THE STATUS OF PRINT DESIGNERS
AND THE INFLUENCE OF DIGITAL TECHNOLOGY

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A Thesis

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ABSTRACT

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The problem of the study was to examine the effects recent technological advancements have had on graphic designers working in the print industry. As web, multimedia and interactive presentation become more predominate in the design industry, this study explored how graphic designers are using technology and adapting to the changes caused by it. Further investigation included what factors contributed to their decision of pursuing a career in graphic design, how they were acquiring the necessary skills and training, as well as how they regarded their personal investment, compensation and satisfaction. Furthermore, the issue of standardized testing and licensure was explored in light of the recent evolution of affordable and user-friendly software and hardware being exploited by novice users.

A 30-question online survey was developed and posted on HOWdesign.com for a two-week period. Readers and subscribers of HOW magazine were directed to the survey by a brief paragraph posted on the homepage of the site. One hundred and twenty-three individuals participated in the survey, with an average response rate of 89 answers per question. The majority of participants expressed an artistic interest or ability as their main influence in becoming a graphic designer. More than half possessed a two-year, four-year or graduate degree and rated their education and training as above average. The most popular method of learning was self-taught attempts through trial and error. Trade magazines, periodicals and online articles proved to be the most popular method of acquiring new information. Participants of the study
also indicated that additional education and training was most commonly provided through self-funding.

The majority of graphic designers working in print media reported that the use of computer technology enabled them to be more efficient and resulted in an increase of their responsibilities beyond the creative act of designing. Almost two-thirds of the participants reported that they could design without the use of a computer, however over 80% stated that they preferred to design with one. Almost 70% expressed using the computer during the ideation process of designing, replacing the traditional thumbnail sketch approach. In an effort to remain competitive as a graphic designer, nearly 75% of the respondents stated that they plan to expand their skills to web, multimedia and interactive methods. More than half reported that they would explore freelance opportunities and accept project management responsibilities as a means of expanding their careers.

Despite concerns that the design industry has been compromised and devalued by the influence of technology and novice users, an overwhelming 95% reported that they intend to remain in the design profession. The ability to invent and reinvent allows designers the opportunity to add new meaning and value to their craft and to their own careers. In a visually rich and aesthetic culture such as ours, audiences and consumers of design will continue to demand and reward those individuals that can communicate new and exciting meanings through the universal language of design.
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CHAPTER 1: INTRODUCTION

Context of the Problem

In 2002, Carnegie Mellon University professor Richard Florida published his ambitious and challenging book *The Rise of Creative Class And How It’s Transforming Work, Leisure, Community and Everyday Life*. According to Florida, 30 percent of the United State’s workforce or more accurately stated, an estimated 38 million people eagerly partake in some sort of creative activity within their profession (p. 8). Florida contends that creativity has become “the decisive source of competitive advantage” (p. 5) in our information-driven society and economy. “In the 1990s, U.S. firms (belatedly) adopted the Japanese ‘creative factory’ methods whereby workers contribute ideas for improving productivity and quality” (Florida, 2003, para. 12). This new approach to production, coupled with rapid advancements in technology, has allowed American workers to not only make a reasonable living, but to enjoy and be a part of the work they perform as well. Although the purpose of Florida’s research was to develop a framework for community and urban development by emphasizing the need for cities to promote creativity and diversity, his study also revealed the current mindset regarding the significance of creativity and how we value those individuals who consider themselves purveyors of it.

The following year, Virginia Postrel offered similar conclusions in her book *The Substance of Style*. Like Florida, Postrel (2003) uses strong language to suggest the significance of aesthetics and creativity within American culture. “Aesthetic creativity is as vital, and as indicative of economic and social progress, as technological innovation” (p.16). She further contends that this awareness extends beyond business and industry and exists within a personal and social realm as well.
This trend doesn’t mean that a particular style has triumphed or that we’re necessarily living in a period of unprecedented creativity. It doesn’t mean everyone or everything is now beautiful, or that people agree on some absolute standard of taste. The issue is not what style is used but rather that style is used, consciously and unconsciously, even in areas where function used to stand alone. Aesthetics is more pervasive than it used to be—not restricted to a social, economic, or artistic elite, limited to only a few settings or industries, or designed to communicate only power, influence, and wealth. Sensory appeals are everywhere, they are increasingly personalized, and they are intensifying. (Postrel, 2003, p.5).

Assuming Florida and Postrel are correct in their findings, it could be argued that current society is deluged with creative individuals. As consumers of media, society demands creative approaches to information from their delivery systems, and providers of media are expected to exploit the technology capabilities to the fullest. Today, information must not only be delivered accurately and within a timely manner, but it must visually entice and win the immediate attention of an audience drowning in a sea of visual debris and clutter. Graphic designers face this challenge every day in developing new and creative methods of reaching intended audiences with specific and decisive messages. It would appear to be a perfect scenario: an audience that appreciates and demands aesthetic creativity, and a group of professionals waiting to deliver. However, as these authors illustrate through their research, this audience is not only one that expects to be creatively stimulated, it seeks to be actively engaged in the creative process as well.

Advancements in computer technology have opened this possibility to virtually anyone who has as little as a thousand dollar to spend and a desire to play. Design theory, history and
practice seem irrelevant when presented with such an arsenal of powerful design tools. Through imitation, experimentation and personal expression, the average computer user can now produce quite acceptable results with a certain amount of ease.

Not all personalized expression looks good to other people, of course. Especially in the early days of desktop publishing, a lot of amateurs went for the multifont ransom-note look. PowerPoint presentations are still often hard to read or cluttered with clichéd clip art, and the Web is full of ugly sites. But, on the whole, the computer-driven democratization of design has made more people sensitive to graphic quality. Bit by bit, the general public has learned the literal and metaphorical language of graphic design. Carried by computers, aesthetics has spread to places and professions that were formerly off-limits to any such frivolity (Postrel, 2003, p. 55).

Combine affordable hardware systems with user-friendly, intuitive software and relatively low-skilled technicians can now perform complex and dynamic design techniques with a click of the mouse. Accessibility to free stock photography, clip art, pre-designed page templates, designer fonts, and inexpensive inkjet printing has made the field of graphic design a “do-it-yourself” industry.

As more users become proficient in employing highly advanced design tools, research must be conducted to determine how these instruments are assisting professionals and novices alike. A dichotomy exists within our society; one which places enormous significance on creativity yet at the same time assumes everyone is capable of being creative when given the proper set of tools. Given that novices, desktop publishers, and graphic designers all have access to and share the same set of tools, and that today the practice of graphic design relies heavily of
the usage of these tools, it is important to examine the effects technology has had on the creative process and the profession of graphic design.

Problem Statement

The problem of the study is to identify the effects the evolution of affordable and user-friendly hardware and software have had on graphic design professionals working in two-dimensional design and graphic reproduction.

Objectives of the Study

The objectives of the study are:

1. To determine the role and significance of computer hardware and software in the graphic design industry.
2. To determine how and to what degree graphic designers are using computer technology to produce print materials.
3. To identify how designers have acquired and maintained the skills, knowledge, and resources necessary in preparing for and continuing in a graphic design career.
4. To identify and define the perceptions of designers regarding the need for formal education/training and certification/licensure to practice design, especially in response to the popularity of desktop publishing.
5. To define what adaptations graphic designers working in print must consider to secure employment and remain competitive in their profession.
6. To capture a collective understanding of what determining factors influence designers to pursue a career in design, to define what perceptions designers have regarding their personal investment and compensation, and to identify their level of satisfaction and commitment to the industry.
Significance of the Study

To illustrate just how young the profession of graphic design is, consider the following: “over 95% of the graphic designers who have ever lived are alive today” (Berman, 2003, par. 1). Despite being a direct descendent of the printing industry that has existed for centuries, the profession of graphic design is unique in that it focuses on the clever ideation and intentional aesthetic of graphic content, and not exclusively on the mechanical process of producing media. This was a birth of a new visual language and a new profession that was not entirely recognized or embraced until the middle of the twentieth century. In the 1970s, much was written in regard to how the computer would change the way we worked as an industrialized nation. Some ten years later, the personal computer was developed and again, much research was collected regarding the impact this would have on society and industry. Within a decade, the personal computer was introduced as a tool for graphic design. Graphic artists theorized how the new technology would effect the way they worked, but more importantly how it would alter the look and feel of their work. Volumes of information were produced during this time, offering the new technology as a new and alternate means for creating design. But today the choice of tools no longer exists. The computer is the basis of all design production and traditionally trained graphic designers are finding themselves competing with digital natives who seem to have mastered the new technology sometime between learning to walk and ride a bicycle. Furthermore, the research seems to have stopped in regard to how the personal computer and technology advancements continue to affect the graphic design industry. Cultural assumptions have been made that the transition period is over and that the technology will proceed in a straight line predetermined by market demands and influences. The popularity of the Web as a source of information and
commerce suggests that designers working exclusively in print must adapt and learn interactive, multimedia techniques in order to survive in such a competitive industry.

So where are we now in this young industry of graphic design? Is it still in its infancy or have we reached its awkward adolescence? What kind of relationships can we foster between creativity, information and technology and how will graphic design for print grow and mature during this time of critical expectation and discernment?

The significance of the study is to examine the current threats and opportunities posed by recent technological advancements in the graphic design industry and to inform design and industry professionals of the status of their professional peers. If consumers of media are to value the profession of graphic design and develop systems of reward and compensation for design services, it is imperative that critical distinctions are made to determine and define the differences between the varied users of graphic design tools and technology. If educational institutions are to continue to develop and utilize training and learning systems for individuals wishing to master the latest technological advancements, it is significant they understand how design professionals acquire this new knowledge. In general, as a society we cannot measure the overall health and vitality of an industry without taking the pulse of those actively engaged in it. Considering the continuously changing nature of the graphic design industry, fueled primarily by the technology that supports it, seasoned design professionals as well as those newly arriving to the profession will benefit from the insights of this current study.
Definitions

For the purpose of this study, the following terms have been operationally defined.

Commercial artist—a term used to describe an individual that produces artwork intended for use in advertising or promotional materials (e.g., photographer, illustrator, typographer, etc.)

Desktop Publishing (DTP)—A term coined at the advent of the Apple Macintosh computer, before the potential of the machine in the professional design and reproduction industries was fully realized. Used to describe the activity of generating text, page layout, and graphics on a computer and then printing, or publishing, the result (Campbell, 1983, p. 152).

Graphic Design—The arrangement, composition (design), and combination of shapes and forms based upon or involving two-dimensional processes such as typography, photography, illustration, video, motion picture, and various print methods. This does not exclude three-dimensional design, since the use of graphic design in three-dimensional forms is employed in many contexts, particularly packaging, product design, film, exhibitions, and architecture. Not to be confused with Desktop Publishing (Campbell, 1983, p.159).

Limitations

The limitations of this study include:

1. The sample group surveyed consists of current subscribers and readers of HOW magazine and their website HOWdesign.com. Approximately 61,000 copies of each issue are printed annually (HOW, 2005, p.36).

2. The survey questions will focus on information pertaining to graphic designers working primarily with two-dimensional compositions and traditional printing and publishing methods.
Assumptions

The assumptions of this study include:

1. That readership of HOW magazine and HOWdesign.com reflects a professional commitment and standing as a graphic designer.
2. That all those surveyed use computer technology and graphic design applications as tools for design.
3. That all responses were voluntary, truthful, and unbiased.
4. That all participants will respect the integrity of the research by submitting only one online survey.

Summary

Graphic designers use a variety of tools and none are more affecting and significant than the desktop computer. To fully understand the influence and role technology has played within the graphic design industry, research must be conducted by soliciting information from the individuals that use it. By conducting this research, those actively working as a designer as well as those considering entry into the field may weigh the current influence of technology on the design industry. From this study, new insights may be discovered in terms of developing future technologies for the industry, as well as preserving those that are currently effective in producing design work. Furthermore, this research will assist those employed by the industry by measuring skill and educational levels against industry standards, while providing evidence of trends and future considerations in the industry.
CHAPTER 2: REVIEW OF LITERATURE

Often it is difficult to recognize and differentiate various professions, especially those that are integrated or closely related to other occupations or share several common variables with other trades. It is equally challenging to define these seemingly indistinguishable careers because they are constantly being reshaped and redefined by external influences such as improvements in tools and technologies. In most instances, such advancements simplify tasks and procedures while magnifying the scope of possibilities that assist individuals in working and thinking more efficiently. However, many times professions are compromised and sometimes even eliminated by the very technology that was designed to assist it. Graphic design is one such industry that exists within this fluctuating realm of uncertainty.

The Significance of Graphic Design

Despite its fairly recent beginnings, graphic design plays an enormous role in society today. In this era of endless information and global communication, the exchange of knowledge and correspondence through graphics and symbols has become an effective means of relaying complex ideas and data to audiences of varying cultural differences and educational levels. In a sense, “graphic design constitutes a kind of language with an uncertain grammar and a continuously expanding vocabulary” (Hollis, 2001, p. 10) that allows for a exactness in delivery and comprehension, yet room for personal interpretation and relevance. With its message, design has the ability to carry attitude and emotion as well as any other human characteristic or expression. According to a teacher and designer interviewed by Postrel, design “is a visual language uniting harmony and balance, color and light, scale and tension, form and content. But it is also an idiomatic language, a language of cues and puns and symbols and allusions, of cultural reference and perceptual inferences that challenge both the intellect and the eye” (p. 94).
According to Richard Hollis, graphic design has the ability to perform at least one of three basic functions. The most elementary role of graphic imagery is to use design as a means of identification: “to say what something is and where it came from.” To illustrate this point, Hollis uses the example of a footprint and how that icon relays an enormous amount of information: what type of creature made the impression, how large is it in comparison to others and what direction was it traveling. The second role of design is to inform. Using the example of the footprint, if a graphic artist were to illustrate the exact size and shape of the footprint and disseminate that likeness to others, this would be considered an exercise in informational design. The third role according to Hollis, is to “present and promote, where it aims to catch the eye and make its message memorable” (p. 10). Again, in reference to the image of the footprint, other carefully selected images and graphic elements might be used to convey a stronger message. For instance, a depiction of the creature’s footprint positioned next to a photograph of a campsite left in disarray might suggest to campers to keep their food storage secure and a watchful eye out for bears.

Perhaps the most recognized role of design in American culture is its ability to promote consumerism and establish social class-consciousness. Through corporate identity and branding, graphic designers have created icons as simple as two golden arches or a single swoosh for athletic gear to represent some of the largest corporations in the United States. These graphic representations have even elevated to being the product themselves; average and ordinary products are sold at inflated prices everyday not because of their functionality or need, but because the symbol or logo they possess carries enormous social recognition and affluence.

Critics of advertising and mass marketing techniques have often accused graphic design as a means of deceiving audiences and manipulating them into consuming products and
information that are not necessarily wholesome or valid. Although cultural critics may argue that this is an American phenomenon steeped in a tradition of over-consumption and wastefulness, others recognize the influence and effect graphic design has on consumers as a rather human and global response to intentional manipulation. David Berman, a designer who established a code of ethics in May of 2004 for the graphic design industry in Canada (par. 9) warns “global branding strategies are the most powerful tools used today to encourage over-consumption amongst Developing World populations” and is “the largest long-term threat to the global environment and harmony.” He further contends that the design industry’s involvement in “helping corporations mislead audiences in order to invent unfulfilled needs” (par. 4) must be recognized.

“We have love-hate relationships with the whole idea. As consumers, we enjoy sensory appeals but fear manipulation. As producers, we’d rather not work do hard to keep up with the aesthetic competition” (Postrel, 2003, p. 7). However, despite the bad taste that is left in one’s mouth by the exploitable potential of the design industry, it is still an attractive profession for those who see the possibility of establishing relationships between ideas and images.

No different than a writer or any other artist for that matter, graphic designers participate in an exercise of communication. Design has no subject matter of its own, but instead serves as a channel for the expression of and interrelationship between multiple and sometimes abstract ideas and elements. It is a multifaceted discipline that is practiced by individuals who understand this nexus. “Design is ‘integrative’ in that, by its lack of specific subject matter, it has the potential to connect many disciplines” (Swanson, 1997, p. 69).

Design should be about meaning and how meaning can be created. Design should be about relationship of form and communication. It is one of the fields where science and literature meet. It can shine light on hidden corners of sociology and
history. Design’s position as conduit for and shaper of popular values can be a path between anthropology and political science. Art and education can both benefit through the perspective of a field that is about expression and the mass dissemination of information. Designers, design educators, and design students are in a more important and interesting field than we seem to recognize (Swanson, 1997, p. 73).

The Graphic Designer Defined

There are many professions that are not easy to decipher from their job title alone. The title “graphic designer” seems easy enough to comprehend, however as any graphic designer will attest, most things are usually much more than what they may seem. A surface definition might be “an individual who designs graphics,” but this definition does not answer what a graphic is, what it means to design or for whom or what purpose the process serves. In general, it leaves a great deal of room for misinterpretation.

According to the United States Bureau of Labor Statistics website, the following job description for graphic designers has been adopted.

*Graphic designers* plan, analyze, and create visual solutions to communications problems. They use a variety of print, electronic, and film media and technologies to execute a design that meet clients’ needs. They consider cognitive, cultural, physical, and social factors in planning and executing designs appropriate for a given context’ (2005, par. 10).

This professional description continues with types of materials a designer might generate, however noticeably missing from this initial definition is any reference to creativity or aesthetic awareness and appreciation. In all fairness, the U.S. Department of Labor does indicate that
“creativity is crucial in all design occupations” under their *Training, Other Qualifications, and Advancement* heading. They further state “people in this field must have a strong sense of the esthetic—an eye for color and detail, a sense of balance and proportion, and an appreciation for beauty” (2005, par. 19).

It cannot and should not be overlooked that the main emphasis of the U.S. government’s initial description was based on two factors: what types of materials an individual is capable of producing and the types of technology that are employed to do so. This is a critical factor in that it reflects a continuous problem that graphic designers have faced since the origins of their profession: the emphasis and spotlight having been placed on the potential use and possibilities of currently available technology rather than on the individual using it. Referencing an article appearing in *Print* magazine in 1958, Hollis mentions how those working within the design industry struggled in adopting a title to accurately describe this new profession. Terms such as “visual engineer” and “graphic designer” were introduced as a means of resolving this lack of clear identity (2001, p. 112). However even today, the profession is constantly being redefined by technology and equipment, fragmented into various specializations for distinct audiences, and marginalized by a job market that is uncertain off its actual value.

In 2002, it was estimated that some 532,000 designers were employed in the United States, with about one-third being classified as self-employed. Of these, it was estimated that approximately 212,000 were graphic designers. (Bureau of Labor Statistics, 2005, par. 17). To better illustrate the industry’s rapid growth, consider that in the early seventies, the American Institute of Graphic Art (AIGA) reported a membership of 1,700 professionals (Postrel, 2003, p. 17). Today, the AIGA website reports a membership of approximately 16,000 with 48 chapters nationwide and more than 150 student groups represented (American Institute of Graphic Art,
About AIGA, 2005, par. 2). Clearly, the industry has grown significantly, although it should also be noted that despite being the largest professional organization for graphic designers, less than 8% of the nation’s graphic artists actually belong to AIGA.

Clearly there is a continued interest and growth in the number of people pursuing a career as a graphic designer. Universities, community colleges, art institutions and design schools across the nation reflect this notion. The National Association of Schools of Art and Design (NASAD) reports that currently there are 239 institutions located across 46 states including the District of Columbia that are accredited by their organization (NASAD Getting Your Bearings, 2004, p. 1). NASAD is the only accrediting agency recognized by the Council of Higher Education Accreditation and the United States Department of Education (NASAD Information, 2004, p.1) for establishing academic thresholds regarding the education of graphic designers. Keeping that in mind, these numbers do not take into account academic programs that are not accredited by NASAD or the large volume of continuing and community education programs that are now being offered as a non-degree option in design.

The increase and popularity of graphic design programs at universities throughout the nation can be attributed to many factors. The 1980s were a period of strong economic prosperity and designers were in high demand to meet the needs of businesses wanting to reach consumers. The introduction of the personal computer and the development and rapid expansion of the Internet over the next decade fueled predictions that not only would graphic designers be high in demand, but that they would be nicely compensated as well. The newness of the industry and the experimental nature of the tools and software made graphic design an enticing career option for creative individuals that had previously considered a career in art to be a low-paying proposition. Universities welcomed the opportunity to recover from declining enrollments in their traditional
fine arts programs and graphic design education became a vocational training program, almost guaranteeing parents that their children would have a job waiting for them upon graduation (Swanson, 1997, p.69).

For the most part, graphic design programs are being taught in the art departments at the university level in this country (McCarthy & DeAlmeida, 2002, p. 104). From the 1950s to 1980s, graphic design curriculums shared many of the same tools, production standards, and methodologies as many other studio-oriented courses. Practice and learn-by-doing were popular methods of instruction. Despite their similarities, dissention between fine artists and graphic designers immerged, as design was perceived more as a service-oriented trade. “While artists had full control over the content of their work, designers were primarily neutral mediators between client and audience, therefore using visual principles and techniques in a detached, reactionary manner” (McCarthy & DeAlmeida, 2003, p. 104). To the traditional “starving artist,” a graphic designer was nothing more than a compromising sell-out with little artistic integrity.

The Computer and Graphic Design

The educational requirements and status of a graphic artist changed dramatically with the introduction of the personal computer as a design tool. A certain level of credibility was injected into the profession, as designers were no longer viewed as “big kids” who played with their colored pencils and markers but instead demonstrated enviable skills on a machine that was still rather intimidating to most individuals. The same principles of design, theory and composition still applied to the craft, however the execution of the design process moved away from the drawing board and light table and onto the desktop computer. In its beginnings it was an experimental time, as computers were still somewhat cumbersome to operate and very few institutions and companies had the financial resources to own more than a few workstations.
In 1993, Ronald Labuz published *The Computer in Graphic Design: From Technology to Style*. This book serves as an excellent resource in better understanding the origins of the computer in graphic design. According to Labuz:

The first attempts at computer graphic design were marked by an unfortunate combination of limited computer power and undeniably inadequate aesthetics. Many experiments were conducted by engineers and technicians rather than trained graphic designers. After the first seminar in computer graphic design, sponsored by the Media Laboratory of the Massachusetts Institute of Technology in 1979, more interest was shown. In most cases, the interest did not translate into involvement because of a limited access to technology powerful enough to produce valuable results (p.3).

Labuz further explained:

Pagination technology not dissimilar to today’s desktop publishing environment was widely available as early as 1981. The Bedford and Penta front ends were, however, priced far beyond the pocketbook of most users. Systems costing $250,000 or more were interesting marvels to be seen and displayed at equipment shows. Few graphic designers used the technology. Large type houses, newspapers, and major magazines were the market for this first generation of wysiwyg (what-you-see-is-what-you-get) display devices. The first computer product to be marketed as a graphic design tool would not be available for another five years. In 1985, the Macintosh breakthrough was not so much technological as it was economic. Affordability rapidly created a new and remarkably expanded level of interest. The designer’s experience with the computer was now not
limited to demonstrations and exhibits of work done by engineers. Suddenly, graphic designers could actually use the machine to create their own images (p. 4).

However, Labuz also points out that despite these advancements in the actual hardware and software and its relative affordability, it would be years before the printing and imaging technology would catch up with what was being created on the computer screen.

Early operating systems were unstable and larger compositions absorbed enormous amounts of a computer’s maximum hard drive space of usually 250 or 350 MB. Apple Computer released the Macintosh LC 630 (PC) in July of 1994, marketing it as the Quadra 630 for business applications and the Performa 630 for general consumer use. At that time desktop computers had a standard 4 or 8 MB of RAM. The Apple 630 was an attractive tool for designers, having a maximum RAM of 36 MB and processor speed of 33 Mhz. (http://everymac.com/systems/apple/mac_lc_630.html.) Until the PowerMac was introduced in November of 1996, the Macintosh LC 630 was the most powerful desktop computer in the Apple line (http://everymac.com/systems/apple/powermac/stats/powermac_440_160.html).

By the early 1990s, a great body of work had been written about the computer and its new role in the production of graphic design. At this time, using a computer to design was still optional, however a disquieting sense of change was soon becoming apparent within the design industry. Even the most resistant graphic designers found their handcrafted layouts being placed into large cameras and scanners to be captured in digital form. Tasks such as separating color and the application of a transparency effect were greatly simplified by the technology computers offered. Individual images and photographs could be captured digitally and then scaled, colorized, and reversed with a simple keyboard command, eliminating the need for Photostats and
photo-mechanical transfers (PMTs) that required additional hand-manipulation on a layout board. Letraset rub-down lettering was replaced by a plethora of sometimes free and often inexpensive fonts. All of these factors were significant in the migration from tradition design production techniques to the practice of computer generated graphic design.

Another major influence that had a profound affect on graphic design was the changes that were occurring within the print industry. Commercial printing became aggressively competitive and service providers were investing millions of dollars in technology that would allow them to work more quickly and efficiently, with more accuracy of color registration. Ironically, the same technology that allowed the graphic designer more freedom and control over the pre-press operations of design was now requiring that a new standard rule be followed: if designers wanted their work to be printed, then designers had to design for the changes that were taking affect within the mechanical reproduction process.

As designers reaped the rewards of faster processing speeds and advanced design tools that allowed for endless creative manipulation, a gradual acceptance of the personal computer prevailed. Labuz surrendered this notion by stating

The computer is neutral. Like the T-square and the triangle, this machine is a tool that may be used poorly or well, responsibly or irresponsibly. Fortunately, the short history of the medium has already produced work of exceptional quality.

Rapidly moving from infancy to adolescence, computer graphic design has matured as a medium in a remarkably short time (1993, pp.2-3).

A great deal of attention was now being placed on the look and feel of design that was generated from these machines. Designers exploited the exactness and precision of the design software and marveled in their individual ability to perform such complex operations without the assistance of
a typographer, production assistant or pre-press agent. Mastering advanced graphic design software became an exclusive practice that was reserved for the professionally trained. As computers made their presence in more homes and offices across the country, graphic designers were quite smug in their abilities to outperform the average computer user. After all, they were the first to experiment with this new visual technology and push it to its limits. They were professionally trained in the practice of design and worked closely with the commercial printing industry, producing stunning visual products for both business and industry. They possessed true economic power and digital graphics was there area of expertise.

Natalia Ilyin said it best in her article *Fabulous Us: Speaking the Language of Exclusion*, which appeared in a 1994 issue of the AIGA Journal of Graphic Design.

… the language of design was based on exclusionary principles that we, as designers, all recognized. We went to school and learned and taught our clients what tools they needed to understand this language. We all agreed to use these principles, were welcome to the long house, had a corner on the market of knowledge, and paid the Con Ed bill. It was fabulous us and not-so-fabulous them, and it was our job to keep them realizing that we knew more than they did (p.37).

What this exclusive group of professionals did not anticipate was the development of their hard-earned principles being built into the software that was now slowly appearing on everyone’s desktop computer. As if overnight, desktop publishing stepped beyond being a practice of graphic professionals and became a general means for anyone wanting to express their personal style through visual communication.
The design profession’s response to this initial challenge by self-taught desktop publishers was to promote a new exclusive language that would be artistic in nature and move further away from the reliance of computer-generated design. The computer had in many ways made design too perfect and too clean. Every design element rested on some sort of a grid system that kept the composition neat and orderly. Now that professionals and novices were using the same tools, graphic designers made a conscious effort not to use the established palettes and special effects filters within the design application and relied on their own creative devices of imperfect type and images of chaos and grunge.

Against the backdrop of defaults and prepackaged templates, grunge stands as a rebellion against the default of the computer. If left alone, a digital environment will produce forms of perfect alignment and straight edges. It’s amusing that the tool that makes for such mechanical exactitude is what makes all the grunge possible (Frere-Jones, 1994, p. 18).

Frere-Jones clarified his view further by stating: “the ingredients of design are now available to everybody, even if the less obvious skills are not… To justify the costs of design commissions, the benefit must become obvious: the designer must provide what the secretary cannot” (p.16) and others agreed. “Clean work is easy. Edgy, inclusive work is unintelligible to those who do not speak the language. Our exclusionary language is now a language of obfuscation, which clients pay money to understand. And they said a computer was just a tool. (Ilyin, 1994, p. 38).

The flipside to a totally expressive design solution is to create one of restraint and precision. With a “modernist approach,” Frere-Jones suggested that graphic designers could also refer to themselves as “visual engineers” that specialize in research, analysis and implementation of the most effective means for communication (p. 16). By posing as a “quasiscientist,” Frere-
Jones contended that designers could flaunt the principles and evidence of their professional training and formal education. References to the pioneering designers of traditional graphic design form were introduced into work as a tribute and as a visual pun for other designers to admire and be amused. Design became self-authored as designers began exploring a more self-expressive approach of representation. Designers began designing for the approval and acceptance of other designers and the audiences they were paid to communicate messages to, as well as the clients whose products they were paid to present, somehow became lost in the equation. Content became secondary to form, and the message was not always clear, nor did it fundamentally or exclusively represent the client’s voice. As a result, clientele preferring a more cleaner and decipherable message looked to desktop publishers for a simple and more understandable format.

A Compromised Profession

As if the design industry’s denial and attitude of self-importance and arrogance were not crippling enough to the overall profession, an influx of more confident and eager computer users were anxiously waiting to try their hand at desktop publishing. Affordable and user-friendly software became more prevalent as software companies featured low-end design applications such as Corel’s DRAW and Microsoft’s Publisher. These companies marketed to the non-professional designer, supplementing their software packages with CD-ROMs filled with free fonts and clip art. According to Rick Altman who publishes the online journal Altman@Large, “over 70% off all CorelDRAW users do not have a formal background in illustration or design” (http://desktopPublishing.com/altman/absence-2.html). Knowing that their product could not compete with the high caliber software that was being offered by companies such as Aldus, Adobe and Macromedia, Corel went for a separate consumer, one less willing to pay the higher
prices that the professional grade software was garnering. The strategy worked. Personal computers with Windows operating systems were already coming out of the box loaded with Microsoft Word, Publisher and PowerPoint. Corel saw opportunity and potential in the smaller but still influential Apple Computer market, offering comparable products that were engineered to run on the Mac operating system. Adobe soon followed with “LE” versions of their own high-end software, containing approximately two-thirds of the software’s most basic tool set at a fraction of the full version’s cost.

Electronic files produced by some of these lower-grade applications proved to be troublesome for print providers to rip and image, but the majority of individuals using these programs would never step foot into a commercial printing facility anyway. Instead, small and affordable laser and ink jet printers had made their way to the consumer market and entire industries flourished from the technology. “In 1999, Kinko’s launched a $40 million campaign to convince customers that everyday communication requires polished graphics” (Postrel, 2003, p.17) and that with their facility and customer service, anyone could perform digital magic. Office supply superstore chains such as OfficeMax, Staples and Office Depotimmerged, further influencing and encouraging new computer owners that this new tool in their home could help them work smarter and more creatively.

In 2004, AdWeek Magazine voted the Hewlett-Packard “You” campaign the best television campaign of the year (AdWeek, 2004, par. 13 ). Through clever still shots superimposed into video imagery, subjects are shown capturing moments of their lives with white frames that define that experience and make it a part of their digital canvas. “Click. Print. Invent.” That’s the message HP is selling and it’s targeted directly toward a market that still has room for growth: the 40 and 50-year-old consumer, otherwise known as the digital immigrants.
The Kinks, a popular band from their era sing “Picture Book” in the background and with the message that anyone can do this, even you, an emotional connection is made between a product that promises to be able to capture the moments of one’s life to a generation that is feeling perhaps a little of touch with the times.

E-Design: New Technologies and New Audiences

The Hewlett-Packard “You” commercial and advertising campaign is an excellent example of the direction the graphic design industry is heading. Digital form now consists of video, sound, still and moving pictures. Animated icons spin and move across the digital canvas of laptop screens and desktop monitors, leaving no room for the imagination to be led by a subtle visual prompting or the direction of less obvious cues. Instead, sound and motion have challenged the silent and steadfast nature of print. Logos once requiring vector formatting for quality print reproduction have now been redesigned to work well in video and on the Internet. What once was an unforgiving profession, where every error was mass-produced and required an expensive reprinting to correct, has now become a profession of second chances and redemption. In this age of the World Wide Web and electronic publishing, everything is intentionally temporary—to be replaced or improved upon in the sequence of time. With the exception of pride perhaps, nothing is ever lost when the design product or experience fails to perform or meet a certain standard.

As it has in the past, the term “graphic designer” again falls short in describing the professional who today engages in this evolutionary process called design. Since all design is derived from or eventually is produced or disseminated through an electronic means, the term “e-designer” has been introduced into the industry. Initially used to describe Web designers, the term has been expanded to include any creative that engages in the principles of interactivity
between multiple forms of design media. It also reflects the “triad of information technologies” that is currently being utilized by virtually everyone in our digital age, including design professionals. According to Paul Saffo in his article *The Place of Originality in the Information Age*, “communication, processing and memory” are the three components that are redefining our world (1997, p. 95). Saffo further contends that “today, more information is stored in digital form than in all the libraries of the world combined” and that living in “a world of infinite recall” will eventually affect the level of original and creative contributions in our society. Using the music industry as an example, Saffo illustrates how “digital technology makes each copy of every copy equal in quality to the initial master” (p. 96). This capability not only allows for the easy and sometimes unauthorized use of intellectual property, but as bits and pieces of information are extended, borrowed and reapplied— as they are used over and over again and introduced into new applications—the risk of losing the original intent and meaning of its source is very likely.

Karrie Jacobs, in her article *From Eternity to Here*, suggests that this new generation of digital natives is threatening just that. Citing an example of a student who asked her to read his thesis about creative professionals that “sample” and “recontextualize” elements from other works to create new forms with new meanings, Jacobs quotes this student as having written: ‘I don’t read books, I skim. Entirety is not of interest: a chapter, a sentence, a detail, someone else’s highlighting are all of more importance.’ He further boasts, ‘I thrive on fragments, half-finished thoughts, and the important quotations. This strobe-effect universe is all that I have ever known, and I am happy’ (1997, p. 101). This gentleman is not an exception to his generation, but simply an example of it.
The deluge of information available on television and the Internet has had a major impact on the mindset of this generation of digital “surfers.” In many ways, the Information Age has become an era of visual noise and clutter for them, where so much content exists that it is overwhelming to comprehend. “We have somehow engendered a situation in which everyone has a voice—online we are all authors—but no one pays much attention” (p. 102). Instead, small bits are taken with a degree of skepticism and a degree or confidence that a little information is more than enough. With the assistance of computer technology and a virtual world, we are all capable of being whatever it is we wish to pretend being. Anyone can be a designer by borrowing and imitating what others have created before them. Postrel acknowledged this possibility in a 2003 interview stating,

Amateurs can learn by doing, and they have access to lots of new sources of aesthetic information, including software that has some of the professional knowledge embedded in it. Over time, I would expect a certain amount of aesthetic training to become part of basic education, just as people learn to write. (MacLaughlin, par. 29).

This suggestion of a need for media literacy in our digital culture has become a common theme for many authors. “As the world around us becomes more virtual and less real, more transitory and less stable, the trick won’t be knowing what’s hot and what’s new, it will be knowing what is of value” (Jacobs, 1997, p. 99). Two other authors conclude, “In a world where knowledge is increasingly dependent on the dynamic relationship between words and images, visual literacy will continue to become a prerequisite for successful learning” (McCarthy & Melibe de Almeida, 2002, p.114).
The significance of media literacy cannot be overstated enough, especially to the graphic designer. If the purpose of design is to identify, inform and present (Hollis, 2001, p. 10), it is imperative that the design professional realizes the audience’s level of competency and modifies the intended visual message accordingly. “Communication is only as effective and as meaningful as the sensitivity of the receiver.” Furthermore, “ignorance and lack of aesthetic sensitivity and skills in both the sender and the receiver are always obstacles to the effectiveness of communication” (Cataldo, 1966, p.7). As an audience of digital natives becomes more and more disengaged and desensitized by the volume of information being presented, it is the responsibility of the professional graphic designer to seek creative solutions in this era of replication.

For a world of infinite recall is a world of infinite unity, of deeply interconnected relationships. In this new world, originality is going to be recognized as an additive and transformative process, with multiple paths and forks along the way, as new and old divide and recombine in infinitely intriguing complexity. And this new understanding will lead us to realize that creativity and originality are much stranger and scarcer than we ever assumed, and much more precious than ever (Saffo, 1997, p. 96-7).

As has been the case throughout its short history, the graphic design industry is still struggling with issues of identity and a need to feel professionally separated from other closely related fields. Many within the design industry have suggested that a system of accreditation and certification could preserve the graphic designer’s professional status among the sea of amateurs. The certification process would be based on an individual’s combined education, experience and testing from a governing agency that has established a system of standards and qualifications.
(Shapiro, 1997, p.156). The author of this proposal suggested that certification be based on a voluntary basis, and that it would be ideal “for those who want to learn more, challenge themselves, to move to the next level,” or “to measure themselves against the best” (p. 158). However, others might argue that the real motivation behind such measures is one of pure financial gain for the industry itself. As one owner of a New York agency explained to Shapiro, “people would work hard to meet the standards, and that clients who are interested in quality work would be more likely to hire certified designers, who might even be able to charge higher fees” (p. 157). In response to Shapiro, Swanson points out in his article *The Case Against Certification*, “doing something out of fear or greed almost always dooms whatever you are doing. If certification of graphic designers is to have any chance of working, it must be done with worthy motives and clarity of purpose” (1997, p. 165).

The whole idea of certification appears to be a knee-jerk reaction by a graphic design industry that is continuously struggling with its identity and remains uncertain of its future role in society.

The predominant feature that seems to run through any gathering of two or more graphic designers is a certain deep-seated insecurity. Designer anxiety is rooted in a fear that what we do is not respected, worthwhile, important. This feeling is fueled by a business world that, in general, neither respects nor considers design particularly worthwhile or important. As designers seem hell-bent on impressing business, this can be a big problem. Thus the design activity is fraught with a desperate quality. In that desperation, designers turn to professionalism as their savior (Rock, 1997, p.168).
Despite claims of new innovations in affordable and easy to use technology, novice users flooding the market and general audience apathy, the real threat to the graphic design profession is not its ever-changing features and variety of practitioners, but its youth and immaturity. “The strength of graphic design is its diversity. A successful certification program would threaten that diversity” (Swanson, 1997, p.166).

In this rapid growth period of innovation and technology, is virtually impossible to predict where the profession of design will lead.

It has become a cliché of career counseling to point out that most of today’s jobs won’t exist in fifteen years and most jobs that will exist in fifteen years don’t exist now. Certainly the changing names of programs—commercial art to advertising design to graphic design to visual communication and sometimes back to graphic design—testify to the fact that, though there may be graphic designers in fifteen years, graphic designers will likely be doing something very different from the present vocation of graphic design (Swanson, 1997, 72).

To prepare those currently in or about to enter the profession, a better understanding needs to be established which defines what knowledge and competencies are required to succeed in this industry.

Universities traditionally taught the craft and principles of design, but today the emphasis appears to be placed more on the tools and technology being used. Student and parents are demanding it.

Students struggle to stay current, motivated by market opportunities (‘how can I get a job?’), and are seduced by the powerful allure of the tools themselves. The
digital has exploded our expectations, blurred our boundaries, and rendered obsolete what we thought we cared deeply about (Staples, 2001, p. 6).

The downside to this kind of curriculum is that it absorbs an enormous amount of class time during the academic term and is essentially outdated the moment a new version of software is introduced. “Design and production are one and the same in the digital realm. It’s good in that it re-couples concept and form, revitalizing a sense of craft in the practice of designing ” (Staples, 2001, p. 7). However, at the same time, a profession so diverse cannot possibly be captured in a single academic program. Continued and extended learning is vital to the career success of today’s graphic designer.

In his article A Philosophical Approach and Educational Options for the e-Designer, Bruce Wands suggests that students “should be allowed and encouraged to develop in three essential areas: creativity, traditional art skills, and computer art skills” (2001, p. 20). Wands describes creativity as “the development of a unique and individual design style” and the capability to formulate “creative solutions to design problems.” By placing an equal emphasis on traditional art skills and proficiency with the computer, Wands contends the combination of the two provide a solid foundation for a design career to be built. “Only by knowing what the software can do (and what it cannot), is one able to rise above the limitations of the medium and create significant work” (p. 21).

The key factor that appears to be predominant throughout the literature written about career preparation and advancement in graphic design is the need for the artist to remain adaptive to the changes affecting the industry. As technology advances, so must the designer. As the audience’s attention shifts, the graphic designer must create innovative ways of recapturing its consideration. Technology will most likely play a considerable role in this visual dance but
ultimately it will be the creative use and application of this technology—through the contributions of individual graphic designers— that will determine the value of design.
CHAPTER 3: METHODOLOGY

The research process chosen to conduct this study is defined in this chapter. This outlined information includes a description of the research instrument that was used and the manner in which it was implemented. This chapter also profiles the population and sample group that was surveyed and the process of how the collected data was analyzed.

Restatement of the Problem

The problem of the study was to identify the effects the evolution of affordable and user-friendly hardware and software have had on graphic design professionals working in two-dimensional design and graphic reproduction.

Research Design

This descriptive status study involved the collection of data provided by graphic design professionals regarding their observations and perspectives associated with technology and their chosen profession. This research captured the conditions that exist at this point and time in the graphic design industry, as well as variables that might contribute to current situations. Descriptive statistics were used to support and summarize the status of those working in the design profession. Although this research was not intended to be an explanatory survey, obvious relationships between variables were examined and noted. The primary objective of the data analysis was to determine what factors have influenced the current status of the graphic design industry and the frequency of affecting variables. In accordance to research standards, these frequencies are represented by percentages (Arvy, et al, 1985).

Because qualitative research often requests very personal information from its respondents, such as how one feels or what perceptions one might have, a confidential method of submitting answers encourages more truthful responses (Arvy, Jacobs, Razavieh, 1985, p. 344).
The research required participants to complete a survey that was provided electronically via the Internet. An electronic survey was chosen to provide confidentiality and convenience for respondents visiting the HOWdesign.com website. This method was selected to capture a broad and diverse sample from the graphic design population.

Population/Sample

Subscribers of *HOW* magazine and visitors of their popular website HOWdesign.com served as the target population of this study. Established in 1985, *HOW* magazine is self-described as “the industry’s leading creativity, business and technology magazine for graphic design professionals.” They further contend the publication provides “essential business information, up-to-date technology tips, the creative whys and hows behind noteworthy projects, and profiles of professionals who are influencing design.” Their website, HOWdesign.com, complements the trade journal by being an “online gateway” for subscribers as well as any members of the design community (http://www.fwpublishers.com/graphicdesign.asp). The website features a members forum, designers’ job bank, web polls, conference information and competitions (http://howdesign.com). With attendance of over 3300 designers at its 2005 4-day conference (http://www.howconference.com), the *HOW* Design Conference is “the single-largest gathering of graphic designers in the U.S. This annual event provides a hands-on, educational program focusing on the creativity, business and technology of graphic design” (http://www.fwpublishers.com/graphicdesign.asp).

Because readership of these two publications suggests a certain level of professionalism and commitment to the industry, *HOW* magazine was selected and its editor contacted regarding assistance with the survey’s dissemination. Through email correspondence with Bryn Mooth, editor of both *HOW* magazine and HOWdesign.com, *HOW’s* involvement in the research project
was secured. As part of the agreement, the survey was posted for a two-week period, beginning August 30, 2005 and ending September 13, 2005 (Appendix A).

It was determined that by using an organization such as HOW to facilitate this research, purposive sampling would provide a valid representation of the unique and diverse nature of this population. To insure everyone had an equal opportunity to participate, a brief paragraph explaining the survey was posted on the homepage of the HOWdesign.com site with a direct link to the survey (Appendix B). This survey was accessible to any graphic design professional visiting the site, wishing to participate in this qualitative study. Quantitative methods were also used to extract statistical information.

Sampling Design and Procedures

Participants of this study were asked to complete a brief five page online survey that presented questions concerning their professional experience, qualifications and any perceptions they may have in regard to technology’s influence on the graphic design industry (Appendix C). This instrument consisted of 30 multiple-choice questions that allowed open-ended answers when respondents selected the “other” answer option. Questions for the survey were selected to support the objectives of this research, as outlined in Chapter 1. Participation in this study was on a volunteer basis.

Data Collection Instrument

As part of the agreement in partnering with HOW magazine, the survey was to be administered with the least amount of intrusion upon the privacy and free will of those wishing to participate in the survey. Without access to contact information such as the street or email addresses of its subscribers, it was determined that an online survey linked to the HOWdesign.com homepage would provide good visibility of the survey without violating the
trust of HOW magazine’s readers and subscribers. To encourage participation, a brief paragraph introduced the survey and a simple, user-friendly instrument was developed that allowed easy access, navigation, selection and submission of their responses.

There are many benefits to using an online survey. The technology allows for fast and inexpensive means of distributing a survey, eliminating expenses such as printing, postage and mailing lists. Also, the global accessibility provided by the World Wide Web is incomparable to traditional means. However, there are also limitations associated with an online survey as well. Without a true indication of population size, it is impossible to measure response rates to an online survey that is only posted to a website. Also, without randomization, the data collected lacks statistical validity.

The survey for this study was created using an online utility known as SurveyMonkey. This particular service provider was selected based on its attractive and user-friendly architecture, as well as its ease in creating customized surveys. The intuitive tools provide several ways of structuring a question: single and multiple choice, pull-down menus, and rating scales, and open-ended questions. Answer bias can be eliminated through randomization of answer choices, and tools such as skip-logic and required answer fields provide researchers with the exact data they need. Survey results are viewable as they are collected in real-time and can be later saved in a detailed Excel file for further analysis. With a professional subscription to the service, researchers have unlimited access to all SurveyMonkey features and may collect up to 1000 responses per month (http://surveymonkey.com).

Results from the survey were saved on a secure, password-protected directory on a server at Bowling Green State University. This data will be destroyed at the conclusion of this research project.
Pre-testing the Data Collection Instrument

To assure that the survey was capable of obtaining the data necessary for this research, a draft of the survey’s content was provided to the thesis committee for review. Upon approval, a pre-test was administered in person to individuals working locally in the design profession. These individuals and their reactions to the questions were observed while they completed the pre-test. The length of time it required to complete the survey was also noted. The pre-test did not reveal any ambiguities or misinterpretations of the questions asked.

Procedures of Data Analysis

The categorical data discovered through this research was measured along appropriate scales that illustrated the frequency of unique characteristics within the sample population. Through correlation methods, relationships between groups sharing common variables and quantitative data were examined. In order to summarize the observed frequencies and potential correlations within the sample group, a Chi Square test was used to estimate the degree of confidence in measuring statistical significance. The Statistical Consulting Center at Bowling Green State University was used to analyze, calculate and validate this information. When and where appropriate, data is depicted using informational design techniques (i.e., bar graphs, pie charts, and tables) to visually illustrate and support the research findings.

Protection of Human Subjects

All efforts were made to assure that no human subjects were harmed during this research process. The Human Subjects Review Board at Bowling Green State University reviewed and approved the consent form (Appendix D), survey questions and data collection instrument prior to implementation. A copy of the HSRB approval can be found in Appendix E.
Timeline

The following timeline provides a general calendar of the research process and the timeframe in which the task was performed.

<table>
<thead>
<tr>
<th>Month</th>
<th>Activity</th>
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<tbody>
<tr>
<td>January–March, 2005</td>
<td>Topic Exploration &amp; Proposal</td>
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<tr>
<td></td>
<td>Selection of Thesis Committee and Chairperson</td>
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<tr>
<td></td>
<td>Completion of Introduction, Review of Literature and Methodology</td>
</tr>
<tr>
<td>April, 2005</td>
<td>Defense and Approval of Thesis Topic</td>
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<td></td>
<td>Development of Survey Questions</td>
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<td></td>
<td>Selection of Online Survey Service Provider</td>
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<tr>
<td>May, 2005</td>
<td>Contacted <em>HOW</em> magazine for Assistance with</td>
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<td></td>
<td>Survey Dissemination</td>
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<tr>
<td></td>
<td>Administered and Reviewed Pre-Test Instrument</td>
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<tr>
<td>June, 2005</td>
<td>Submitted Proposal and Sample of Survey to <em>HOW</em></td>
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<tr>
<td></td>
<td>Received Approval to Post Survey on HOWdesign.com</td>
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<tr>
<td></td>
<td>Constructed Survey using SurveyMonkey</td>
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<tr>
<td>July, 2005</td>
<td>HSRB Approval</td>
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<tr>
<td>August, 2005</td>
<td>Released Electronic Survey Link to <em>HOW</em></td>
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<tr>
<td>September, 2005</td>
<td>Close of Survey</td>
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<tr>
<td></td>
<td>Collection of Data</td>
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<tr>
<td></td>
<td>Data Analysis and Compilation with Assistance from the BGSU Statistical Consulting Center</td>
</tr>
<tr>
<td>October, 2005</td>
<td>Completion of Chapters 4 and 5</td>
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Chapter Summary

This chapter included a description of the sample population to be studied, the method that was used to reach them and what research techniques were employed to better understand the effect technology has had on the profession of graphic design. The importance of having the research survey and data collection instrument approved by the Human Subject Review Board was recognized. The method of collecting data and how the data was analyzed was also discussed.
CHAPTER 4: FINDINGS

This chapter presents data that was collected from an online survey that was developed to assess the effects technology has had on the performance of graphic designers. The questions were designed to support the objectives of this study and were divided into three major areas of investigation. The first section requested general demographic information from the respondents such as age, gender, the length of time in the profession, primary choice of medium, and what motivating factors brought them to a career in graphic design. Participants were also asked to select either “digital immigrant” or “digital native” to illustrate their self-perceived relationship to technology. Responses to these six questions were selectively cross-referenced with the responses from the remaining 24 questions to evaluate any significance they may or may not have had in influencing these answers.

The second section of the survey addressed the topic of education and training. Participants were asked eight questions that were developed to appraise how graphic designers have prepared for their vocation and what additional skills, training and adaptations they have been confronted with by the increased use of digital technology in the design industry. This recognition of technology’s presence in the industry is further illustrated in the third section of the survey. Here, participants were asked to reflect upon their own perceptions of how they and the practice of design have been affected by the increased use of digital technology. This section of the survey was comprised of sixteen questions.

Response Rates

The survey was posted on the HOWdesign.com website on August 30, 2005 and was operational for two weeks, ending on September 13. The actual number of visitors to the website during this time period is unknown. One hundred and twenty three respondents agreed to the
conditions of the survey by selecting the “AGREE” button that permitted entrance to the actual survey. Because participants were not required to answer all questions, response rates to individual questions varied from 76 to 102. The first section of the survey requesting general information about participants averaged 101.67 responses. The second portion of the survey averaged 96.88 responses per question and the last section averaged 91.31 answers. Exact response rates for each question are displayed in further detail in the “Results” section of this chapter. Since no predetermined number of individuals were contacted or directed to participate in this survey, a survey response rate percentage cannot be considered or determined for this section of the findings.

Results

General Profile of Survey Participants

This section presents a demographic overview of the participants of this survey. One hundred and two respondents offered their year of birth, ranging from 1950 to 1985, creating an age span between 20 and 55 years of age. The average age of the respondents was 32 years old with the highest frequency being 26 years old and representing 10.8% of the respondents. For statistical analysis and the purpose of using age as a variable within this study, three age brackets were identified. Group 1 (20-26 year olds) represents 31 individuals; Group 2 (27-34 year olds) represents 37 individuals; Group 3 (35-50 year olds) represents 34 individuals. Of the 102 who offered their age, 98% of those answered the next question concerning gender. One hundred respondents chose to disclose this information with 65 being female and 35 being male.

Participants were asked if they were familiar with the terms “digital native” and “digital immigrant” and if so, which described them best. Of the 102 respondents, 39 (or 38.20%) selected “digital native” while 28 (or 27.50%) chose “digital immigrant.” Thirty-five individuals
representing 34.30% were not familiar with either term. When age and these self-identifying terms were compared, members in Group 1 (representing 20 to 26 year olds) had the highest frequency of using the term “digital native.” Conversely, members of Group 3 (representing 35-55 year olds) had the highest frequency of selecting the term “digital immigrant.” Table 1 depicts this relationship between age and how participants described themselves. The data illustrates a correlation that is statistically significant, as determined by using Chi Square with a probability of error threshold being 1 in 20 or described mathematically as less than .05.

Table 1

<table>
<thead>
<tr>
<th></th>
<th>Digital Immigrant % (n)</th>
<th>Digital Native % (n)</th>
<th>Not Familiar w/Either Term % (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP 1 (Age 20-26)</td>
<td>9.68 (3)</td>
<td>54.84 (17)</td>
<td>35.48 (11)</td>
</tr>
<tr>
<td>GROUP 2 (Age 26-34)</td>
<td>16.22 (6)</td>
<td>37.84 (14)</td>
<td>45.95 (17)</td>
</tr>
<tr>
<td>GROUP 3 (Age 35-55)</td>
<td>55.88 (19)</td>
<td>23.53 (8)</td>
<td>20.59 (7)</td>
</tr>
<tr>
<td>Chi-Square DF</td>
<td>4</td>
<td>22.7783</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

When asked how many years they had been employed as a graphic design professional, 102 responses were collected. The answer of 5-14 years conveyed the highest frequency, representing 40.20% of the respondents. Table 2 summarizes these results.

Table 2

<table>
<thead>
<tr>
<th>Years Employed as a Graphic Designer</th>
<th>%</th>
<th>n=102</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1 year</td>
<td>10.80</td>
<td>11</td>
</tr>
<tr>
<td>1-4 Years</td>
<td>30.40</td>
<td>31</td>
</tr>
<tr>
<td>5-14 Years</td>
<td>40.20</td>
<td>41</td>
</tr>
<tr>
<td>15-24 Years</td>
<td>13.70</td>
<td>14</td>
</tr>
<tr>
<td>25 Years or More</td>
<td>4.90</td>
<td>5</td>
</tr>
</tbody>
</table>
Of the 102 respondents to this section of the survey, 78 selected print as their primary medium to work in, representing 76.50% of those answering this question. Determining factors that influenced their personal decision to become a graphic designer were also explored. Of the 102 respondents, the most frequently selected answer was “artist interest or ability in art/design,” reflecting 87 responses or 85.30%. “Appreciation for design and its influence” garnered 63 responses (61.80%) and “interest in technology and/or communications” rounded out the top three answers with 39 responses (38.20%). Table 3 summarizes these findings. Responses from those participants selecting “other” can be found in Appendix F.

Table 3

<table>
<thead>
<tr>
<th>Determining Factors in Becoming a Graphic Designer (n=102)</th>
<th>%</th>
<th>n=102</th>
</tr>
</thead>
<tbody>
<tr>
<td>Artistic interest/ability in art</td>
<td>85.30</td>
<td>87</td>
</tr>
<tr>
<td>Interest in technology/communications</td>
<td>38.20</td>
<td>39</td>
</tr>
<tr>
<td>Appreciation for design and its influence</td>
<td>61.80</td>
<td>63</td>
</tr>
<tr>
<td>Related career choice</td>
<td>22.50</td>
<td>23</td>
</tr>
<tr>
<td>Unrelated career choice</td>
<td>2.90</td>
<td>3</td>
</tr>
<tr>
<td>Other (Appendix F)</td>
<td>4.90</td>
<td>5</td>
</tr>
</tbody>
</table>

Table 4 illustrates a comparison how digital natives, immigrants and those not familiar with either term selected their specific determining factors for entering the graphic design profession. Utilizing Chi Square, the comparison is not statistically significant in 5 out of 6 instances and in those cases is reported only for descriptive purposes. The exception is those respondents who selected “interest in technology and/or communications,” as illustrated in Table 5.
Table 4

Comparison of Self-Identified Terminology and Determining Factors in Becoming a Graphic Designer (n=102)

<table>
<thead>
<tr>
<th>% (n)</th>
<th>D. Immig</th>
<th>D. Native</th>
<th>Not Fam.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Artistic interest/ability in art</td>
<td>85.30 (87)</td>
<td>n=21</td>
<td>n=33</td>
</tr>
<tr>
<td><strong>Interest in tech/communication</strong></td>
<td><strong>38.20 (39)</strong></td>
<td><strong>n=9</strong></td>
<td><strong>n=21</strong></td>
</tr>
<tr>
<td>Appreciation for design/influence</td>
<td>61.80 (63)</td>
<td>n=13</td>
<td>n=24</td>
</tr>
<tr>
<td>Related career choice</td>
<td>22.50 (23)</td>
<td>n=10</td>
<td>n=7</td>
</tr>
<tr>
<td>Unrelated career choice</td>
<td>2.90 (3)</td>
<td>n=2</td>
<td>n=1</td>
</tr>
<tr>
<td>Other (Appendix A)</td>
<td>4.90 (5)</td>
<td>n=0</td>
<td>n=3</td>
</tr>
</tbody>
</table>

A correlation between those respondents expressing an “interest in technology and/or communications” and selecting “digital native” is statistically significant with a probability of .0299, utilizing Chi Square. Table 5 summarizes this relationship.

Table 5

Comparison of Use of Terminology and Those Selecting Interest in Technology and/or Communications (n=39)

<table>
<thead>
<tr>
<th>% (n)</th>
<th>Digital Immigrant % (n)</th>
<th>Digital Native % (n)</th>
<th>Not Familiar w/ Either Term % (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest in Technology</td>
<td>23.08 (9)</td>
<td>53.85 (21)</td>
<td>23.08 (9)</td>
</tr>
<tr>
<td>Chi-Square</td>
<td>DF</td>
<td>Value</td>
<td>Probability</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>7.0217</td>
<td>0.0299</td>
</tr>
</tbody>
</table>

Education Background/Training

Ninety-seven graphic design professionals responded to two separate questions regarding how they acquired the artist/aesthetic skills and the technical skills necessary to practice design. Table 6 summarizes the responses of these two questions. Answers of those respondents who selected “other” to either question can be found in Appendix G.
Table 6

Comparison of How Respondents Acquired Artistic/Aesthetic Skills and Technical Skills Necessary to Practice Design (n=97)

<table>
<thead>
<tr>
<th></th>
<th>Art/Aesthetic</th>
<th>Technical</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% (n)</td>
<td>% (n)</td>
</tr>
<tr>
<td>Self-taught</td>
<td>61.90 (60)</td>
<td>61.90 (60)</td>
</tr>
<tr>
<td>Correspondence School</td>
<td>2.10 (2)</td>
<td>2.10 (2)</td>
</tr>
<tr>
<td>Community Education Program</td>
<td>10.30 (10)</td>
<td>4.10 (4)</td>
</tr>
<tr>
<td>Vocational/Technical School</td>
<td>7.20 (7)</td>
<td>n/a</td>
</tr>
<tr>
<td>2-Year Program (Associate’s Degree)</td>
<td>20.60 (20)</td>
<td>19.60 (19)</td>
</tr>
<tr>
<td>4-Year Program Art/Design Institute</td>
<td>14.40 (14)</td>
<td>7.20 (7)</td>
</tr>
<tr>
<td>4-Year Program University (Bachelor’s Degree)</td>
<td>45.40 (44)</td>
<td>35.10 (34)</td>
</tr>
<tr>
<td>Graduate Degree</td>
<td>6.20 (6)</td>
<td>9.30 (9)</td>
</tr>
<tr>
<td>Other (Appendix G)</td>
<td>11.30 (11)</td>
<td>19.60 (19)</td>
</tr>
</tbody>
</table>

Survey participants were asked to rate their education/training in terms of how well they believed it prepared them for a career in graphic design. Of the 96 respondents, 64 selected “good” or “excellent” as their rating. Nine reported their training and education as “below average” or “poor.” Table 7 further illustrates these findings.

Table 7

Personal Rating of Training and Education (n=96)

<table>
<thead>
<tr>
<th></th>
<th>%</th>
<th>n=96</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>21.90</td>
<td>21</td>
</tr>
<tr>
<td>Good</td>
<td>44.80</td>
<td>43</td>
</tr>
<tr>
<td>Average</td>
<td>24.00</td>
<td>23</td>
</tr>
<tr>
<td>Below Average</td>
<td>8.30</td>
<td>8</td>
</tr>
<tr>
<td>Poor</td>
<td>1.00</td>
<td>1</td>
</tr>
</tbody>
</table>

Survey participants were asked to select what methods they employ to keep their design skills current. Of the 97 respondents, 88 reported reading trade magazines, periodicals and/or Web articles as a means of staying current artistically. Seventy respondents stated that they reference the work of other designers. Table 8 summarizes these complete findings. Answers to those respondents selecting “other” can be found in Appendix H.
Table 8

*Methods of Keeping Design Skills Current*

<table>
<thead>
<tr>
<th>Method</th>
<th>%</th>
<th>n=97</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network with other designers via professional orgs</td>
<td>44.30</td>
<td>43</td>
</tr>
<tr>
<td>Attend seminars, workshops and/or conferences</td>
<td>46.40</td>
<td>45</td>
</tr>
<tr>
<td>Read trade magazines, periodicals and/or web articles</td>
<td>90.70</td>
<td>88</td>
</tr>
<tr>
<td>Participate in online chat forums</td>
<td>21.60</td>
<td>21</td>
</tr>
<tr>
<td>Reference other designers’ work</td>
<td>72.20</td>
<td>70</td>
</tr>
<tr>
<td>Experimentation with new media</td>
<td>56.70</td>
<td>55</td>
</tr>
<tr>
<td>Other (Appendix H)</td>
<td>7.20</td>
<td>7</td>
</tr>
</tbody>
</table>

Respondents were asked to select which methods they use to learn new technology and software. Eighty-one respondents out of 97 reported “trial and error” as the most common method of learning. 64.90% reported reading trade magazines, periodicals and/or Web articles as a source of technical knowledge. Table 9 illustrates these findings. Answers to those respondents selecting “other” can be found in Appendix I.

Table 9

*Methods of Learning New Software and Keeping Up with Changes in Technology*

<table>
<thead>
<tr>
<th>Method</th>
<th>%</th>
<th>n=97</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attend workshop or class</td>
<td>37.10</td>
<td>36</td>
</tr>
<tr>
<td>Read trade magazine, periodicals and/or web articles</td>
<td>64.90</td>
<td>63</td>
</tr>
<tr>
<td>Reference OEM software/hardware manuals</td>
<td>32.00</td>
<td>31</td>
</tr>
<tr>
<td>Reference online materials/websites</td>
<td>57.70</td>
<td>56</td>
</tr>
<tr>
<td>Training available through employer</td>
<td>26.80</td>
<td>26</td>
</tr>
<tr>
<td>Trial and error</td>
<td>83.50</td>
<td>81</td>
</tr>
<tr>
<td>Other (Appendix I)</td>
<td>6.20</td>
<td>6</td>
</tr>
</tbody>
</table>

As a follow-up question to how graphic designers learn new software and keep up with the technology associated with designing, respondents were asked how often they reference the printed materials and electronic/online manuals that accompany software and hardware. Over half (57.70%) reported referencing these tools occasionally to resolve a specific issue. Twenty-
eight of the 97 who answered this question reported “rarely, as a last resort” or “never” to this question. Table 10 further summarizes the data.

Table 10

Frequency of Referencing Online Assistance or OEM’s Software Manual

<table>
<thead>
<tr>
<th>%</th>
<th>n=97</th>
</tr>
</thead>
<tbody>
<tr>
<td>Often, as a primary source of instruction</td>
<td>13.40</td>
</tr>
<tr>
<td>Occasionally, to resolve a specific issue</td>
<td>57.70</td>
</tr>
<tr>
<td>Rarely, as a last resort</td>
<td>20.60</td>
</tr>
<tr>
<td>Never</td>
<td>8.20</td>
</tr>
</tbody>
</table>

Graphic designers were asked how often they attend professional conferences and forums. Of the 97 respondents to this questions, 57 design professionals reported “rarely, less than one every two years” or “never.” Ten respondents stated that they attend two or more professional gatherings annually. Table 11 summarizes these findings.

Table 11

Frequency of Attending a Professional Conference or Forum

<table>
<thead>
<tr>
<th>%</th>
<th>n=97</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than 2 per year</td>
<td>6.20</td>
</tr>
<tr>
<td>Two per year</td>
<td>4.10</td>
</tr>
<tr>
<td>One per year</td>
<td>18.60</td>
</tr>
<tr>
<td>One every 2 years</td>
<td>12.40</td>
</tr>
<tr>
<td>Rarely, less than one every 2 years</td>
<td>38.10</td>
</tr>
<tr>
<td>Never have attended</td>
<td>20.60</td>
</tr>
</tbody>
</table>

In conclusion to how graphic designers are preparing, maintaining or advancing their careers through education and training, respondents were asked to state their primary source of funding for their educational needs. Almost 58% of the 97 respondents reported “personal funds,” whereas 32% individuals selected the option “funds provided by employer.” Table 12 depicts this data. The answer by the respondent who selected “other” can be found in Appendix J.
Table 12

Source of Funding for Educational Opportunities

<table>
<thead>
<tr>
<th>Source of Funding</th>
<th>%</th>
<th>n=97</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal funds</td>
<td>57.70</td>
<td>56</td>
</tr>
<tr>
<td>Funds associated with business you own</td>
<td>6.20</td>
<td>6</td>
</tr>
<tr>
<td>Funds provided by employer</td>
<td>32.00</td>
<td>31</td>
</tr>
<tr>
<td>Grants/fellowships</td>
<td>3.10</td>
<td>3</td>
</tr>
<tr>
<td>Other (Appendix J)</td>
<td>1.00</td>
<td>1</td>
</tr>
</tbody>
</table>

Technology Perspectives

The final section of the survey addressed the issue of technology and its perceived effect and influence on those individuals working in the design industry. Respondents were asked to what degree technology has allowed them to work more efficiently. Of the 93 respondents, 78 design professionals indicated a “significant increase in efficiency” due to technology. Three respondents reported technology caused a significant decrease in efficiency. Table 13 illustrates this data.

Table 13

Perspectives Regarding Efficiency with Technology

<table>
<thead>
<tr>
<th>Perspective</th>
<th>%</th>
<th>n=93</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significant increase in efficiency</td>
<td>83.90</td>
<td>78</td>
</tr>
<tr>
<td>No significant change</td>
<td>12.90</td>
<td>12</td>
</tr>
<tr>
<td>Significant decrease in efficiency</td>
<td>3.20</td>
<td>3</td>
</tr>
</tbody>
</table>

Participants of the survey were asked if they or someone they knew had held a job that had been made obsolete by technological improvements. Table 14 depicts this data.

Table 14

Knowledge or Experience of an Individual’s Job Being Replaced by Technology

<table>
<thead>
<tr>
<th>Experience</th>
<th>%</th>
<th>n=92</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>27.20</td>
<td>25</td>
</tr>
<tr>
<td>No</td>
<td>72.80</td>
<td>67</td>
</tr>
</tbody>
</table>
To determine if there was any relationship between age and those reporting having been or known someone who’s job was replaced directly or indirectly by technology, a comparison was performed and is illustrated in Table 15. Utilizing Chi Square, the data is regarded as statistically insignificant and is presented for descriptive purposes only.

Table 15

*Comparison of Age and Having Known Someone Who’s Job Was Replaced by Terminology (n=92)*

<table>
<thead>
<tr>
<th>Group</th>
<th>Yes (n)</th>
<th>No (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP 1 (Age 20-26)</td>
<td>3.26 (3)</td>
<td>23.91 (22)</td>
</tr>
<tr>
<td>GROUP 2 (Age 26-34)</td>
<td>14.13 (13)</td>
<td>25.00 (23)</td>
</tr>
<tr>
<td>GROUP 3 (Age 35-55)</td>
<td>9.78 (9)</td>
<td>23.91 (22)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>27.17 (25)</strong></td>
<td><strong>72.83 (67)</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>DF</th>
<th>Value</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-Square</td>
<td>2</td>
<td>4.4158</td>
<td>0.1099</td>
</tr>
</tbody>
</table>

When asked to what degree their personal workload and responsibilities had been affected by technological changes occurring in the design industry, 60 of the 93 respondents reported a “significant increase” in what was now expected of them. Table 16 illustrates this data.

Table 16

*Technology’s Effect on Workload and Responsibilities n=93*

<table>
<thead>
<tr>
<th></th>
<th>%</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significant increase in workload/responsibilities</td>
<td>64.50</td>
<td>60</td>
</tr>
<tr>
<td>No significant change</td>
<td>32.30</td>
<td>30</td>
</tr>
<tr>
<td>Significant decrease workload/responsibilities</td>
<td>3.20</td>
<td>3</td>
</tr>
</tbody>
</table>

When asked if they were expected to perform tasks outside of the creative process of designing, 87.1% of the 93 respondents answered “yes.” Table 17 depicts this data.
Table 17

*Expectation of Performing Tasks Outside of the Creative Process of Designing*  

<table>
<thead>
<tr>
<th></th>
<th>%</th>
<th>n=93</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>87.10</td>
<td>81</td>
</tr>
<tr>
<td>No</td>
<td>12.90</td>
<td>12</td>
</tr>
</tbody>
</table>

Four questions were asked to better examine the role technology plays in areas outside of production, such as the creative process itself. The data collected from these questions was cross-referenced with the age of the individual respondent. This comparison is reported to better describe the distribution of responses and is not statistically significant utilizing Chi Square.

When asked if technology has affected their personal style or technique in producing design, 71 of the 93 respondents answered “yes” and 22 reported “no.” Table 18 illustrates these findings and compares the age of the respondent with their selected answer.

Table 18

*Comparison of Age and Technology’s Effect on Design Style (n=93)*

<table>
<thead>
<tr>
<th>GROUP</th>
<th>Age Range</th>
<th>Yes</th>
<th>% (n)</th>
<th>No</th>
<th>% (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP 1</td>
<td>20-26</td>
<td>17.20 (16)</td>
<td>9.68 (9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GROUP 2</td>
<td>26-34</td>
<td>31.18 (29)</td>
<td>7.53 (7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GROUP 3</td>
<td>35-55</td>
<td>27.96 (26)</td>
<td>6.45 (6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>76.34 (71)</td>
<td>23.66 (22)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DF Value Probability

Chi Square 2 2.8893 0.2358

In an attempt to determine how important the computer has become in the process of designing, survey participants were asked if they could design without the use of a computer. Of the 92 respondents, 59 designers reported “yes,” that they could create a design without the aid of a computer and 33 stated “no.” Table 19 illustrates these findings and compares the age of the respondent with their selected answer.
To capture a better understanding of how graphic designers prefer to work, survey participants were asked if they would want or prefer to design without the use of a computer. Of the 91 individuals who responded, 75 stated “no” to the question while 16 reported “yes.” Table 20 illustrates these findings and compares the age of the respondent with their selected answer.

Table 20

<table>
<thead>
<tr>
<th>Designers Who Would Prefer to Design Without the Use of a Computer  (n=91)</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% (n)</td>
<td>% (n)</td>
</tr>
<tr>
<td>GROUP 1 (Age 20-26)</td>
<td>4.40 (4)</td>
<td>21.98 (20)</td>
</tr>
<tr>
<td>GROUP 2 (Age 26-34)</td>
<td>4.40 (4)</td>
<td>34.07 (31)</td>
</tr>
<tr>
<td>GROUP 3 (Age 35-55)</td>
<td>8.79 (8)</td>
<td>26.37 (24)</td>
</tr>
<tr>
<td>Total</td>
<td>17.58 (16)</td>
<td>82.42 (75)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DF</th>
<th>Value</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2.1436</td>
<td>0.3424</td>
</tr>
</tbody>
</table>

Graphic designers were asked if they use a computer during the process of developing and defining ideas. Sixty-four respondents out of 93 reported “yes” and 29 stated “no.” Table 21 illustrates these findings and compares the age of the respondent with their selected answer.
Table 21

*Designers Who Use a Computer During the Ideation Process (n=93)*

<table>
<thead>
<tr>
<th>Group Age (Group 1)</th>
<th>Yes % (n)</th>
<th>No % (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-26</td>
<td>16.13 (15)</td>
<td>10.75 (10)</td>
</tr>
<tr>
<td>26-34</td>
<td>26.88 (25)</td>
<td>11.83 (11)</td>
</tr>
<tr>
<td>35-55</td>
<td>25.81 (24)</td>
<td>8.60 (8)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>68.82 (64)</strong></td>
<td><strong>31.18 (29)</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DF</th>
<th>Value</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1.4824</td>
<td>0.4766</td>
</tr>
</tbody>
</table>

The last question of this grouping asked respondents to relate their perception of audience expectations concerning design as a result of technology. Half of the 93 respondents felt expectations were “significantly higher,” as reported in Table 22. Six respondents indicated “no significant difference” and 3 believed expectations have been lowered as a result of technology.

Table 22

*Perceived Audience Expectations due to Technology

<table>
<thead>
<tr>
<th>Expectation</th>
<th>%</th>
<th>n=93</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significantly higher</td>
<td>50.50</td>
<td>47</td>
</tr>
<tr>
<td>Somewhat higher</td>
<td>39.80</td>
<td>37</td>
</tr>
<tr>
<td>No significant difference</td>
<td>6.50</td>
<td>6</td>
</tr>
<tr>
<td>Somewhat lower</td>
<td>1.10</td>
<td>1</td>
</tr>
<tr>
<td>Significantly lower</td>
<td>2.20</td>
<td>2</td>
</tr>
</tbody>
</table>

*Personal Career Assessment*

The last series of questions presented in the survey related to areas involving financial compensation and any perceived compromises that designers may or may not be experiencing as a result of technology. Approximately 58% of the 93 designers who completed survey believed that they were not fairly being compensated for their work financially. Table 23 illustrates this data.
Out of 93 respondents, 76 or 81.7% stated that they accepted freelance work relating to graphic design. Seventeen individuals reported that they did not freelance. When asked what motivating factor contributed to their individual need or desire to freelance, 40.6% cited “additional income.” Fifteen out of 64 respondents selected “opportunity to work with diverse clients and projects” as their reason. Table 24 further summarizes the findings. Three individuals selected “other” and their answers can be found in Appendix K.

Sixty-six designers of the 90 participants surveyed, representing 73.3%, plan to expand their skills to web and multimedia design to remain competitive as print designers. Almost 57% reported they are willing to assume more project management responsibilities and 53.3 cited accepting freelance and secondary work as a means of fulfilling personal design experience. Table 25 provides a full description of the data. Answers to those respondents selecting “other” can be found in Appendix L.

Table 23

<table>
<thead>
<tr>
<th>Satisfaction in Financial Compensation</th>
<th>%</th>
<th>n=93</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>41.90</td>
<td>39</td>
</tr>
<tr>
<td>No</td>
<td>58.10</td>
<td>54</td>
</tr>
</tbody>
</table>

Table 24

<table>
<thead>
<tr>
<th>Reasons for Freelancing</th>
<th>%</th>
<th>n=64</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opportunity to work with diverse clients/projects</td>
<td>23.40</td>
<td>15</td>
</tr>
<tr>
<td>Increased exposure to poss. Career advancement</td>
<td>4.70</td>
<td>3</td>
</tr>
<tr>
<td>Trail-basis entry into agency environment</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>Desire to eventually own a design agency</td>
<td>15.60</td>
<td>10</td>
</tr>
<tr>
<td>Additional income</td>
<td>40.60</td>
<td>26</td>
</tr>
<tr>
<td>Additional experience</td>
<td>10.90</td>
<td>7</td>
</tr>
<tr>
<td>Other (Appendix K)</td>
<td>4.70</td>
<td>3</td>
</tr>
</tbody>
</table>
Table 25

Adaptations Print Media Professionals Are Considering to Remain Competitive

<table>
<thead>
<tr>
<th>Adaptation</th>
<th>%</th>
<th>n=90</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expand skills to web, multimedia &amp; interactive design</td>
<td>73.30</td>
<td>66</td>
</tr>
<tr>
<td>Take on more project management responsibilities</td>
<td>56.70</td>
<td>51</td>
</tr>
<tr>
<td>Change primary job function within the industry</td>
<td>25.60</td>
<td>23</td>
</tr>
<tr>
<td>Freelance/secondary work to fulfill personal design experience</td>
<td>53.30</td>
<td>48</td>
</tr>
<tr>
<td>Relocate to a region with more opportunities/clients</td>
<td>32.20</td>
<td>29</td>
</tr>
<tr>
<td>Other (Appendix L)</td>
<td>7.80</td>
<td>7</td>
</tr>
</tbody>
</table>

Of the 93 design professionals who responded to whether they plan on remaining in the design industry, 87 answered “yes,” representing 95.6%. Table 26 provides a visual summary of this finding.

Table 26

Those Planning on Remaining in the Graphic Design Profession

<table>
<thead>
<tr>
<th>Planning</th>
<th>%</th>
<th>n=93</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>95.60</td>
<td>87</td>
</tr>
<tr>
<td>No</td>
<td>4.40</td>
<td>4</td>
</tr>
</tbody>
</table>

Respondents were asked to state their opinion as to whether the design profession has been compromised by the accessibility of highly sophisticated, yet affordable software and hardware available today. They were also asked to consider the increased use of these tools by novice users. Approximately 77% of the 92 participants who were surveyed reported “yes,” that they felt the design industry had been devalued by these trends. Table 27 summarizes the data.

Table 27

Those Reporting the Professional Has Been Compromised by Affordable Technology and Novice Users

<table>
<thead>
<tr>
<th>Compromised</th>
<th>%</th>
<th>n=92</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>77.20</td>
<td>71</td>
</tr>
<tr>
<td>No</td>
<td>22.80</td>
<td>21</td>
</tr>
</tbody>
</table>
When asked if graphic design professionals should be tested and licensed to practice design, 65.6% of the 93 respondents selected “Yes.” Thirty-two of the 93 respondents reported “no.” Table 28 illustrates this data.

Table 28

<table>
<thead>
<tr>
<th>Those Reporting Design Professionals Should Be Tested and Licensed</th>
<th>%</th>
<th>n=93</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>65.60</td>
<td>61</td>
</tr>
<tr>
<td>No</td>
<td>34.40</td>
<td>32</td>
</tr>
</tbody>
</table>

Summary

The purpose of this chapter was to present the findings from a survey that was conducted to weigh and measure the current status of graphic designers working in print media. The information was divided into four major sections: a general profile of respondents, educational background and training, technology perspectives, and personal career assessment. Factors such as age, gender, experience level of working with technology, and educational background were described and considered within various distributions. Respondents were also permitted to answer questions outside of the choices given by selecting the “other” answer option.
CHAPTER 5: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The previous chapter reported the data that was collected for this study. The survey gathered content from four general areas: a basic profile of the respondents, their educational background and training, their perspectives regarding technology in the design industry, and their personal career assessments. This chapter presents a summary of the study’s focus and what conclusions can be drawn as a result of the findings. The implications of this data, as well as recommendations for further study will be addressed.

Summary

The problem of the study was to identify the effects the evolution of affordable and user-friendly hardware and software have had on graphic design professionals working in two-dimensional design and graphic reproduction. The objectives of the study, as outlined in Chapter 1, will serve as a framework for summarizing and presenting the collected data.

Research objective 1: To determine the role and significance of computer hardware and software in the graphic design industry.

Computers have had a significant influence on almost every aspect of our modern lives. In the graphic design industry, computers are used as the primary means of preparing images digitally that are later sent to press. Cameras, film and plates have been replaced by digital signals that dictate the placement of ink. A design, no matter by what means it was created, will somehow eventually encounter a computer if it is to be printed on a modern printing press. It is this convergence of creativity and technology that has prompted this objective of the study.

Overwhelmingly, 83.9% of the respondents viewed current trends in technology as a positive factor in producing design, claiming it significantly increased their level of efficiency
(Table 13). But with that efficiency, 64.5% reported that they had experienced a significant increase in workload and responsibilities as a result (Table 16). Additionally, 87.1% contended that they were expected to perform duties outside of the creative process of designing (Table 17). Yet despite these findings, only 27.2% reported having known someone who’s primary job function as a designer had been made obsolete by technological advancements (Table 14).

Design software continues to become more complex in its ability to manipulate design elements with relative ease and speed. In addition, most applications are now bundled with an assortment of specials filters and features that enable users to create relatively sophisticated compositions without much effort. Because of these factors, the issue of audience expectation was considered. Do consumers of graphic design expect better design because of the technological capabilities? Of the designers who participated in this study, 90.3% felt audience expectations were somewhat or significantly higher as a result of technology (Table 22).

Research objective 2: To determine how and to what degree graphic designers are using computer technology to produce print materials.

Clearly, designers are using computers to produce and prepare graphic work for printing, however the question remained as to how significant the computer had become as a tool in the creative process of designing. Of those surveyed, 68.8% reported using the computer in the ideation stages of developing their design work (Table 21). Over 75% of the respondents believe that their personal style and technique of designing has been affected by the technology they use (Table 18). When asked if they could design without the use of a computer, 64.1% stated that they could if they had to, however 82.4% of the respondents reported that they would prefer designing with a computer rather than by some other mean (Tables 19 and 20, respectively).
Research objective 3: To identify how designers have acquired and maintained the skills, knowledge, and resources necessary in preparing for and continuing in a graphic design career.

Graphic designers have always been expected to produce aesthetically pleasing compositions. Today, however, their educational requirements have been expanded by the need to learn and use computer hardware and software. Almost 45% of the respondents stated that they received their artistic and aesthetic skill training through a 4-year university program offering a Bachelor’s Degree, while 35.1% claimed to have obtained their technical design skills in the same manner. Two-year programs offering an Associate’s Degree fared well with 20.6% claiming to receive their artistic training and 19.6% receiving their technical skills at such an institution. Respondents were permitted to select multiple answers to better summarize their unique educational backgrounds. In both areas of artistic and technical training, 61.9% of the respondents claimed that they were self-taught, either entirely or in addition to other training (Table 6).

When asked to rate their education and training in terms of how well it prepared them for a career in design, 24% rated their education as average. However, 66.7% stated that they believed their education to be above average by selecting “good” and “excellent” as their answers (Table 7).

Reading trades magazines, periodicals and/or web articles was the primary method in which graphic designers chose to inspire ideas and keep their design skills current. Nearly 90% selected this answer and 72.2% stated that referencing the work of other designers provided the same function. Experimentation with new media rounded out the top three answers, representing 56.7% of those individuals surveyed (Table 8). This ritual of experimentation proved to be the number one method of learning new software and keeping up with the changes in technology.
Of the 97 designers who answered this question, 83.5% reported “trial and error” as their means of acquiring such skills. Again, reading trade magazines and online articles served designers well with 64.9% stating they rely on these tools to assist with their technical learning. In addition, 57.7% stated they referenced online materials and websites as a means of staying current (Table 9).

When asked how often they reference online or printed manuals that have accompanied software or hardware purchases, 57.7% of the respondents reported that they occasionally use these tools to resolve a specific problem or issue. Lastly, 20.6% reported that they rarely—only as a last resort—read these materials and 8.2% report that they have never utilized these sources of information (Table 10).

Designers were asked how often they attend professional conferences and forums, and of the 97 who responded to this question, only 10 reported having attended 2 or more conferences per year. The vast majority, a combined 58.7% of the respondents, answered that they have only attended one conference in the past two years or have never attended one at all (Table 11). The data revealed some slight variance in its findings because in another question, 46.4% of the respondents selected “attend seminars, workshops and/or conferences” as a method of keeping their design skills current, as illustrated in Table 8. Additionally, almost 58% of the designers reported that these educational opportunities were self-funded, whereas 32% stated that their employer provided the necessary funding to assist in their continued training (Table 12).

Research objective 4: To identify and define the perceptions of designers regarding the need for formal education/training and certification/licensure.

The data illustrated in Table 6 summarizes how participants of the survey acquired their artistic and technical skills necessary to practice design. Although 61.9% reported being self-
taught to some extent, 80.4% of those surveyed stated that they received their artist training through a 2 or 4-year university/college or art institute program. In terms of acquiring their technical skills, 61.9% reported having learned them in this environment as well. Six of the 97 respondents attended graduate school and enhanced their artistic abilities, and 9 reported to have learned their technical skills while pursuing a graduate degree. These trends underscore the perceived significance of a formal education through an accredited institution but also suggest that most designers regard their education as a mix of classroom experiences and self-instruction.

The accessibility of affordable professional-grade tools, coupled with the plethora of instructional information available, has provided opportunities for novice users to experiment within the profession. Participants of the survey were asked if they considered their profession to have been compromised by these novice users. Of the 92 individuals who responded to this question, 77% stated that they felt it had been compromised (Table 28). Of the 93 who responded as to whether graphic designers should be tested and required to possess a license to practice design, 65.6% or approximately two-thirds felt that such measures should occur (Table 29).

**Research objective 5: To define what adaptations graphic designers working in print must consider to secure employment and remain competitive in their profession.**

As is the case in most professions, adjustments and adaptations must be made to keep in step with current trends. In an industry such as graphic design, which is so reliant upon and interlaced with technology, these changes occur constantly. Factors such as audience expectations and changing trends in aesthetic tastes and preferences also persist. When asked how they intended to respond to these influences within their profession, 73.3% of the print designers stated that they plan to expand their skills to include Web, multimedia and interactive design. Almost 57% reported that they were willing to assume more project management
responsibilities and 53.3% stated that they were willing to accept freelance and secondary work to round out their personal design experiences (Table 25). This data is further supported by the 81.7% who reported that they accept freelance work (Table 24) and the 87.1% who report an expectation of having to perform tasks outside of the creative process of designing (Table 17).

Research objective 6: To capture a collective understanding of what determining factors influence designers to pursue a career in design, to define the perceptions designers have regarding their personal investment and compensation, and to identify their level of satisfaction and commitment to the industry.

Possessing a personal interest or ability in art was the primary motivating factor for those choosing a career in graphic design, with 85.3% of the respondents stating this as the reason. An appreciation for design and its ability to influence society and culture was another factor, with 61.8% responding accordingly. Approximately 38% expressed an interest in technology and communications, which lead them to a career in graphic design.

Despite 58.1% reporting that they were not satisfied with how they were financially compensated for their work (Table 23), 95.6% stated that they intend to continue down their chosen career path (Table 26). Professional factors, such as the need for constant adaptation and continuous training, were recognized and expected by the majority of those participating in the survey. Almost 58% reported that training and educational opportunities were primarily self-funded, while 32% reported financial assistance for training from their employers (Table 12).

Conclusions

Based on the data collected from the survey and its application to the objectives of the study, the following conclusions have been drawn by the researcher.
Research objective 1: To determine the role and significance of computer hardware and software in the graphic design industry.

The computer is perhaps the most important tool a graphic designer will operate. The professional designer’s ability to understand, manipulate and utilize its full capabilities will play an even more significant role as more and more users (professional and novices alike) employ computers for visual communication. The majority of professional users reported an increase in efficiency and a perceived need to create more sophisticated design work as a result of audience expectations. However, nearly 16% reported technology as a factor decreasing their ability to be efficient and almost 10% suggested audience expectations were in fact lower as a result of technology. Considering that a great deal of time and energy is now spent in learning new features and upgrades, not to mention troubleshooting various hardware and software issues, it is possible many graphic artists feel technology diverts their focus from actually designing.

Secondly, because design software now provides so many advanced features and special effects, it is understandable that many designers may perceive these new tools as being artistic crutches. If consumers of graphic design are willing to accept only what technology can provide in a digital form, then audiences are expecting less. The human aspect of designing should not be viewed as an unfortunate, yet necessary casualty of technology.

Research objective 2: To determine how and to what degree graphic designers are using computer technology to produce print materials.

Over two-thirds of designers responding to the survey believed their personal style and approach to design had been influenced or affected by technology. It is not clear if this was considered a positive or negative affect. Nearly 69% reported using a computer to develop or establish their ideas and 82% stated that they prefer to design with a computer rather than some
other means. Only 64% stated that they could, if they had to, design without the use of a computer. Again, it is not clear if these designers have selected the computer as their tool of choice because of its efficiency or because they prefer the look and feel of design it creates.

Those reporting a preference for using other tools as a means of developing ideas and producing designs could be influenced by factors other than technology. The desire to create original and one-of-a-kind designs can be established more effectively with traditional design tools compared to the computer. For instance, a designer may prefer to push watercolor pigment around on a piece of paper and then scan the image into the computer for use within a composition. Factors such as where the paper warped or how the water and pigment pooled become inherent properties and unique aspects of an original composition created by using traditional design tools. A digital designer could attempt a similar layout by selecting a watercolor effect brush and digitally manipulating the flow of pigment, however digital compositions are built mathematically and can be replicated by anyone using the same tool selection and settings.

Research objective 3: To identify how designers have acquired and maintained the skills, knowledge, and resources necessary in preparing for and continuing in a graphic design career.

Those who claimed to have obtained their artistic skills through college, university or art institute settings (offering 2 and 4-year degrees) made up approximately 80% of the respondents collectively. Collectively, approximately 61% of the respondents received their technical training through the same manner. Because respondents were encouraged to select all answers that applied to their unique learning backgrounds, the findings do not indicate what combinations of learning occurred. However, nearly 62% reported “self-taught” as one method of learning both artistic and technical skills.
Over half of the respondents indicated that any additional learning opportunities were funded through personal monies. This factor is significant in that it possibly explains why “self-taught” garnered so many responses. Also, this may further answer why methods requiring little or no financial commitment, such as referencing trade magazines, periodicals, online articles, and informational websites were so popular. Experimentation, studying the work of others, and simple trial and error also proved to be popular methods of obtaining new information. If anything can be concluded from these findings, it is that graphic designers are resourceful and creative in obtaining low-investment information that they need to remain current in their skills. Higher ticketed methods of such as attending conferences and workshops, although desirable, were reported less popular in the findings.

Research objective 4: To identify and define the perceptions of designers regarding the need for formal education/training and certification/licensure.

Clearly, the majority of respondents identified the need for formal training or some degree of concentrated study as the foundation of their artistic and technical skills. Magazines and online articles/forums were reported to have been the primary resources for professional designers to further advance their skills. But the accessibility of these sites and periodicals also presents a problem in that the secrets of the trade are now disclosed to anyone wishing to experiment with the technology. Almost 71% of the respondents felt novice users compromised the profession in some way. It is unclear as to what factors these respondents are considering. If technology has somehow become the great neutralizer in allowing professionals and novices to create to the level of audience expectation, then it could be argued that technology has driven the standards of good design principles and practices lower. However, since nearly 90% reported
they felt audience expectations were higher as a result of technology’s influence within the industry, this does not appear to be the case.

As more digital natives enter the job market and digital design literacy becomes more predominant, there is some concern that our aesthetic culture may take away the “special-ness” of those who have spent years preparing for careers in design. One way of retaining that special status is to establish methods of standardization and compliance that require certification or licensure. Nearly 65% of the survey participants supported such a measure. Although this may seem like a valid means of securing income levels and keeping lesser skilled designers out of the industry, it also creates a slew of considerations.

Certification and licensure could subject designers to ridiculous amounts of unnecessary red tape and bureaucracy, further distracting them from the one thing they would prefer doing more of—designing. With 58% of the respondents stating that they did not feel fairly compensated for their work, there is no guarantee that certification would encourage higher wages. However, it is almost certain that requiring a license to practice design would add additional expenses to designers that are already self-funding their careers.

Research objective 5: To define what adaptations graphic designers working in print must consider to secure employment and remain competitive in their profession.

Good graphic designers not only follow trends, but they create them. The ability to change and adapt to current situations is critical to survival in such a competitive field. The findings of the survey suggest that designers not only recognize the importance of a solid foundation of aesthetic and technical skills, but also the need to keep in step with new information. At no other time in history has information been so readily available, primarily due to the Internet. Graphic designers, who fail to realize the significance of the Internet, whether as
a means of acquiring new information or a means of creating new work, are missing a huge opportunity. The data reflects this mindset. Almost 73% of the print designers participating in this study reported that they plan to expand their skills to include Web, interactive and multimedia design. More than half of the respondents reported using the Internet as a means of keeping up with new technology.

Nearly 96% of the graphic designers participating in this study stated that they intended to continue with a career in graphic design. Since 56.7% reported that they were willing to assume project management responsibilities outside of the design process and another 25.6% were willing to change their primary job function within the industry, the data suggests that the actual process of designing is deficient in providing for designers on some level or another. With 58% of the respondents reporting that they did not feel fairly compensated for their work, higher paying opportunities within the design industry could be considered the prime reason for these adaptations. Accepting freelance work and the willingness to relocate to regions with more clients and opportunities further supports the financial considerations graphic designers are making to earn a suitable income.

Although money is certainly a consideration in most career considerations, those shifting positions within the industry may be making these changes and adaptations due to other reasons as well. The possibility of creating meaningful work or contributing to a larger cause is very desirable to those designers disenchanted with the commercialization of our culture. Others seek new opportunities and challenges to keep their minds and eyes fresh. As artists, the act of seeing, making connections and restating observations through visual form is essential to how creative individuals process information, communicate ideas and function with the world in general.
Research objective 6: To capture a collective understanding of what determining factors influence designers to pursue a career in design, to define the perceptions designers have regarding their personal investment and compensation, and to identify their level of satisfaction and commitment to the industry.

Although graphic designers use an assortment of digital tools to create design work, even the most expert technician of these tools does not a designer make. This is an important distinction to keep in mind when we consider what factors bring individuals to the graphic design profession. Respondents were permitted to select as many factors as appropriate in describing their decision to practice design. Although nearly 39% of the respondents indicated that an interest in technology and communication played some role in their decision to practice design, an overwhelming 85.3% reported an artistic interest or ability in art as their primary reason for entering the profession. Nearly 62% expressed an appreciation for design and its influence in our society. Clearly, the creative act of producing design and admiring its presence in our culture were more influential than the opportunity to work with advanced hardware and software. The fact that these tools are available to anyone and not just professional designers underscores the significance art and design plays in steering individuals into the graphic design profession.

A common mantra among professional designers is that they would choose and continue to design whether they received a paycheck or not. It is this mindset that reveals itself in the data of the survey. Over 95% of the respondents reported that they plan to continue in the profession despite over half stating that they did not feel fairly compensated financially. The nearly 42% that reported that they were satisfied with their earnings as a graphic designer could be attributed to low financial expectations. Considering most graphic designers have been told their entire
lives that they will not become rich producing design, the ability to support oneself and survive
on the earnings of a designer have become the benchmark of success for many design
professionals.

Of those surveyed, 77% stated that they felt their chosen field was being compromised and devalued by the influence of technology and the novice users entering the design arena. Yet despite this concern, there is almost a sense of optimism carried by professionals in this industry. The ability to invent and reinvent allows designers the opportunity to add new meaning and value to their craft and to their own careers. If one thing is for certain, it is that we live in a visually rich and aesthetic culture where change occurs more rapidly now than ever before. Audiences and consumers of design will continue to demand and reward those individuals that can communicate new and exciting meanings through a visual, universal language.

Recommendations for Further Study

The purpose of any status study is to capture a moment in history and report occurrences and observations that are present at the point and time. The breadth and scope of this type of research allows many possibilities for narrowing the focus in any one area of the study and defining the details more clearly.

Although this research does an adequate job of illustrating how technology has affected designers working primarily in print, it would be an interesting study to examine the design careers of individuals who have avoided the entire influence of digital technology in their design work. With 17.6% of the respondents reporting that they would prefer to design without a computer, there is obviously a sector of designers who are holding dear the traditional means of creating design. Conversely, an examination of how traditional techniques and methods have been vastly improved upon through technology or completely replaced by better systems of
working could be explored. Issues such as the impact these approaches to design have on designer/client relationships, how the printing facility that reproduces the design work adjusts to new or non-standard procedures, audience acceptance and ultimately how the bottom line is affected could be examined.

In future studies, the research instrument, either in conjunction with the Internet or by some entirely different means of dissemination, should be considered. A combination of methods that introduce and invite HOW subscribers and readers to participate in the study could possibly increase the response rate over the method that was chosen in this study. Extending the length of time the survey is posted in an online environment could also positively influence the participation rate.

A study of this nature can and should be conducted every five to ten years in order to gauge the changes that are occurring in the field. In doing so, educational institutions can better prepare their next generation of learners for the new challenges that lie ahead in career preparedness. Professional organizations can gain better insight of their members needs and provide services to enhance the design industry’s value and its reputation within the business world.

When first selecting a group of individuals to participate in this study, many design organizations and publications were contacted. Among those considered was the American Institute of Graphic Artists, otherwise known as AIGA. The AIGA declined to participate in the study, citing that a survey had recently been administered to their current list of members throughout the United States. As a comparative exercise, the results of this study could be measured against the larger survey conducted by AIGA.
REFERENCES


Swanson, G. (1997), Graphic design education as a liberal art: design and knowledge in the university and the “real world”. In M. Bierut, W. Drenttel, S. Heller, & DK Holland (Eds.), *Looking closer 2* (pp. 68-76). New York: Allworth Press.


APPENDIX A

Correspondence with HOW Magazine

Date: Tue, 24 May 2005
To: Contact HOW online form —http://howdesign.com/magazine/contact.asp
From: Susan Panning <panning@bgsu.edu>
Subject: research inquiry

Dear HOW magazine,

My name is Susan Panning and I am a graduate student at Bowling Green State University (Ohio), currently pursuing a degree in Career and Technology Education (M.Ed.). My research involves the effects recent technological advancements have had on the graphic design industry, especially designers working in print. In this era of rapid technological growth and multimedia presentation, much has been written about print professionals making the transition to Web. However, for those graphic designers that have decided to pursue or maintain a career dedicated exclusively to print, a current status study does not exist that examines the important issues and concerns of this unique group of design professionals.

In an effort to reach what I feel is a qualified and diverse population representing the design industry, I am contacting design journals and publications that might be able to assist me in reaching this audience of professionals. With HOW being one of the largest resources for professional designers, and given your commitment to providing critical and analytical data about the industry, I would like to request your assistance in conducting this research by directing your readers to a brief online survey. I am willing to disclose all information regarding my research proposal, review of literature, and methodology, as well as the results and conclusions of this survey. Participation in this research would grant you complete access to all findings. I would sincerely welcome an opportunity to talk with you more in depth about this research project. Whether you are able assist me or not, I would appreciate hearing from you. Any suggestions you may have in reaching this target population would also be of great assistance.

Thank you for your time.

Sincerely,
Susan Panning
Hello, Susan --

I'd be happy to talk more with you about your research project. Please drop me an email with more info, or feel free to call me at the number below.

Thanks,

Bryn Mooth, editor
HOW magazine
bryn.mooth@fwpubs.com
www.howdesign.com
973-998-0495

a division of F+W Publications

Dear Ms. Mooth,

Thank you for expressing interest in my graduate research and thesis project. I truly appreciate you and the many positive things HOW magazine does to better the graphic design community.

I understand and respect policies of nondisclosure concerning subscriber information and I am sure your readers greatly appreciate it too. I am not suggesting that you violate their privacy or in any way jeopardize your relationship with them. Instead, I would like to propose that HOW magazine include an active link on your website, within an electronic correspondence, or perhaps include the research URL within a printed publication. This link would direct subjects to a 30-question survey and would include the purpose of the research and provide contact information should they have any questions or wish to learn the results of the survey. At this beginning stage of my research, there is a great deal of flexibility in this process and I am open to any suggestions you may have in terms of how to reach potential subjects without being intrusive or reflecting negatively on your publication. Should you choose to participate in this project, I am offering full disclosure of the results of the survey and your organization would then share ownership of that information.
Attached to this message is a series of documents that may better illustrate the significance of the study and my proposed methodology. I am also including a copy of the actual questionnaire, which may be modified through the Human Subjects Review Board at Bowling Green State University should you have any desire to alter its content. Also, I encourage you to contact Dr. Donna S. Trautman, Associate Dean and chairperson of my thesis committee, should you have any questions regarding the validity or intent of this research request. She can be reached at 419-372-7575.

Again, thank you for your time and consideration.

Sincerely,

Susan Panning
14 College Park
Bowling Green State University
Bowling Green, OH 43403
Phone: 419-372-7594
Email: panning@bgsu.edu

________________________

Date: Thu, 30 Jun 2005
To: Susan Panning <smpanning@yahoo.com>
From: Bryn Mooth <bryn.mooth@fwpubs.com>
Subject: Re: research proposal

Hello, Susan --

I'd be happy to publish a link to your survey on the HOW website, and I'd be grateful to receive the results of your research study. Please provide the link, any supporting copy about the project (a sentence or two about yourself and your objectives that we can use to direct visitors to your survey), and the dates when the survey will be live online. Also, please let me know when you expect to have the results.

Thanks,

Bryn Mooth, editor
HOW magazine
bryn.mooth@fwpubs.com
www.howdesign.com
973-998-0495

a division of F+W Publications
Dear Ms. Mooth,

This is wonderful news! Thank you! I can't begin to express to you how much this opportunity means to me. I have felt very passionately about my thesis topic and your assistance will definitely keep the momentum going.

There is much I need to learn about online surveys and anticipated response rates before I can provide to you a definite time line. I would like to obtain more information about your site, such as how many hits your site receives daily and what kind of response rates you have received from previous surveys posted on your site. Is there someone you could direct me to concerning this information?

Again, thank you for your assistance. Should you have any suggestions, questions, or concerns, please feel free to contact me at anytime. I will be in touch soon regarding target dates for the survey's posting.

Sincerely,
Susan Panning

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Dear Ms. Mooth,

First and foremost, thank you for allowing me this opportunity. I truly appreciate your willingness to assist me in reaching my research population through HOW magazine's website. I cannot begin to express to you how much this means to me. I am very excited about this research and eager to learn the results. I hope you are too.

It has taken over a month on this end to receive final approval from my Graduate College and Office of Research Compliance, hence the delay in getting this information to you. However, now that approval process has been completed, we are ready to start collecting data! I have included a link to the survey below. Please place this code on your website and feel free to change the descriptive text of the link if necessary.

<a href="http://surveymonkey.com/s.asp?u=865761273888">Click here to take survey</a>
The survey is currently live and I would like to have the link posted on your site as soon as possible. Working within the parameters of your busy schedule, I would like to request that you let me know when the link has been posted. At this time I am not able to estimate of how long the data collection process might take. I am hoping to garner approximately 300 responses and I will monitor the actual response rate daily. I would like to request that the survey link be posted for a two-week period and depending on the response rate, adjusted accordingly. Does that seem feasible?

The first page of the survey contains a brief introduction and consent form that explains the purpose and objectives of the study. Feel free to extract whatever "lead in" information you wish to direct readers to the survey. I, personally, am very interested in better understanding the creative process and how it is affected by the tools and technology we use today. My area of focus involves the development and implementation of learning and working environments that foster creativity through technology, experimentation and technology. I hope to graduate in Fall, 2005.

Again, thank you. If you have any questions or concerns, please feel free to contact me.

Sincerely,
Susan Panning

Date: Fri, 26 Aug 2005
To: Susan Panning <panning@bgsu.edu>
From: Bryn Mooth <bryn.mooth@fwpubs.com>
Subject: Re: research / survey link

Hi, Susan --

I haven’t neglected your email; I was on vacation when it arrived in my inbox last week. I’m having some technical problems and haven’t been able to work on the HOW website for a couple of weeks. Which means I can’t upload a blurb and link about your survey at the moment. I’m hoping to have the problem resolved ASAP (it’s affecting tons of other work I need to do, as well). I’ll let you know when the blurb is up.

Thanks,

Bryn Mooth, editor
HOW magazine
bryn.mooth@fwpubs.com
www.howdesign.com
973-998-0495

a division of F+W Publications
Date: Fri, 26 Aug 2005
To: Bryn Mooth <bryn.mooth@fwpubs.com>
From: Susan Panning <panning@bgsu.edu>
Subject: Re: research / survey link

Hello!

I had read somewhere (on your website or within a HOW email) that you were expecting to be traveling 3 weeks out of 4 during the month of August. Not only was I impressed, but I also assumed you would be swamped once you returned. The technical issues I didn't anticipate, but that goes with the territory. I am just so appreciative — whenever you get the link posted is just fine with me.

Thanks for the update.
Susan

Date: Tue, 30 Aug 2005
To: Susan Panning <panning@bgsu.edu>
From: Bryn Mooth <bryn.mooth@fwpubs.com>
Subject: Re: research / survey link

Hi, Susan --

I’ve finally got my technical problem solved (at least part of it) and have posted a news item about your survey on the HOW homepage. You can see it here:

<http://www.howdesign.com>

I’ve programmed the blurb to remain on the homepage until 9/15. Please let me know if I should set a different expiration date.

Thanks, and good luck with the project!

Bryn Mooth, editor
HOW magazine
bryn.mooth@fwpubs.com
www.howdesign.com
973-998-0495

a division of F+W Publications
Hello, Ms. Mooth,

This is wonderful news! I just checked the response rate and already 15 people have completed the survey. I am so excited and I cannot wait to see what the data tells us!

I will keep you posted if I should need to shorten or extend the time frame, however I am thinking (and hoping) that September 15 will be the perfect amount of time. As soon as I have the results compiled, I will be sure to send you a copy.

Thank you, again and again and again. I truly appreciate this opportunity.

Susan Panning

Date: Thu, 15 Sep 2005
To: Bryn Mooth <bryn.mooth@fwpubs.com>
From: Susan Panning <panning@bgsu.edu>
Subject: Another HUGE thank you!

Dear Ms. Mooth,

I just wanted to thank you again for your assistance with my research project. I could not have reached such a broad and varied audience without you. Designers from across the country have contacted me regarding the survey. It has really been an extraordinary experience. The information and services HOW magazine and HOWdesign.com provide for the design community are beyond measure.

I will be analyzing the data and completing my thesis within the next month or so. My defense date is scheduled the last week in October (yikes!). I will be sure to share the results with you once they are available.

Again, thank you for taking an interest and being a big part of my little project.

Sincerely,
Susan Panning
Date: Thu, 15 Sep 2005
To: Susan Panning <panning@bgsu.edu>
From: Bryn Mooth <bryn.mooth@fwpubs.com>
Subject: Re: Another HUGE thank you!

Great, Susan. Glad we could be of help! Do keep me posted on the results — congrats on the thesis!

Best,

_________________________
Bryn Mooth, editor
HOW magazine
bryn.mooth@fwpubs.com
www.howdesign.com
973-998-0495

a division of F+W Publications
Technology & Design: A Research Project
Susan Panning, a graduate student at Bowling Green State University, is conducting a research project to assess how technology is affecting graphic designers, especially print designers. Panning is seeking a broad range of design professionals to participate in her online survey, and we’ve offered to help her reach the creative community. **Click here to take the survey**
APPENDIX C

Online Survey Questions

General Profile of Subject/Participant:

1. What year were you born? (pull-down menu from “1940 or before” to “1987”)
2. What is your gender?
   a. Female
   b. Male
3. Which terminology best describes you?
   a. Digital native
   b. Digital immigrant
   c. Not familiar with either term
4. What determining factor(s) influenced your decision in becoming a graphic designer? (select all that apply)
   a. Artistic interest or ability in art/design
   b. Interest in technology and/or communications
   c. Appreciation for design and its influence
   d. Related career choice was redefined to include graphic design
   e. Unrelated career choice was redefined to include graphic design
   f. Other (please specify)
5. How many years have you been employed as a graphic design professional?
   a. Less than 1 year
   b. 1-4 years
   c. 5-14 years
   d. 15-24 years
   e. 25 years or more
6. What primary medium do you prefer to work in? (select only one)
   a. Print
   b. Package design
   c. Environmental design
   d. Information or instructional design
   e. Web, interactive and multimedia design
   f. Other (please specify)

Educational background/training:

7. How did you acquire the artistic/aesthetic skills necessary of designing? (select all that apply)
   a. Self-taught
   b. Correspondence school
   c. Community education program
   d. Vocational or technical school
   e. 2-year program (Associate’s Degree)
   f. 4-year program at art/design institution (Bachelor’s Degree)
   g. 4-year program at university level (Bachelor’s Degree)
   h. Graduate degree
8. How did you acquire the technical skills necessary of designing? (select all that apply)
   a. Self-taught
   b. Correspondence school
   c. Community education program
   d. Vocational or technical school
   e. 2-year program (Associate’s Degree)
   f. 4-year program at art/design institution (Bachelor’s Degree)
   g. 4-year program at university level (Bachelor’s Degree)
   h. Graduate degree
   i. Other (please specify)

9. How would you rate your education/training in terms of preparing you for your career in graphic design?
   a. Excellent
   b. Good
   c. Average
   d. Below Average
   e. Poor

10. How do you keep your design skills current? (select all that apply)
    a. Network with other designers through professional organizations
    b. Attend seminars, workshops and/or conferences
    c. Read trade magazines, periodicals and/or web articles
    d. Participate in online chat forums
    e. Reference other designers’ work
    f. Experimentation with new media
    g. Other (please specify)

11. How do you learn new software and keep up with changes in technology? (select all that apply)
    a. Attend workshop or class
    b. Read trade magazines, periodicals and/or web articles
    c. Reference software and hardware manuals provided by OEM
    d. Reference online materials/websites
    e. Training available through employer
    f. Trial and error
    g. Other (please specify)

12. How often do you reference free online assistance or a user’s manual from a software manufacturer?
    a. Often, as a primary source of instruction
    b. Occasionally, to resolve a specific issue
    c. Rarely, as a last resort
    d. Never

13. How often do you attend professional conferences and/or forums?
    a. More than two per year
    b. Two per year
    c. One per year
    d. One every 2 years
e. Rarely (less than one every 2 years)
f. Never have attended
14. What is the primary source of funding for any educational opportunities you may engage in?
   a. Personal funds
   b. Funds associated with a small business or freelance service you own
   c. Funds provided by your place of employment
   d. Grants/fellowships
   e. Other (please specify)

Technology Perspectives
15. To what degree has technology allowed you to work more efficiently?
   a. Significant increase in efficiency
   b. No significant change
   c. Significant decrease in efficiency
16. Have you or people you have worked with been replaced (directly or indirectly) by technology/equipment?
   a. Yes
   b. No
17. To what degree has your workload or responsibilities been affected by technology?
   a. Significant increase in workload/responsibilities
   b. No significant change
   c. Significant decrease in workload/responsibilities
18. Are you expected to perform tasks outside of the creative process of designing?
   a. Yes
   b. No
19. Has technology affected your personal style or technique in producing design?
   a. Yes
   b. No
20. Could you design without the use of a computer today?
   a. Yes
   b. No
21. Would you want or prefer to design without a computer?
   a. Yes
   b. No
22. Do you use a computer during the ideation process?
   a. Yes
   b. No
23. Do you feel audience expectations are higher or lower because of technology?
   a. Significantly higher
   b. Somewhat higher
   c. No significant difference
   d. Somewhat lower
   e. Significantly lower
**Personal Career Assessment**

24. Do you feel you are fairly compensated (financially) for your work?
   a. Yes
   b. No

25. Do you freelance?
   a. Yes
   b. No (if No, skip question 26)

26. Why do you freelance? (select all that apply)
   a. Opportunity to work with diverse clients and subjects
   b. Increased exposure for possible career advancement
   c. Trial-basis entry into agency environment
   d. Desire to eventually own a design agency
   e. Additional income
   f. Additional experience
   g. Other (please specify)

27. What adaptations do you see yourself making in the next 5 years in order to retain employment or remain competitive in the print media profession? (check all that apply)
   a. Expand skills to Web, multimedia, and interactive design
   b. Take on more project management responsibilities outside of the design process
   c. Change primary job function within the industry
   d. Freelance or seek secondary work to fulfill personal design experience
   e. Relocate to a region with more opportunities/clients
   f. Other (please specify)

28. Do you plan to continue with your graphic design career?
   a. Yes
   b. No

29. Do you feel your profession has been devalued or compromised by the deluge of novices entering into it, using the very same affordable and accessible tools that were once used exclusively by professional designers?
   a. Yes
   b. No

30. Do you feel there is any benefit to graphic designers being tested and licensed to practice design?
   a. Yes
   b. No
APPENDIX D

Explanation of Study and Consent

Dear *HOW* subscriber and design professional,

My name is Susan Panning and I am a graduate student at Bowling Green State University (Ohio), currently pursuing a degree in Career and Technology Education (M.Ed.). My research involves identifying the effects recent technological advancements have had on the graphic design industry, especially designers working in print. In this era of rapid technological growth and multimedia presentation, much has been written about the Web and how print professionals are making the transition. However, for those graphic designers who have decided to pursue or maintain a career dedicated exclusively to print, a current status study does not exist that examines the important issues and concerns of this unique group of design professionals. The results of this study may benefit those who are considering a career in graphic design, as well as those who are currently working and adapting within the industry. Furthermore, a better understanding of what training, education, and practice is necessary to succeed as a graphic designer may assist educational institutions in better preparing their students.

In an effort to reach what I feel is a qualified and diverse population representing the design industry, I am requesting your voluntary participation in this study and asking you to please complete the following survey. At your discretion, you may withdraw from the survey at any time without consequence. The survey consists of 30 multiple-choice questions and will require approximately 10-15 minutes to complete. All individual responses to the survey will be kept on a secure server at Bowling Green State University and will be accessible only to the researcher by use of a secure password. No attempt will be made to identify individual participants and all data will be reported as group data. Upon completion of the study, all data within this digital file will be erased. Participants in this study may wish to clear their browser cache and page history following submission of the survey.

Any questions or concerns you may have regarding this study may be directed to me at panning@bgsu.edu or my advisor Dr. Donna K. Trautman, Associate Dean, College of
Technology at dktraut@bgsu.edu. You may also contact the Chair, Human Subjects Review Board, Bowling Green State University at hsrb@bgsu.edu or (419) 372-7716 with questions or concerns about the conduct of the study or your rights as a research participant.

Thank you for participating in this study.

Sincerely,

Susan Panning

(Consent Statement)
By selecting the AGREE button, I assert that I am at least 18 years of age and volunteer to participate in this study. I have been informed that completion and submission of this survey constitutes my consent to participate. I have also been informed that I will be asked personal questions concerning my own academic and professional choices, as well as perceptions I may have regarding technology and its effects on the graphic design industry. My participation in this study is entirely voluntary and I may exit the survey at any time without consequence.

[AGREE] [DECLINE]
APPENDIX E

Human Subjects Review Board Approval Letter

August 18, 2005

TO: Susan Panning
   College of Technology

FROM: Richard Rowlands
   HSRB Administrator

RE: HSRB Project No.: H06T007GX2

TITLE: The Status of Print Designers in an Age of Multimedia Presentation

You have met the conditions for approval for your project involving human subjects. As of August 18, 2005, your project has been granted final approval by the HSRB. This approval expires on July 17, 2006.

The final approved version of the consent document(s) is attached. Consistent with federal OHRP guidance to IRBs, the consent document(s) bearing the HSRB approval/expiration date stamp is the only valid version and you must use copies of the date-stamped document(s) in obtaining consent from research subjects.

You are responsible to conduct the study as approved by the HSRB and to use only approved forms. If you seek to make any changes in your project activities or procedures (including increases in the number of participants), please send a request for modifications immediately to the HSRB via this office. You may proceed with subject recruitment and data collection. Please notify me, in writing (fax: 372-6916 or email: hsrb@bgsnet.bgsu.edu) upon completion of your project.

Good luck with your work. Let me know if this office or the HSRB can be of assistance as your project proceeds.

Comments/Modifications:
Please inconspicuously add text equivalent to the HSRB approval/expiration date stamp (see attached sheets) to the header or footer area of the online consent document.

c: Dr. Donna Trautman
APPENDIX F

Question 4: What determining factor(s) influenced your decision in becoming a graphic designer?

Other Responses:

• Program had the least math requirements
• Manipulation
• It’s one of the only art careers where a stable paycheck is relatively easy to achieve
• Creative arts
• Dot com bust
APPENDIX G

Question 7: How did you acquire the artistic/aesthetic skills necessary of designing? (select all that apply)

Other Responses:

• 2 years at Whitmer High School in Toledo, Ohio.
  Will get a BFA in Design Studies May 2006
• Plus studies at Art Center
• Apprentice
• M.A. degree
• We has a Mac and Corel Draw at home when I was younger. I always loved art class and building things/being creative at home.
• Bachelor of Fine Arts Degree (4-year University)
• Certificate — Non Vocational
• BA in BS, MKTG and ADV major
• Mentoring type supervisor
• On-the-job training
• BFA illustration

Question 8: How did you acquire the technical skills necessary of designing? (select all that apply)

Other Responses:

• Same answer as question #7
• Art Center
• Technical school
• In the trenches, on the job training
• Internship
• Plus acquired skills in jobs
• Training seminars
• Electives in college while studying Communications/PR
• BFA (4 year University)
• Certificate – Non Vocational
• On-the-job training with co-workers, seminars
• On the job
• On the job training/education
• On the job training
• On-the-job training
• In-house training
• Seminars
• Employee training
• Work study in college publications dept.
APPENDIX H

Question 10: How do you keep your design skills current? (select all the apply)

Other Responses:

• Always trying new techniques
• Just keep on taking on new challenges and always be aware of trends in ALL areas of life. No time for networking or classes. Nor $$.
• Taking Art Institute Online Digital Design degree
• Teach
• Teach it
• Work in the field
• Playing with software, to create ideas
APPENDIX I

Question 11: How do you learn new software and keep up with changes in technology? (select all the apply)

Other Responses:

• Talk to other designers
• Ask/troubleshoot with other designers
• Online training
• Software tutorials
• Teach it
• From working with corresponding or similar programs
APPENDIX J

Question 14: What is the primary source of funding for any educational opportunities you may engage in?

Other Responses:

• N/A: Just graduated
APPENDIX K

Question 26: Why do you freelance?

*Other Responses:*

- No other employment available
- Experience, income and sometimes to just help those who can't afford good design like church or a not for profit.
- Be able to work at home w/kids around
APPENDIX L

Question 27: What adaptations do you see yourself making in the next 5 years in order to retain employment or remain competitive in the print media profession? (check all that apply)

Other Responses:

• Continue self-training
• It's hard to find a place you can get trained in as well as design because there's so much project management to do...I will either have to work very hard on my own to learn new tools, or change jobs!
• Transition to teaching
• Learn new Variable Print Programs
• Have had to change career
• Find better job in same area
• Make my own niche in the city and my company