Redesigning Design Education

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Abstract

Graphic design, as the profession we now know, has a relatively short history. As a result, graphic design education is a very new emphasis of study at the university level. Most existing graphic design programs in the United States are less than 50 years old. Therefore, the development and maturation of graphic design as a practice, discipline, and field of inquiry can be said to be in its early stages of development. In addition, there have been many technological changes in the field in the last 15 years. The definition of graphic design continues to move and expand, encompassing new technologies, mediums and industry standards. There is no reason to believe that the avalanche of technological change will not continue and even increase in the future, leaving design educators with the continual and mounting task of monitoring and adapting to those changes. Within this context, design educators must decide what new content must be added to their curriculums and what old content they can afford to delete.

Defining Graphic Design

Commercial graphic design is broadly defined as a visual problem solving language that uses type, image and other elements to communicate a message to a target audience for the benefit of a client's goals. Included in this description are two- and three-dimensional outputs including, but not limited to, print, web, video, animation, 2D and 3D illustration, environmental and exhibit design. For the most part, this discussion is meant to center on graphic designers whose work is output to a printing press.

Designers use materials and processes ranging from basic hand skills to complex computer programs in order to create orderly visual communications for society. Graphic design, as a profession, began as a response to the needs of commerce after the industrial revolution. Business needed a way to make people aware of their companies and products. Today, designers must connect with people in many fields. (Fried and Scott, 1998) Design, in practice, exists primarily in response to an externally generated need or situation (Swanson, 1993). Graphic designers are the intermediaries between manufacturer and consumer in a capitalist, market-based society, and "function as partners in corporate decision making" (Davis, 1997). They create the denotative and connotative message in the "sender-message-receiver" communication model. According to Fried and Scott, (1998), the design process can be broken into three major areas: perception, concept and method. They define perception as "design principles and the ability to see, differentiate and recognize them, and use them with each other to create meaning". Conceptualizing is defined as the "ability to come up with a new idea that communicates through the organization of material (structure, emphasis, hierarchy) and through association with known ideas (symbols, signs, metaphors, visual language)". Methods range from knowing "problem solving approaches or strategic thinking methods for solving a problem to the understanding of all the various surrounding technologies (knowledge of tools, materials and processes)". Methods can then encompass knowledge of tools, processes, skills, competencies and applications of design theory. This description illustrates just how wide the profession of graphic design has grown, and underlines the need for a broad-based curriculum. In light of the broad and demanding spectrum of responsibilities handled by today's graphic design professionals, educators in graphic design programs should take a careful, thoughtful and balanced approach in their efforts toward instilling visual literacy and communication skills in their students.

Defining Design Education

Although society has much broader communication needs than advertising, design education has nearly always centered on the needs of commerce. Most graphic design programs find their model in the Bauhaus school of the 1920's, which used a master/apprentice workshop method. They believed that students should be introduced to basic design principles first and then presented with applied design problems later in the curriculum. Therefore, design education doesn't always happen in a typical lecture hall. It is usually project-based, where students are immersed in problem-solving activities and hands-on projects. Students research and analyze problems and create conceptual

solutions using formal design elements, rules of composition, typography, photography, images, 3D space, time, and other components. The typical design program also places emphasis on student intuition and creativity, mixed with a critique of examples of professional or "award-winning" work. Design education usually begins with general knowledge, an overview of the profession, and is followed by specialized activity (Swanson, 1993). For most of the short history of design education, curriculum in design schools has consisted of problem solving, principles of visual composition, typesetting, printing, and presentation skills (Davis, 1997).

The graphic design industry has basic expectations when hiring graduating design students. It is only common business sense that design businesses should desire that entry level employees be trained in the basic competencies that they will be required to perform. When the student is technologically literate, the employer doesn't have to train them (Justice, 1998). Design programs have responded to industry's needs by teaching the specifics of what graduates need to know in order to enter the profession. Therefore, the majority of graphic design programs are nothing more than vocational training programs (Swanson, 1993). However, any student entering the field should be educated broadly across diverse disciplines so they are able to adapt to change as their career progresses and job responsibilities increase.

Since the 1920's, there has been an explosion of graphic design programs at technical schools and universities across the country. According to RitaSue Siegel Resources, (Staples, 2001) "as many as 350,000 individuals currently practicing think of themselves as graphic designers; and schools graduate as many as 10,000 students each year".

The Computer Publishing Revolution

In the late 1980's, computer technology began to revolutionize graphic design workflows. The Macintosh computer, the picture-describing computer language called Postscript and the invention of fonts were watermarks in the conversion from analog to digital publishing. Graphic design programs embraced this influx of technology in the early 1990's. Some of the outdated instructional content was dropped and replaced by methods using these new technologies (Justice, 1998). In many graphic design university programs, educators have struggled to prioritize these new paradigms within established pedagogy. In some cases, to make room for emerging technologies, meaningful content and methods of instruction may have been thrown out with the older analog technologies.

How the Look of Visual Design Has Changed

What are the effects that computer technology has had on visual design itself? The technology surrounding visual design has changed drastically in the last 15 years. Technology is transforming visual communications (McCoy, 1997). The t-square, X-acto knife and stripping table have given way to digital cameras, software packages and DVDs. The look of visual design has changed as well. Hand crafted illustrations and

darkroom effects have been replaced by the glitz and flash of computer-generated, manipulated, and enhanced images. The ability of designers to quickly and almost effortlessly create stunning graphics has had a profound effect on the process and product of visual design. Interestingly, a typical freshman entering a design degree program has been barraged with tens of thousands of 3D images, animations, videos, sounds and other multimedia for most of his or her life. The blinding effect of this avalanche is to convince some students of the power of graphics. However, the attractiveness of high-powered graphics can often blind new design students to the power of message, concept and function. Therefore, it is the responsibility of educators to emphasize a holistic approach in the face of powerful and enticing software technology. Educators in graphic design programs should ensure that curricular elements should broadly and comprehensively cover the study of graphic design.

The Revolution Continues

As the reliance on computer technology in the design workflow increases, there is a natural tendency to place a greater emphasis on computer-related content throughout the design curriculum. The trend is to ensure that students have expertise in the common software packages used in industry. Many students also see their ability to operate software as the most important preparation in securing employment after leaving school. In addition, prospective employers of graduating students also expect new designers to be able to function immediately on the computer. However, as important as computer literacy is, there are many essential facets in a designer's education that cannot be overlooked or crowded out by too many software tutorials. Students should acquire basic competencies in the most common software packages and should also understand the related systems used to create design. However, educators should balance these issues by teaching as much software as they can without minimizing the other essential areas of instruction surrounding graphic design.

Students that are enthralled by computer software programs need to also understand that design is a complex interplay of messaging systems. A digital designer still needs to create a concept, and still needs to have artistic talent. Digital designers are only using different tools than their predecessors. Unbalance occurs when designers become too entranced by the digital tools themselves. In his keynote address to the Society of Photographic Education Conference, as reported by Back To Magazine, Pedro Meyer (2001) warns that, "in a culture where new and alluring technology tends to seduce us by its wonder into a kind of sleepy stupidity, we need personal defenses for protection from our own dangerously naive enthusiasm. In this world of blinding techno-hype, our survival demands that we learn to shield ourselves from the seductions of technological eloquence". Also, there are other reasons why students and educators should not place all their marbles in the technological basket. Just as camera operators, film strippers and paste-up artists suddenly found themselves extinct in the early 1990's, today's QuarkXPress, Illustrator and Photoshop jockeys may soon find their skills obsolete in the next technological revolution (Swanson, 1993).

What are the fundamentals that provide designers with a strong foundation? Graphic design involves a mixture of concept, art and technology. What technologies are available at any given point in history influences what the art or design looks like. Also, designers of any time period share a common set of terms and skills. New vocabularies bring new languages and competencies, and change our ideas about product and process. Therefore, design educators should keep up with technology, but should also remember what non-technical elements are important in the education of a visual communicator.

Defining Digital Design

Just what is it about digital design that is different or the same as more traditional forms? One of the defining characteristics of digital design is that it does not have a subject matter of its own, unlike more traditional fields of study. It exists in practice only in relation to the requirements of given projects. However, by its lack of specific subject matter, it has the potential to connect many disciplines (Swanson, 1993). Other characteristics are its transitory and non-object status, the ease with which an designer can make changes and explore multiple concepts, its ability for multiple copies, its ease of distribution (through new media channels), and the fact that it is multidisciplinary and collaborative by nature (Mitchell, 1994). Designers can easily and convincingly change how a digital image looks and what reality the image seems to portray. It should also be noted that there are possibilities for teaching design principles more effectively and quickly with computer software.

William Mitchell, in The Reconfigured Eye (1994) says "a digital photograph stands at any point along the spectrum from algorithmic and intentional". Design student are able to often come up with stunning visuals simply by playing with the inherent capabilities of the software. A large amount of the design work is completed by the computer's abilities. In addition, Len Monavich, in his essay, The Paradoxes of Digital Photography (1995), states that, "the digital image is paradoxical: radically breaking with older modes of representation while at the same time reinforcing these modes". However, defining what digital design is by comparing and contrasting it to traditional design is only one small part of this interesting new development in visual design technology. There are practical applications of these new relationships to consider as it relates to the education of a visual designer. Just as important, there are also traditional graphic design subject matters that cannot be ignored. For example, in order to know what must be taught, it is helpful to draw upon the processes involved within the various stages of the graphic design process.

The Process Stages of Graphic Design

Based on the author's experience, the stages in the graphic design process include: *preparation, evaluation, incubation, inspiration, visualization, graphic ideation, production, correction, publication, and verification*. Each of these areas needs to be addressed in the graphic design curriculum and several areas have their own accompanying computer technologies. What follows is a description of each of these

areas. The first paragraph in each stage is a description of the stage as it relates to the design industry. The second paragraph describes how that stage is taught in classroom situations. Understanding these stages in industry and in an academic setting can also help us to understand and formulate what other important areas and directions of study there can be in graphic design education.

The Preparation Stage

The *preparation stage* in industry involves the gathering of information from customers, the customer qualification process, discovery of pertinent information, analysis, prioritization of information, surveys, meetings, market research, project management, time, quality, costing, estimating and planning.

The *preparation stage* in the design curriculum involves the introduction of the assignment. The introduction of the assignment is usually preceded by lecture, demonstration, outside reading, library and Internet research, and in-class participation on the intended subject of the project. The assignment has parameters that need to be followed. Information is given on the mock customer, their needs, product or service, and target audience. A statement of the problem is offered, along with constraints and deadlines for completion of the various stages of the project. Computers are needed in the estimating and project management areas of the project and specialized software has been developed for estimating jobs in graphic design.

The Evaluation Stage

The *evaluation stage* in industry involves strategic thinking, identifying audience, goals, message, competition, environmental factors, client needs, and audience needs.

The *evaluation stage* in the design curriculum involves the writing of a creative brief, in which specific questions are answered about customer goals, message, audience and any of the environmental factors involved, such as budget and timeline. Answers to these questions are translated into design criteria for the project. Word processor software is used to complete the project.

The Incubation Stage

The *incubation stage* in industry involves the subconscious formation of an idea, right brain and creative functions, gestalt principles, and the ability to see the whole problem comprehensively through the process of insight.

The *incubation stage* in the design curriculum takes place in the time period between classes. The statement of the problem triggers the subconscious to begin work on the solution. No computers are needed to complete this portion of a project.

The Inspiration Stage

The *inspiration stage* in industry involves the spark of realization, the birth of an idea, the eureka principle active in the area of the mind where creativity is born. Good design is part form and part idea. (Fried and Scott, 1998) Designers who understand that "creative block" is part of the process of creativity are able to work through this frustrating portion of the science of creativity and be more productive on demand.

The *inspiration stage* in the design curriculum sometimes happens before the next class but usually happens during the *visualization stage* of the process. No computers are needed to complete this portion of the project.

The Visualization Stage

The *visualization stage* in industry involves brainstorming, seeing a solution in the mind's eye, and putting inspiration to use in the form of multiple and non-judgmental solutions.

The *visualization stage* in the design curriculum takes place in the classroom. Students will sometimes participate in a group brainstorming session in which they break up into small groups of 4-5 students. They create as many verbal and graphic solutions as possible and then bring their ideas and sketches back to the entire class for discussion after the breakout sessions. No computers are needed to complete this portion of the project.

The Graphic Ideation Stage

The *graphic ideation* stage in industry involves making ideas visible through hand sketching, thumbnails, roughs and mockups. Decisions are also made on specifications such as paper, ink, format, folding, and other bindery decisions. The results of the graphic ideation stage are often shared with the customer. Computers are sometimes used to complete project roughs.

The *graphic ideation* stage in the design curriculum begins in the classroom during the brainstorming sessions but carries over into their out-of-class time. Students then work in their sketchbooks out of class to further develop their ideas. Those ideas start in the thumbnail stage. The best ideas are then developed into several roughs. The best rough is sometimes developed into a mockup, comprehensive or storyboard. The next stages include the gathering of design assets and copywriting. In some cases students will complete a preliminary computer rough, either in a page layout, image editor or illustration program.

The Production Stage

The *production stage* in industry involves the creation and manipulation of type, artwork, photography, and other image components into a layout. Computer applications such as the image editor Photoshop, the drawing program Illustrator and page layout program QuarkXpress are used as tools in the creation of the visual design. Input technologies such as digital cameras and scanners are used to combine elements for the production of the final digital product. Part of the production stage is the element of critique. After a design project is started, there needs to be a revision or refinement process. Critiques, or "crits", take place at different stages in a project, from the sketching stage to the publication stage. Individual or group critiques with team members or clients provide an opportunity for a designer to step back and reflect on the project, to get another viewpoint, to hear new ideas, to explain goals, and to defend the reasons for design decisions.

The *production stage* in the design curriculum is where many of the same processes happen as in industry. Students create projects in much the same way they do in industry. The process of critique helps students to develop critical thinking skills. It also helps students to separate themselves from their work and to not get their feelings hurt by criticism. They learn the vocabulary of critique and of design and learn to explain the reasons behind their solutions. Critiques help students to raise their expectations of their work, to stand in front of a class without fear, to share ideas with other designers, and to work on a team. They also learn to take suggestions from others in a mature way, as it is important that designers learn to objectively evaluate their own and others' work.

The Correction Stage

The *correction stage* in industry involves spell checking, proofing, "flightchecking", and the accompanying redesign.

The *correction stage* in the design curriculum also involves spell checking, proofing, "flightchecking", and the accompanying redesign. Many computer programs have built-in quality control features. There are also programs made just for proofing graphic design jobs.

The Publication Stage

The *publication stage* in industry involves all output technologies that move the design to printing press. Output technologies are used to manufacture and store both the digital and analog design product. Computers play an essential part in the prepress area of print. Computers also control functions on the press. Newer printing technologies such as digital presses use digital information directly from computer files.

The *publication stage* in the design curriculum is sometimes not as intensive as in industry due to the high cost of production and equipment. In some areas such as

multimedia production, the computer screen displays the design output and so the computer is essential to the process. In fact, the computer began as a tool and has transformed into a medium. In print, the understanding of how to design for press is essential to producing a functional print designer for industry. If there are not in-house presses for the student's work to be printed on, educators need to invest in highly controllable proofing equipment that can emulate press conditions or they must cooperate with industry to have student print work published.

The Verification Stage

The *verification stage* in industry involves testing, quality assurance, tracking, maintenance, and evaluation.

The *verification stage* in the design curriculum includes a paper in which the student reflects on problems encountered, solutions found and the learning that has taken place during the project. Word processing programs are used to complete this part of the project.

Important Areas of Study in Design

What exactly are the most important areas of study in graphic design and just where does an emphasis on computer software technology not belong? There are many areas that reach beyond software and technological issues. It is important to first note that the influx of computer and software technology has not affected the ideation stage of the visual design process. It can be observed that that computers and software have had a profound effect only upon the production stages of visual design. There is no substitute for idea sketching that is created directly from mind to hand. Thumbnail sketches and most rough sketches that are completed on the computer require a mind-to-hand-to-mouse-to-screen process that is not as directly related to the creative, right brain function as is traditional hand sketching. Humans contribute emotion, subjective interpretation and hand gestures, which computer's expert systems cannot (McCoy, 1997). This suggests the possibility of a renewed appreciation and new applications of our earlier, intuitive image-oriented, hand-generated design approaches. Therefore, educators in visual design programs should also ensure that their curriculum contains sketching or drawing elements. Also, hand-sketched thumbnails and roughs should precede computer-based project work. In some cases, hand rendered comprehensives are also of value.

Projects should include elements of estimating, planning, proposal writing, time and project management, research, strategic thinking, problem solving, and creative brief writing. Students should be involved with the creation of assets and the entire production flow as it emulates industrial methods. It is also helpful for them to participate in oral and written critiques during the design process and to complete reflection papers after the process is finished.

In any graphic design program, designers should first learn to be lateral thinkers and problem solvers. There should be a strategic element incorporated into the core of their education that is related to demographic research, sales, advertising, marketing principles and corporate branding. Graphic design programs should also place an emphasis on "art and design" principles and processes, such as the tools and concepts of visual organization, color theory and psychology, and the ability of type and imagery to enhance a message. At the same time, it is important as well that students learn technical input and output issues, job flows and basic business practices in the field of visual design.

Areas of Study Which Should Be Explored in the Future

Professors in design education and design graduate students should continually research areas of study that can help grow the profession in new directions. There are many diverse non-computer-based subjects that have very exciting possibilities for research, including those related to:

1. *Psychology*, including cognitive theory, perceptual processes, human interaction, methods of problem solving, the study of learning, strategic thinking methods, humor, and the science and mystery of creativity.
2. *Communication*, including writing and speaking skills, theater, rhetoric, the creation of meaning, content analysis, symbolism, grammar, anthropology, sociology, linguistics and language. Other areas include, according to Chandler (2001), "semiotics (the study of signs, including words, images, sounds, gestures and objects.), semantics, (the relationship of signs to what they stand for), and syntactics (or syntax): the formal or structural relations between signs".
3. *Marketing and business*, including the understanding of common office practices, basic marketing principles, i.e. the formation of goals, the identification of an audience, the creation of a message, environmental factors, budget and scheduling.
4. *Social sciences and humanities*, including the broadening of a designers world view, the study of art, literature, movies, culture, politics, history, ethics, religion, philosophy, and other liberal education studies.
5. *Aesthetics and design*, including advanced typography, the psychology of color, and the histories of design and art.

These are just a few of the exciting possibilities for exploration within and surrounding the realm of design education. The advancement of the profession as a whole should not be squeezed out by the need to keep up with advancing technologies, especially in a profession that is basically in its infancy. Design education must present basic principles that extend beyond what we are doing right now in order to allow students to remain flexible enough to adapt in the future. (Fried and Scott (1998) We must broaden the potential of students, not narrow it.

Questions Raised by Emerging Technology

The confluence of technology and design brings up many interesting questions.

• For instance, how have the tools of digital designers changed their visual vocabulary? What is the influence of technology on visual literacy?

• How do new technologies interact with older aesthetics?

• What is the significance of the shift from analog to digital media? How does the design world respond to digital forms and what is the nature of this new relationship?

• The "analog" designer was one secluded in a studio. Today, digital design tools allow the designer to collaborate more easily with other designers through media such as the Internet, and to experiment with a wider range of multimedia options. What is the significance of these shifting professional boundaries?

• What does it mean to be a digital designer?

• Is a person a digital designer or just a designer?

• If I design on a paste up or a monitor, is there a difference and what is it?

These questions are facing educators and industry professionals alike. The answers to these questions help to define the new face of visual design. Technology and software associated with visual design will continue to change in the future, and it is important that educators keep abreast of those changes. However, it is equally importantly that they should continue to interpret how changing technology fits into their curriculums and how content can be improved in non-technical subject areas as well.

Epilogue

"Education is what is left over after you have forgotten everything you've been taught".

Anonymous

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