

THE NEW U.S. GRAPHIC COMMUNICATION CURRICULUM: AN EXPANDED TAXONOMY

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Abstract

Survey and analysis of changing curricula of existing Graphic Communication programs within various degree granting educational institutions within North America. While some programs have closed, others have shifted curricular focus to adapt to newer disciplines entering the traditional graphic communication space, most specifically in User-Interface (UI) and User-Experience design. This phenomenon has changed the direction of the Accrediting Council for Collegiate Graphic Communications (ACCGC), an accreditation body in North America that reviews and provides accreditation to any participating programs in Graphic Communication. As such, the ACCGC has developed a Taxonomy of Disciplines that assist in determining criteria for accrediting newer and evolving Graphic Communication programs.

Keywords: *Curriculum, Graphic Communication, Learning Objectives, Taxonomy*

It looks like tough times are ahead for our industry as material shortages, labor shortages, and cost inflation continue to pressure margins and as the American economy slows appreciably, quite possibly into a recession.

But even the harshest business climates bring opportunity. Some industries hold up well, creating pockets

of growth, with market share and talent becoming available as the unprepared retreat into survival mode or fail. The advantage goes to companies that begin thinking now, before the downturn is in full swing, about how best to capture those opportunities.

Printing United Alliance, 2023 State of the Industry Report (p. 13).

Introduction – Is Print a Turtle?

Is print still relevant? Is it an old turtle that slowly traverses through the forest unaware of the microscopic changes taking place in the world around him? Is the shell that protects him perhaps a hinderance to the landscape from which he walks upon? Is print represented as the shell of progression in the future of digitalized interfaces? As these are highly contested and philosophically demanding questions, perhaps questions that all graphic communication enterprises – and consequently, educational programs housed within higher-education institutions – have exhaustively grappled, the time has finally arrived to assess the future of education in the printing sphere and to consider the configuration of its shell.

As printing establishments close and educational programs shutter doors, the reality (and fear) begins to take hold. According to Printing United Alliance (2023), citing statistics from NAICS 323: Printing and Related Support Activities (U.S. Census Bureau, Census.gov), there was an 8.9% decrease in printing establishments in the United States from 2015-2022 (2020-23,392; 2015-25,688). In reference to the open quote of this paper, officers and leaders of major United States printing and graphic communication establishments cite direction and strategy as their most immediate and concentrated focus progressing into the remaining year of 2023 and the coming year of 2024. The Printing United Alliance Report (2023) posits, “Where should we take the company and how do we get there? Should we diversify? If so, in which directions, and what will we need to diversify profitably? Or should we stick to our core capabilities? Plenty of technologies, products, and services are creating buzz, but which are really opportunities given my company’s resources, capabilities, and circumstances? How can we increase our odds of getting it right?” (p. 24).

These questions segue most appropriately to higher-ed educational graphic communication programs as well. As bastions of innovation supporting the graphic communication industry, educational programs dedicated to this field have produced a budding workforce of highly talented employees and professionals that have helped to propel the industry and expand opportunities in technological innovation, advancements, supply chain management, training, and supplemental industries. However, as the digitization of content changed the landscape, and the reliance on printed matter waned, less-seasoned generations of talent entering educational institutions today have arrived with a diminished interest in the traditional printing technologies.

As such, programs within educational institutions have shifted, juggled, wrangled, and adapted to accommodate interests of digital natives through

the purveyance of customized intra-disciplinary foci and/or concentrations supplementing printing and graphic communication foundations. This is also a phenomenon experienced within the current printing and graphic communication industry, as evidenced by economic industry-based reports.

Complacency or Challenging the Status Quo?

Industrial, commercial printing, and publishing still remain a substantial industry from a global prospective. According to Reportlinker.com (2023), “The global commercial printing services market grew from \$650.62 billion in 2022 to \$670.92 billion in 2023 at a compound annual growth rate (CAGR) of 31%.” Moreover, Reprotlinker.com projects the global market to grow to \$740.03 billion by 2027. However, their definition of “commercial printing services market” is inclusive of “revenues earned by entities providing various printing services such as graphic designing, kitting, fulfillment, analytics, mailing, web-ordering portals, publishing, advertising, marketing, and retail to leverage business operations” (ReportLinker.com). As such, their prognostications for market growth expand well beyond the walls of traditional printing facilities and expand into other technologies and disciplines as well which are complimented by varying streams of design and digital web development and interaction contained within the auspices of marketing and advertising fields.

Educational Institutions

Graphic Communication programs within educational institutions today are faced with a rather challenging quandary comprised of interests (or lack thereof) exhibited by several forces. The first is the heavy pressure from university and college administration personnel who are concerned with enrollment, retention, and graduation rates affecting their bottom lines. The second pressure is from the graphic communication industry which needs highly trained on-floor production labor that requires wages competitive with other industries. Similarly, industry needs employing a workforce that is dedicated and driven through innovation, willing to initiate new opportunities in market expansion. The third force is the student of the future. Raised in a digital world, their interests reach beyond traditional analog printing and incorporate a multitude of integrated technologies and processes that resonate through design, interactive interface, programming, and web development. The fourth force, inevitably, is in the interested (and consequential influence) of the parents of the newer student generation. Versed in application as it pertains to economic forecasts, parents and families alike continuously question the future of the Graphic Communication industry as it fronts the

printing and publishing sectors, stimulating preponderance in the viability of their student's career choice and ability to generate a consistent and aspiring career path. Finally, the fifth force involves companies that purvey the very technology used in graphic communication programs, as well as the corresponding supply chain that supplies applicable consumables. As the uncertainties associated with chaotic economic markets, and the uptake of digital lifestyles dependent upon online and mobile technologies, companies and suppliers have experienced declines in sales growth in traditional printing technologies and supply chain consumables. Consequently, the support for educational programs have waned as well.

United States Graphic Communication Programs

In the 1980s and 1990s, there were over 50 four-year bachelor's degree granting programs in existence in the U.S. Once provided with healthy square-footage allotments in the forms of laboratories on the campus grounds complete with a comprehensive array of photographic darkrooms, image setting devices, printing and binding equipment, these programs attracted and produced a "ready-to-work" multi-talented workforce ready to enter any printing and/or packaging production environment. However, as mentioned before, the technological enhancements in the digital world evolved, interests in the pursuit of careers within the industry diminished and programs, not adequately prepared nor agile enough to supplement the offerings within the discipline for the purposed of attracting the new and future student, lost support from industry as well as from university administration, and, consequently found themselves closing doors and/or merging with other academic programs.

Currently, today there are 20 bachelor-degree granting programs in the United States and Canada (2023, Geisinger, Calkins, Wilson, p. 5). In the past year alone, three prominent programs have seized accepting applications for admissions into the Fall 2023 academic year. The reasons for the seizures are primarily due to low enrollment and unstable admission prognostications. Meanwhile, the remaining programs continuously monitor enrollment, retention, and graduation rates in compliance with university wide accreditation requirements as well as administrative forecasts pertaining to economic viability. As such, many programs have expanded their disciplines to include a vast array of fields that are commonly associated with the new graphic communication field.

What is Graphic Communication?

Over the years, the definition of graphic communication has mutated to best represent this “field.” There have been two studies conducted that have furthered the conversation regarding how educational institutions (and subsequent organizations) with graphic communication programs are defined. According to Geisinger, Johnson, and Fulcher (2022), in citing the definition from The National Center for Education Statistics (NCES, 2022), write that Graphic Communication is “A program that generally prepares individuals to apply technical knowledge and skills in the manufacture and distribution or transmission of graphic communications products.” This includes: “instruction in the prepress, press, and post-press phases of production operations and processes such as offset lithography, flexography, gravure, letterpress, screen printing, foil stamping, digital imaging, and other reproduction methods” (2). The NCES definition relies heavily on printing technology and the processes contained there within. However, when researching a few leading Graphic Communication educational programs across the United States, Geisinger, Johnson, and Fulcher (2023) revealed the following:

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“GrC is the study of how we convey meaning through visual design. This includes the creation, production, management, and distributions of advertising, marketing, websites, mobile apps, books, packaging, and other media in printing and digital form” (2022, p. 6)

Clemson University, Clemson, South Carolina, USA

“Graphic communication prepares students for professional careers in printing, publishing, packaging, graphics, digital media, content creation, and the greater communication industry” (2022, p. 5).

University of Houston, Houston, Texas, USA

“Students in UH go beyond a single profession. They are strategists who produce across print, packaging, emedia, eCommerce, simulation, app development, videography, animation, game development, and photography” (2022. p. 6).

Similarly, there are Graphic Communication academic associations that are affiliated with domestic and global programs that have pondered the classification of graphic communication as it applies to academia. Geisinger, Johnson, and Fulcher (2022) report that the Graphic Communication Edu-

ational Association (GCEA), “identifies in their GCEA Strategic Plan v4B (2018), the changing landscape and the need to stay relevant by moving on beyond the traditional print landscape and providing ‘more value by helping our members develop new skills that help them position for the future workforce demand.’” (2022, p.2). Moreover, Anastasios Politis (2021), Chairman of the International Circle of Educational Institutes of Graphic Media Technology and Management (IC) and member of the International Association of Research Organizations for the Information, Media, and Graphic Arts Industries (IARIGAI) reports, “Evolution in industries and businesses, has led to the necessity for continuous transformation of the education and training in general. Global developments such as the internet, the development of digital media and the digitalization as a generic trend, are influencing tremendously the current structure of the curricula and study programs and lead to their necessary restructuring and transformations. This is the case with the Graphic Communication – Printing Science and Technology Higher Education” (p.1).

The Accreditation Council for Collegiate Graphic Communications (ACCGC) is a formal and official accrediting body that reviews, analyzes, and awards program accreditation certification at participating graphic communication programs both within the United States and internationally. According to the ACCGC website, “ACCGC defines the academic discipline of Graphic Communications as a branch of technology with focus on the creation, production, management, and commercial application of visual products in digital and physical form” (ACCGC.org, 2023). The ACCGC currently has awarded accreditation to nine (9) graphic communication programs (eight in the United States and one in China). Therefore, with the seizing and closing of various programs over the past few years, the Council has been forced to develop options pertaining to the longevity of the accrediting body. As such, there has been an appointment of a committee tasked in identifying opportunities for extending accreditation to existing programs as well as other potentially related disciplines. The committee that was formed consists of representatives from existing accredited programs as well as unaccredited programs. Upon its directives, the committee was tasked with the formation of a Delphi project targeted with the creation of a taxonomy that comprised of mapping out, organizing, and categorizing all relevant industry-related tasks, skills, and disciplines associated with the vast graphic communication field, as well as, authoring a comprehensive definition of Graphic Communication as it applies to the academe. After a series of discussions, and an exhaustive review that was vetted through industry representatives, academicians, students, and administrators, a final

taxonomical map and new definition was created, vetted, and published for purposed of defining the discipline.

According to ACCGC, the Graphic Communication discipline is “A branch of technology with focus on the history, creation, production, management, and commercial application of visual products in digital and physical form. Study may include combinations of business management, computer generated imagery, computer servers, content management, data, distribution logistics, graphic design, intellectual property law, networking, package design, photography, print production, visual product design, production management, project management, videography, and web development” (ACCGC, 2023).

The ACCGC Graphic Communications Taxonomy

Additionally, the ACCGC Delphi Group developed seven (7) relevant and applicable Student Program Learning Outcomes (SPLO). They are: 1.) **Design and User Experience** – Integrate design aesthetics, functionality, and relevancy into graphic communications products; 2.) **Production Skills** – Impact production efficiency and product quality across a variety of media by applying knowledge of graphic communications materials, technologies, and practices; 3.) **Teamwork and Project Management** – Contribute to graphic communications project teams for design, production, and management; 4.) **Legal and Ethical Considerations** – Recognize and practice legal and ethical responsibilities concerning the creation, use, and distribution of graphic communications assets or products; 5.) **Communication** – Communicate ideas through written, visual, and oral mediums to a wide range of audiences; 6.) **Research and Independent Learning** – Research and apply new information to solve graphic communications design, production, and management problems; 7.) **Business and Management** – Apply tools and principles in graphic communications business development and production management (ACCGC, 2023).

Resulting from the process, a larger comprehensive list of over 106 two-year degree granting programs associated in the Graphic Communication discipline in the U.S. has been assembled, created, and caste. Additionally, three (3) four-year degree granting Graphic Communication programs have filed applications for accreditation. The Graphic Communication Taxonomy has provided programs (existing and new) with guidance pertaining to future develop of curricula within their institutions – both interdisciplinary as well as multidisciplinary. Such a guide is imperative to gaining introspection for curriculum development, program modification, administrative require-

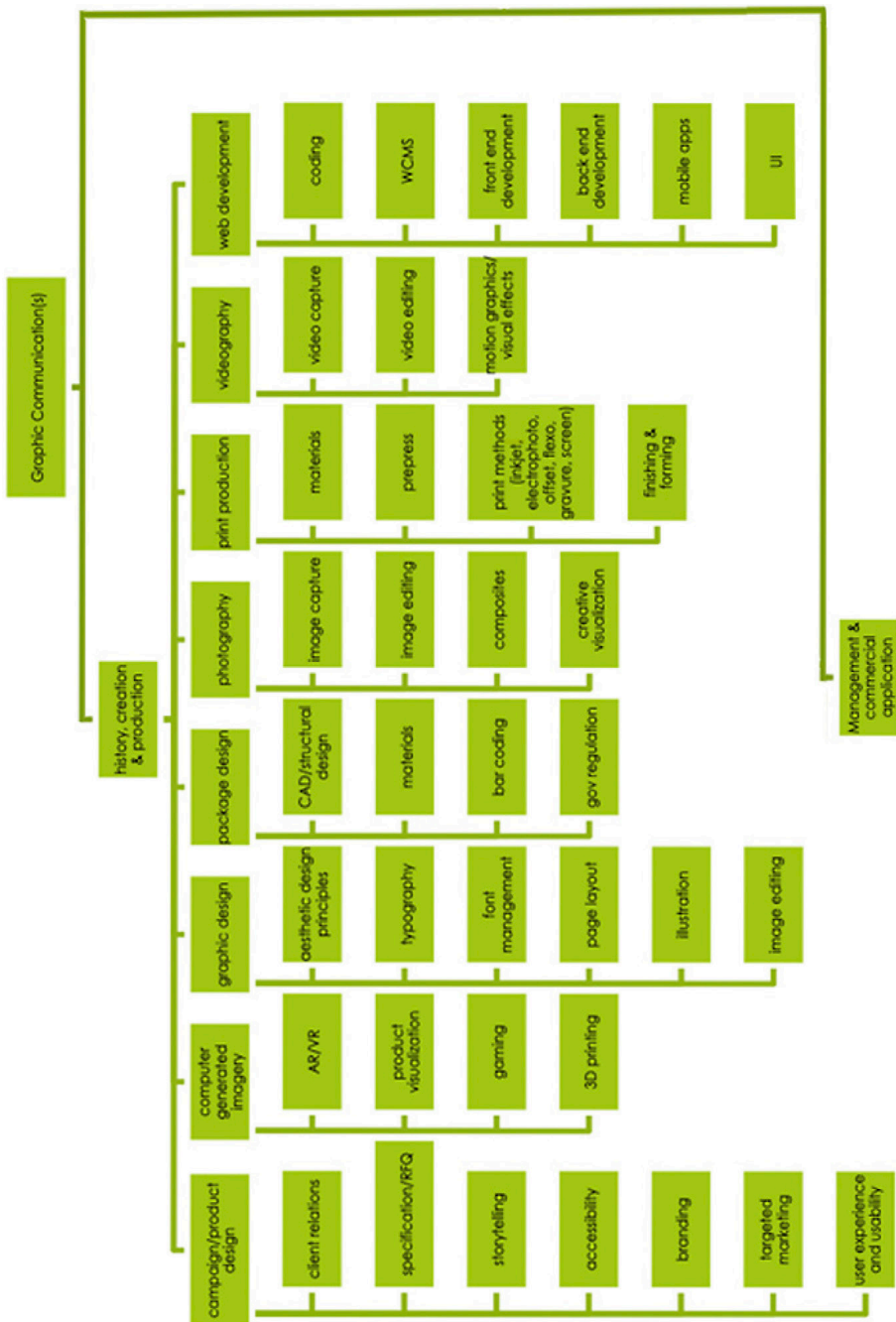
ments pertaining to enrollment forecasts, retention, and the enhancement of graduation rate efficiencies.

What do Future Students Want?

At the California Polytechnic State University, located in San Luis Obispo, California, students apply for the four-year Bachelor of Science degree in Graphic Communication (GrC) from all over the United States. The majority of students in the program come from California, with remaining cohort coming from the states of Washington, Oregon, Nevada, Arizona, and Texas. There are 390 students currently enrolled in the graphic communication program. As such, Cal Poly extends a core curriculum that focuses heavily on printing technologies, workflow, packaging, quality control, business, and management. Students then choose one of four concentrations: design reproduction technology (DRT); graphics for packaging (GPK); graphic communication management (GCM); and user-experience/user interaction design (UX/UI). As of the publication of this article, the distribution of concentrations is: 73 UX; 61 DRT; 16 GCM; 8 GPK (students choose their concentration in the beginning of their second year). As evidenced by the distribution of data, the majority of students in Cal Poly GrC choose user-experience/user-interaction design as the leading program. This can be attributed to the fact that many students come from Silicon Valley (San Jose, California) and are influenced to choose UX/UI from their families who are employed in the tech industry. As a result, the curriculum has changed over the past few years to accommodate needs and interests in video capture, augmented reality, virtual reality, artificial intelligence, user-experience design, user-interactive design, human-computer interaction, learning design, front-end web development, back-end web development and programming, as well as expansion into printed electronics and packaging interaction design, and integrated marketing communication.

Now, as Cal Poly's program does not necessarily represent the entire graphic communication educational community, is important to note that most of the existing 18 four-year bachelor degree granting programs have created and/or arranged their curricula to better serve the interests of their student constituency through the development of enhanced digital design-oriented disciplines.

The evolution of design has evolved to incorporate all aspects of communication. Beginning with the visual-ness of an object, whether it exist in an analog or digital world, it must be able to be transformed through all technologies. According to Yue (2022), "Visual communication design must be able to keep pace with the times and use more new technologies,



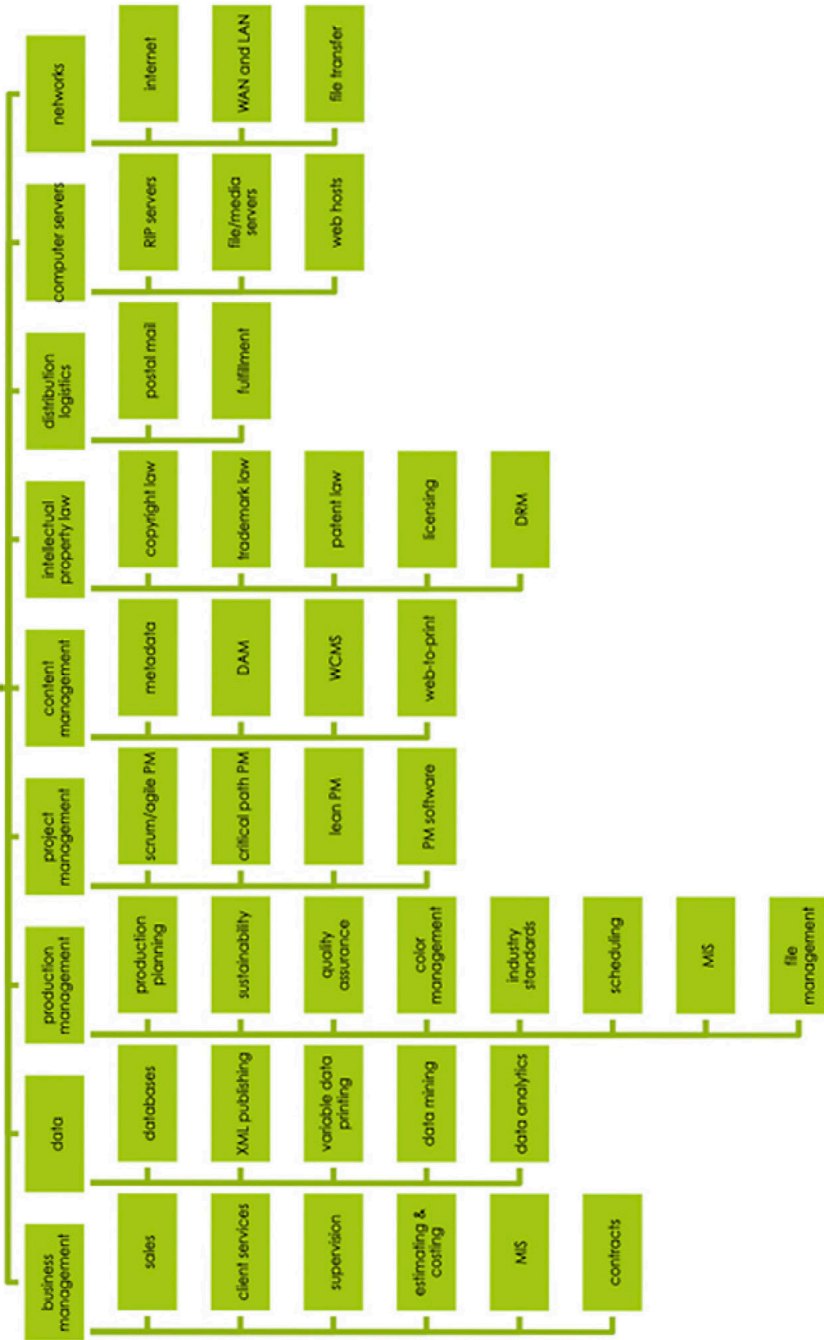


Figure 1. ACCGC Graphic Communications Taxonomy (2023)
https://accgc.org/wp-content/uploads/2023/02/ACCGC_Definition_Taxonomy22.pdf

and to integrate more new technologies with the innovative design of products, which has become one of the professional qualities of designers” (p.4). Therefore, interest in design and design technologies, the interactivity with the object – the “interactor’s” perspective – becomes even more paramount to the success of the event and the comprehension of the medium. More importantly gaining an understanding of this from the form of a printed artifact enhances this theory as well. Neves (2017) writes, “Having served as a basis for digital development, printed matter has allowed itself to be only timidly contaminated by an explosion of concepts and possible involvement with a binary system. As processes of digital interaction increase, it is necessary to safeguard proximity of printed matter, resulting from graphic design projects, with people who actually use it, at the risk of letting become inadequate for lack of reinvention” (p.S4098).

When it comes to understanding the terms pertaining to interaction design, Schmidt and Huang (2022) report that User Experience (UX) is defined as an “Individual, perspective quality that manifests through involvement, interaction, and observable/measurable experience with technology or product. A consequence of internal factors related to the user, characteristics of the designed system, and the context of interaction” (p.144). Moreover, they define User-Centered/User-Interaction (UCD/UI) as “Offshoot of human-centered design used to describe iterative design practice that actively seeks user validation across all phases of design. Recognizes that users’ needs, abilities, and desired should drive design at each stage of the process” (p. 144). Again, interactivity within the parameters of digital space remains the imperative. This relates to mobile design and integration of augmented reality (AR) as well. Youssef, Mousa, Baloola, and Fouda (2020) write, “In AR graphic user interface GUI is a combination of virtual and physical objects. These elements work together to achieve a fundamental goal, mapping user physical input onto Mobile application output. GUI focuses on three main factors: the physical design elements of the interface, the virtual visual display and the interaction metaphors between these. The AR graphical design should facilitate usability, and provides a high level of user satisfaction, perceived usefulness and consistency, so the design could easily be recognized and understand by user” (p. 97). In the field of human-computer interaction design, graphic communication – built upon the tools of printing fundamentals – provides the foundation for successful development, interpretation, and creative construction in both the two-dimensional printed space and the three-dimensional digital cyberspace.

Conclusion: An Inverted Turtle

Educational institutions engaged in field of Graphic Communication are continuously reiterating and defining their directions. Destined to satisfy the needs of the five forces and aggressively foster innovation in developing curriculum laced within a diatribe of an industry gone antiquated, the time has come to embrace the concepts of design as it matures within the progress of digitalization and all the interfaces that provide the window into content. Like a turtle having found itself on its back, struggling to overturn, graphic communication programs have found themselves in the same dilemma. Having carried the weight of printing and printing technology on their back for many decades, the shell protecting it has grown larger and stronger. And as the upright turtle slowly walks through the forest, the underside of its shell scrapes the rocks, sticks, dirt, and critters that pass beneath it. Like the turtle, Graphic Communication finds itself walking on dirt, sand, water – in the form of marketing, digital formats, and design – and fails to appropriately adapt to acknowledging the importance of it all as it walks over it. As students, however, begin to demand further development of programs that address newer digital experience design initiatives, the turtle (and the program) become inverted. Whilst attempting to reposition itself, inverted as it is, the uncomfortableness, awkwardness, and sheer fear of never regaining an upright position becomes scary and challenging.

Although this lesson is not about the physiological, zoological, anatomical structures of a turtle, the meaning inferred here is that an inverted turtle has difficulties regaining its uprightness. And, for theoretical purposes, were the turtle physiologically capable of detaching itself from the shell (it cannot), it could – in theory – invert itself inside of the shell and continue its journey with the bottom side up – making printing technology the foundation, and the newer expanded fields the projected growth areas seen as the top of the shell. In the 2023 report generated by Printing United Alliance (2023), Chief Executive Officers were surveyed and asked where they foresaw opportunities in securing profitability in their futures. Inevitably, 38% responded that they envisioned expanding into new markets through diversifying product offerings as services such as web development, enhanced design services and application, as well as web and mobile app development (Printing United Alliance, p.6). The one question that was not asked of the CEOs who participated in the study, was where they predicted their workforce will come from and how their workforce will be trained, especially in these new and expanding areas. The answer comes from educational institutions that house and nurture progressive and innovative graphic communication programs that go beyond print. As a turtle gallantly displays the

brilliance of its top outer shell, it is bottom part of the shell that remains structurally vibrant, protective, practical, and applicable. Perhaps now is the time to invert our shells and begin a new process of evolution, one that values and integrates the legacy of print and integrates the future of interaction design and its taxonomical brethren. In reference to the opening quotation, it was written, “the advantage goes to companies that begin thinking now, before the downturn is in full swing, about how best to capture those opportunities” (Printing United Alliance, 2003). Perhaps the advantage goes to the graphic communication educational programs who – like the slowly progressive turtle who has adapted to a position of invertedness – have already determined how best to capture those opportunities.

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