, layering, or combining elements. [6] This method of categorization is akin to having an outline prior to writing a paper—it gives you a structure.

The argument has been made that students, who dwell on processes like those above, will fail to become productive and efficient designers when they enter the workforce. Some even believe that mastery of tools, software, and technology is the privileged and ideal skill-set for designers entering an agency. In fact, what most employers do want are designers who can hit

the ground running in a number of domains: possessing software knowledge; a willingness to work in team environments; dedication; curiosity; and strong communication skills. Exposing designers to more than just design wouldn't hurt either, especially when some employers see students entering the workforce with a resistance to thinking in terms of value, and coming from classrooms that are "cultural vacuums." [7] Lately, clients are recruiting talent using some extraordinary means and methods, sometimes forgoing any visual work in favor of looking at how the designer, agency, or creative can manage relationships and out of the ordinary challenges.[8]

But the technologically adept student will be able to find work with or without a sense of culture, and whether or not they can craft a narrative out of their experience with a brand new automobile that must be advertised to the masses. In commercial environment, there is always a need for talented electronic production specialists operating with the express purpose of producing or building. They dedicate their time and effort to final assembly and engineering of jobs using commercial software and technology; they ensure that a job is "tightly" rendered and that all parts are in place prior to final production and implementation. This would be similar to the 3D designer that generates Frank Gehry's conceptual visualizations; any of Gehry's gestures or drawings would be nothing without the 3D designer, but Gehry does not spend his own time rendering and wrestling with the computer because in the studio, generating that initial idea—even as the crudest napkin sketch—carries the most value.

In order for design to move forward, we too must generate thinkers and entrepreneurs who have the ability and ambition to do more than mediate between the idea and end product, and to do this we must instill a better sense of invention and innovation (Table 1). Students must also learn that being efficient is not the best approach to problem solving, but rather a pressure

imposed by industry and business—be efficient when you have to be, but use your time when you have it.[9] In order to prepare students to be thinkers as well as form givers, they should be surrounded by process-sensitive problems and interdisciplinary projects that put them in touch with culture, current events and social issues all under the domain of critical thinking. Said educational goals would create a self-motivated student—an inventor—with a passion for life-long learning. Empowering students with the computer as technical tool only gets them so far, and they will have little ambition beyond knowing the tools for decoration or organization.

A new graphic design curriculum that focuses on principle, tools, complexity, and change would better prepare students for such endeavors. Principles would instruct students about the means of creating dynamic, expressive, and communicative form; tools would sharpen hand and craft skills while introducing a wide variety of rendering methods including print and digital media; context would expose students to a range of problems, issues, and influences while fostering critical thinking and inquiry; and complexity would expose them to a range of difficult and dynamic problems needing intense examination. Through this breadth of instruction, students would gain ambitions deeper than the supposed financial affluence that awaits them when they leave school behind. The student that possesses business acumen, a broad overcoming intellect, strong oral and written communication skills, and the ability to problem solve through critical inquiry will have greater opportunities than those who have only mastered commercial software. In our ever-expanding culture, it is important that each student has the knowledge to find a place as citizens, whose goals reach far beyond clicking and dragging the mouse.

Table 1

Decorator	**Organizer**	**Inventor**	**Builder**
Glossy solutions	Focus on representation	Full of inquiry	Technical
Ornamentation	Resists unique solutions	Broad and deep research	Production focused
Leverages the popular	Adheres to rules	Problem defines solution	Emphasis on craft
Effect takes priority		Adaptive	

[1] Nigel Cross, "Can a Machine Design?" Design Issues, Volume XVII Number 4, Autumn 2001.

[2] Fiona J. Doloughan, "The Language of Reflective Practice in Art and Design," Design Issues Volume XVIII Number 2, Spring 2002.

[3] Christian Vermaas, "Sketching: Conversations with the Brain," *Design Culture*, New York, 1997.

[4] In a lecture given at Carnegie Melon University, design educator and theorist Ken Hiebert defended the sketchbook as a more human method of generating ideas.

[5] Nicholas Negroponte defends idea sharing as a positive means of innovation in his essay "Creating a Culture of Ideas" (*MIT Technology Review*, February 2003). Idea openness helps one elaborate on a problem, or see things in a new perspective. This also fosters random ideas that one individual may not have considered during his or her own investigation, and the ability to see relationships based on varying perspectives.

[6] Robert Horn "To Think Bigger Thoughts," PowerPoint presentation (Talk given at the *Converging Technologies for Human Performance Conference*, 2003).

[7] Michael Bierut "Why Designers Can't Think*," Looking Closer: Critical Writings on Graphic Design*, Allworth Press, New York, 1994.

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[8] David Kiley "Getting Creative with Mad Avenue," Business Week Online (2006).

[9] In Silas Munro's interview with Martin Venesky (Speak Up, http://underconsideration.com/speakup), Venezky champions time and process in favor of speedy work, especially if it will yield a better solution and sovle the client's problems, needs, or initiatives.