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Democratizing Design: Can higher education survive?

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The tools and techniques of graphic design have become accessible to the public at large to such a degree that the profession itself may be threatened with extinction. At the same time, design literacy — the knowledge and reasoning beyond the use of those techniques — does not seem to be experiencing the same widespread dissemination. In order to re-establish its value, the design profession must introduce a higher level of insight beyond the mere the decoration of artefacts – an ability to understand “big picture” concepts and to work across disciplines to become involved in every step of a project, from concept to completion. Thus, U.S. undergraduate design education must change as well. Educators must be innovative in order to prepare a new generation to evolve quickly and continuously. Programs must be fluid and adaptable, which requires educators to treat their curricula as design problems, to be solved with radical thinking and creativity.

Keywords: design education, design curriculum, graphic design, visual literacy, critical thinking

Introduction

The democratization of design refers to an increased access by the public to graphic design tools and the proliferation of digital venues in which to use them. The software is readily available. Fonts, image manipulation tools, page layouts, ready-made graphics, are all instantly accessible. Herbert Simon suggests that everyone is a designer (1969), but not meaning anyone with a computer and internet access, but in a deeper sense, that anyone who solves problems and improves situations into better, preferred ones. On the social media site, Dribbble.com¹, which promotes itself as a platform for graphic designers, over half of the users describe themselves as having little to no formal training in design, yet they are practicing design (Hemsley, J & Kelly, R. 2019). They have access to the relevant tools and thus identify as designers. However, in *Design Literacy: Understanding Graphic Design*, authors Steven Heller and Rick Poyner highlight the challenges of developing creative proficiencies and conclude that formal aspects such as type and image comprise one small portion of a much larger framework of literacy competencies that includes persuasion, identity, mass media applications, and much more (2004). Yet many people walk through their careers unable to see its influence – and thus unable to harness the power of design to make their work and businesses more effective. By giving non-creative employees the tools needed to improve their design awareness, their ability to explore it in their work, and a structure for collaborating productively with internal and external creative teams, everyone benefits.

Sites such as this reflect a “preoccupation with ‘form’” that limits designers to the act of two-dimensional decoration (Welch, 2011). Focused on the treatment of formal elements, they merely regurgitate the known—what has been done before—instead of conceptually reinterpreting the known to create something new. This distinction is significant; without context and concept, form becomes far less meaningful and the role of the

¹ <https://dribbble.com/>



designer becomes devalued as the boundaries between amateur and professional are blurred (Fleischmann, 2013). The consequences of this practice can be precarious for the profession. “True design literacy requires a practical and theoretical understanding of how design is made and how it functions...which takes years of learning and experience to acquire” (Heller, 2004).

So where does design education factor in the current paradigm? Programs that focus on teaching the technical aspects of design, the tools and techniques and software proficiency, may run the risk of being supplanted by online resources that can offer the same or more up-to-date training at a lower cost and greater convenience. As it becomes more difficult to ignore online learning sites, programs are faced with limited options: acknowledge and incorporate these sites as parallel teaching tools or split entirely from teaching technique and leave that responsibility to the internet. So, the value of a higher education in design may lie in teaching higher-level skills such as the ability to engage in design thinking, build a foundation of visual and design literacy, and direct those skills toward preparing the designer of the future as not just a problem-solver but a problem-seeker proficient in design and critical thinking. What Welch refers to as “creative insight,” the ability to use both associative and analytical thinking, and toggle easily between the two, allows the designer to make new, unexpected connections which leads to novel solutions (2011) that transcend the technique-oriented online resources. In addition, higher education can, and should, emphasize design thinking as a human-centric means of approaching problems from different perspectives, not only in design but as an approach to education in general. In a wider sense, design programs should produce “critical minds and creative thinkers,” a skill that cannot be attained from online courses or in self-study mode,” unlike the basic fundamentals. (Fleischmann, 2015a). Technology has altered the way in which we work as designers. Perhaps it has a role in providing instruction up to a point, but design education must find a way to either work alongside (Fleischmann, 2015b) or completely separate from and beyond the online resources to maintain relevance and value.

Background. The relationship between technology and design.

What was once the best friend of the design profession—*technology*, with its essential tools greatly simplifying demands of the job while allowing for boundless excursions into new levels of creativity—is now a challenge to its very existence. In the visual design field, technology has played a supportive role, simplifying a designers’ daily routine tasks and responsibilities — a role it has played so well that in many ways it now appears to be on track to replace the designer entirely. Stock photography, stock illustration, web templates, business cards, billboards, banners, packaging, presentations, publications, animation, logos, layouts—practically all of the artifacts a designer typically creates - can be obtained at little or no cost by anyone with a computer.

The state of traditional design education, as well, is under threat of replacement by technology in the form of workshops and lessons on YouTube, Skillshare, Lynda and inLearning, to name a few. (Fleischmann, 2013) In the early part of the twenty-first century, online learning was already making the traditional education system “extremely uneasy,” with the potential to trigger “evolutionary” changes in the establishment (Singh, O’Donoghue and Betts, 2002). While Massive Open Online Courses (MOOCs) have not yet replaced higher education, their impact is significant enough to warrant a reevaluation of current education practices (Fleischmann, 2015b). It can be assumed that their influence will only increase with technological advances (Fleischmann, 2015a). The rise of these resources, and the fact that there is a legitimate concern over quality control stemming from a lack of skill verification of their “instructors” has led to discussions of certification or accreditation (Karnjanaprakorn, 2012). Were this to happen, it would become even more imperative for university programs to evolve in order to maintain relevance to the profession in order to compete with the entities offering certificates meant to set them apart with more substantial validation. A study of the impact of online resources on the profession and education needs to be pursued, and, in fact, further research into this subject is ongoing and will be included in a subsequent phase of this project.

Due to the revolutionary changes in the industry, design education must evolve, but to what degree (Fleischmann, 2013)? The industry understands that evolution is natural and, in this paper, we are investigating what education is doing to remain relevant. Initially, design was developed as a “trade” in response to the industrial revolution and its alignment with the masses—in this case, communication to the masses. So, what began as an “applied art” during the 1920s moved from a follower of production to a formal field of study of higher learning with the development of the Bauhaus (Cabianca, 2016)². And design has remained in this position, working with technology, both as leader and as a partner depending on the moment, during which education in the U.S. has generally made small adjustments while many maintain the traditional Bauhaus model. To be sure, the dialogue concerning the need to evolve in response to technological advances has continued for over a decade, (Fleischmann, 2015b) with the issue becoming steady more urgent until there currently exists a “need for radical change in design education” (Fleischmann, 2013). Attempts have been made in the form of experimental program models at various institutions, but a definitive answer in the form of a solid curriculum shift has yet to surface.

According to the *AIGA Designer 2025* report entitled, “Why Design Education Should Pay Attention to Trends,” technology is relentlessly reshaping the profession as we know it. Where designers might have once been masters of this technology, “design approaches of the past will struggle in keeping design relevant and...the field risks losing influence to other disciplines” (2017). As technology presents new and revolutionary ways of communicating, the traditional designer risks falling behind and becoming irrelevant. There is a certain danger in following trends; designers can easily become dated and passé as technological, cultural and visual trends cycle more and more quickly. There is a certain danger in not following trends as well. When designers become stagnant and unresponsive to the audience they attempt to reach, they risk being left behind altogether. Trends can be misleading, however, especially when looking at the short-term (within five or even ten years) when programs are producing professionals who plan to stay in the field for several decades (Davis, 2008). Vast, global trends, or paradigm shifts, must be identified within the constant stream of changing ways in which we communicate and interact in order for design—and design education—to once again take the lead.

At one time, designers were the trendsetters, the pioneers who influenced what would become cutting-edge and culturally-defining in the visual landscape. Now, it seems that role is being appropriated by entrepreneurs, engineers, and executives. The designers follow, taking their ideas and beautifying them — however, algorithms may take this away as well. Matías Duarte, VP, Material Design at Google, predicts that “in five years machine learning will enable computers to make the kinds of aesthetic choices that humans make today” (LaBarre, 2016). In fact, it has already happened (Leow, 2018). Where does this leave the designer? It is no wonder that the “prevalent belief in design as a service industry permeates...the culture of design as a whole.” (Welch, 2011) This is exemplified in the social media site, Dribbble.com, with its “designer” users “caring only about form” and aesthetic decoration without concept or function being considered (Abehsera, 2013). Where does this leave the educational system that still focuses on this model?

Considering the pace of technological changes in design, how does design education prepare students, in a four-year program, to stay relevant in a networked society (Fleischmann, 2013)? How do we teach them to not only survive but excel as leaders and forward thinkers throughout the commercial sector? As referenced in the *AIGA Designer of 2025* report, the traditional curriculum that involves teaching skillsets that build upon each other toward communicating a message to a passive audience no longer reflects the reality the designer will face upon entering the profession, (2017, Flew 2008), and yet colleges still utilize this approach as the basis in their classes. On the other hand, building a curriculum based primarily upon teaching the software *du jour* only compounds the central problem of designers becoming followers of technological trends rather than leaders and forward thinkers. In order to not only maintain design sustainability but regain the leadership role in driving visual communication, something more dramatic, more revolutionary must take place. The curricula developed within serious design programs must address the sea change facing our industry—the speed and

² The Bauhaus School was developed roughly around 1920. The school was a movement of higher-level thinking about the blending of art and design in response to mass production; a fear of a loss of purpose for art and design. It was founded by Walter Gropius in Weimar, Germany.

efficiency within a university's design curriculum must improve, and not "bury their heads in the sand" (Davis, 2008). To survive, educators must be open-minded about the extent to which the nature and function of classroom must change, dramatically and quickly. It is imperative that educators remain in touch with the industry, through personal work experience or communication with alumni, in order to track the changes as they happen. And it is equally important that they implement changes based on their observations into their teaching methodologies and project development to equip students for the environment they will encounter post-graduation.

A current trend in design education is for universities to focus more heavily on research and theory as a form of validation of their area of focus, as opposed to practice. While this direction is a kind of response to the evolving field, it may in fact further weaken the impact of education (Werner, 2015), and add greater separation between education and practice for the students ultimately entering the workforce (Friedman, 2016). If professionals in the field largely ignore the research being generated through academic institutions, no matter how applicable or prescient, what value does it bring? Alternatively, professionals who engage in research largely fail to disseminate their work to scholars or collaborate with students in the process (Davis, 2008). This mutual exclusion further exposes the division between the two, as well as the fact that education is potentially losing its relevance to the practice and vice versa. A survey conducted among 35 professionals across the U.S., at different stages in their careers and possessing a variety of design-related job titles, strongly suggests that academic research is not reaching those in professional practice, which is further supported in additional studies (Huber, 2017).

RQ1: How do you stay current within the design industry?

A: Non-academic articles, professional conferences, online training

RQ2: Do you stay current with design research from academic institutions?

A: No (77.14%), Yes (22.86%)

Paradigm Shift. Obsolescence can lead to new opportunities.

So, technology advances, jobs and industries die out. This process makes sense. We no longer need blacksmiths other than at 19th century village reenactments; we no longer require the services of the samurai, except perhaps in Hollywood. However, when the process is occurring right now, with a speed seemingly unmatched in history, the fear of the unknown can easily overpower objective logic and reason. The need to predict what will occur and plan accordingly becomes urgent for those affected by change.

To follow his theory regarding the loss of 50 percent of existing jobs, Erik Brynjolfsson concludes that "hopefully another 50 percent of new jobs will be created at the same time" (What Parts, 2017). Historically speaking, there is reason to be optimistic. As coal and the fossil fuel industry began to decline, entirely new positions surrounding renewable energy have sprung up. According to the 2017 U.S Energy and Employment Report, "nearly one million Americans are working near- or full-time in the energy efficiency, solar, wind, and alternative vehicles sectors...almost five times the current employment in the fossil fuel electric industry" (2017).

In another example, the sharing economy, which has grown out of technological advances, has affected a variety of industries. Ride sharing, for instance, has clearly impacted the income of taxi drivers in urban centers. However, according to Forbes, "Uber has created more jobs than it has destroyed, demonstrated by the staggering expansion of self-employment following its introduction" (Study Explores, 2017).

In the design field, new positions are becoming more and more prevalent. Among them, design researcher,

integrated designer, digital designer, UX (user experience), UI (user interface), social media designer, and a continuing stream of emerging titles, such as service designer and usability expert, (Dziobczenski, Person & Meriläinen, 2018) stand out as emerging distinctly from current technological trends. All of these titles surround the same basic responsibilities: developing a targeted profile of a particular user of a specific digital technology, and/or customizing the interface in order to create the most visually and functionally inviting experience. The fundamental principles³ are the same as they have been since the dawn of design: to communicate a message in the clearest and most visually-interesting way to its audience. There now appears to be a distinct difference in one of the factors affecting this long-standing model: the audience itself. Traditionally, the group which a design was intended to reach has been defined in “broad demographic terms, targeting them as passive consumers of segmented marketing” (AIGA Designer 2025, 2017). But with new technology, the audience is able—and eager—to provide constant feedback, responding in real time to the visual and verbal messages presented to them. They are involved in developing and disseminating those messages as well, and for the designer, there is no longer time to track the results of a campaign, analyze the return-on-investment, or handle unexpected crises when everything is happening live with no down time. The audience is simultaneously huge and solitary, with potentially massive amounts of people on a network and everyone expecting a personally tailored experience.

Further, there is evidence of a shift from design as a service industry, merely answering to specific requests of a client, to a more “cooperative model” in which the designer engages in the process much earlier on, working with the client at the beginning stages of a project to help direct outcomes (Welch, 2011). The T-shaped model for design expertise, in which the designer is familiar with a broad spectrum of related fields, and an expert at one, may be giving way to a “reverse-T,” in which designers are rising vertically through a corporate structure to use their problem-solving skills for more than visual design solutions (Baratta, 2017). The skills developed through the process of design thinking become applicable in all facets of an institution’s operation and designers are thereby imbued with a unique added value. According to Terbo, a Pi-shaped model described the most effective designer thinkers, who “go deep in two areas and are able to find unexpected connections between the two” (Baratta, 2017). The ability to make novel and unexpected connections can be useful regardless of position and discipline, and truly sets this new designer apart from those of the past.

What skillsets must be taught, then, in order to exist and thrive in this new paradigm? The basic process of developing effective visual imagery that was once at the core of the profession could shift or become secondary to a new mandate. At some point in many programs, the focus on the “why” was replaced with merely teaching the “how” through software and technical skills. High-level thinking, theoretical insight and analytical skills have receded as a consequence. In a survey of 45 students at various stages in their academic careers at multiple universities, the following question was posed:

RQ3: Is it better to understand the “HOW” or “WHY” with respect to design?

Fifty percent of the students named the “how” as the main thrust of design education, while only twenty-five percent thought the “why” was most important. Without experiencing the reality of design responsibilities in the profession, do these answers reflect only what the students are being exposed to in the classroom? A survey of 55 design professionals yielded contrary results. Generally, once in the field, more value was placed on skills that could be derived more from studying the “why.”

³ The fundamentals of design are the proficient use of the principles and elements of design: The elements of design generally include line, value, color, texture, form, space and type. The principles of design – balance, isolation, proximity, contrast, hierarchy, repetition and movement describe how they are employed in a composition, in addition to the communication of the message to a specified audience.

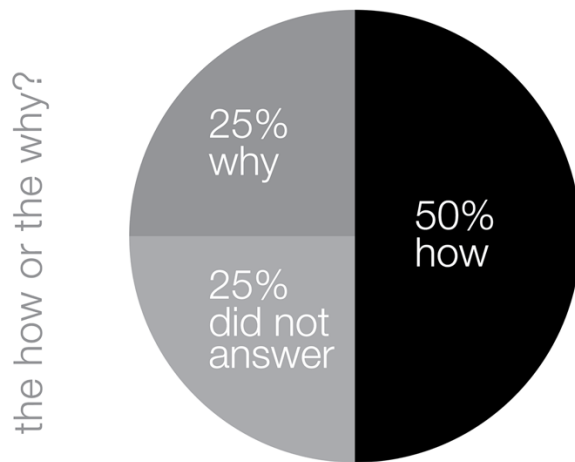


Figure 1. Student survey results: Is it better to understand the "HOW" or the "WHY" with respect to design?

RQ4: What are the qualities the professional world values in new hires?

Answers included “far more than just communications design,” (Kelly, 2019) such as critical thinking, active listening, empathy and ethics, storytelling, and co-creative functionality, as well as the ability to face larger, unknown challenges, understand the enterprise user, contribute from a corporate angle, work with experts from multiple fields, demonstrate a global perspective, partner at planning stages—a hybrid professional with skills and formal education in two or more disciplines.

The disparity of what seems to be happening in the classroom and what is currently valued in the workplace is made clear in a comparison of answers to the previous questions. Dating back to the early 2000s, educators have indicated that design education was in danger of becoming outdated or at least threatened by emerging technology, lamenting that digital media had “rendered obsolete what we thought we cared dearly about” as far back as 2001 (Fleischmann, 2013). Without question, a reconsidered approach to teaching a new generation of designers is warranted. Adaptability, collaboration, and a certain affinity for the unknown (Monahan, 2002) now seem to be the attributes most central to the success and sustainability of the new designer. Would the evolved practitioners of “communication design” even be recognizable to their counterparts a mere 20 years ago?

Starting Points. Preparing the new designer through higher education.

Where does this leave the design educators? How does one teach students to adapt, stay ahead of trends, and maintain relevance in a networked society? According to NPR’s Ari Shapiro, a liberal arts education may provide one of the best chances to keep creative industries such as design from becoming extinct (What Parts, 2017). The classroom experience provides unique opportunities that are notably absent from online learning. In a studio environment, many factors come into play, including an element of chance (Crowther, 2013) and random associations derived from critiques or conversations with faculty and fellow students. The classroom affords a flexible pedagogy (Crowther, 2013) that can be tailored to best suit individuals or groups, and present unplanned lessons in response to classroom dynamics. But finding the most effective approach to educating the new generation is far from guaranteed.

It is the mindset of the entrepreneur that drives technology, not necessarily the other way around, and this mindset can help position designers as leaders and big-picture thinkers in a way that will make the field less

threatened by automation. Designers have always been problem solvers, taking the directives and conditions of a client and brainstorming creative visual solutions. But this, too, must be elevated in order to add value to the field at large. Instead of passively waiting for others to present their problems, designers must seek out problems to solve—beyond those which require a logo, a packaging system, website, annual report design, or other typical project staples that remain relatively unchanged. Actively addressing prominent issues with global implications and using their inherent ability to approach them from unique, creative perspectives would help designers secure their role in the emerging economic landscape.

Collaboration—an idea not unfamiliar in agency and studio settings—also becomes a critical concept beyond the traditional designer/art director/account service/copywriter partnership. Collaboration beyond the designer’s inner circle is becoming a key to survival. The founder of Fuseproject, a leader in product experiences and cohesive branding, Yves Béhar emphasizes the key point, “Design is more and more central to the success of the modern business; designers are no longer being brought in at the end of the process to make things look pretty, but rather are providing essential insights from the ground up” (LaBarre, 2016). If it is such an important factor, why does it not play more of a central role within a greater number of university systems? More and more often, designers are expected to understand principles of business, economics, sociology, statistics, psychology, and data science, to name a few. Part of Herbert Simon’s proposed theory of design involves the “organization of complex structures” which necessitates collaboration among participants with diverse experiences to achieve variety within solutions (Simon, 1969, Santos & Tschimmel, 2018). Design itself can connect individuals across disciplines as a “common creative activity” (Simon, 1969), whose processes can be understood to have significance for problem-solving in any context. It breaks down boundaries and provides a common language between professional fields. Therefore, designers who move to a more diffused type of thinking can expand the relevance of their work beyond their immediate discipline. The new designer must embrace understanding and working with disparate areas of an industry whose audience has moved from mass communication to a “networked communication model” (Cardoso, 2008). With the audience more connected than ever, within that realm of new modern demographic mapping, how can tomorrow’s designer begin to truly understand how to reach, speak, and design for this unique market Collaboration (Fleischmann, 2015b)?

Design programs that refuse to acknowledge this reality and continue to focus solely on visual aesthetics may soon find themselves falling behind and unable to catch up. As Tim Brown, CEO of IDEO, explains, “‘Design’ is no longer a discrete stylistic gesture thrown at a project just before it is handed off to marketing. The new approach taking shape in companies and organizations around the world moves design backward to the earliest stages of a product’s conception and forward to the last stages of its implementation—and beyond” (2009). Merely concentrating on well-designed typography, eye-catching imagery and clever messaging—even expanding to include the latest technology and trends—may not be enough to sustain undergraduate programs when the designer’s role is becoming much broader. This change in role and the accelerated evolution of the profession presents a difficult situation for design educators. If students are entering a program with increasing amounts of technical knowledge, how is faculty expected to keep up? (Fleischmann, 2013) More so, in college and university programs where curriculum updates can take an average of two to three years from idea to implementation, keeping up with the industry—much less, leading it—seems practically impossible.

It begins to become apparent that certain steps must be taken to address the obstacles facing design education under the current conditions within the industry. First, based on observations and studies regarding university programs across the U.S., a lack of consistency permeates the naming conventions of course descriptions, course titles and programs themselves. The table below illustrates some of the myriad ways in which facets of visual design are described within higher education.

degrees	program titles	housed with
	Graphic Information Technology	Engineering College
Studio Art: GD Emphasis	Department of Visual Arts and Media	
Bachelor of Design, in GD	Design Department	
GD Programme	School of Art + Design	
BFA GD	School of Art	
BFA Emphasis GD/BFA Visual Art	Department of Art	College of Fine Arts
Bachelor of Design	Visual Comm Design Prog: Div of Design	School of Art, Art History, Design
Bachelor in Graphic Arts	Design Department	
BA, BFA, MA, MFA,	School of Vis Comm Des	College of Comm and Information
	Visual Comm Design	Art, Art History, Arch, L Arch, Urban and Reg Planning, Environmental Design
GD, UX, Game Design	School of Design	College of Comp. and Dig Media
BFA, Communications Design, MFA Exp	Department of Art	College in the Creative Arts
BA	Integrated Media Arts Program	Media and Integrated Arts
BFA concentration GD, Digital Media	Dept of Art and Design	
BFA GD, Interactive Adv, I Print/Screen	School of Design	
AAS, BFA Design	Communications Design	
BA GD, Inter, AAS, Visual Communication		
BFA GD	Department of Art	School of Art
BFA GD		
	Communications Design, School Design	College of Design, Arch, Planning
	Vis Communication Design	Communication
	Vis Communication Design	School of Art and Design

Figure 2. A small pilot sample of differing names of degrees and programs within visual design

Even the departments with which visual design is aligned within colleges can be telling. Some institutions associate design with fine or performing arts, others may combine it with architecture or other design disciplines, while yet others may be aligned with business and marketing schools. This, in itself, demonstrates the identity disconnect with which design has been plagued over the past decades. Further study comparing programs within the U.S. and abroad, including curriculum structure, course content, outcomes, etc. will be conducted in order to gain a broader view of the ways in which design is currently being defined and implemented. For the sake of consistency and clarity, it would benefit the field to consider agreed-upon titles and definitions that would be used to describe itself. If a field which counts branding and identity development among its most basic functions is unable to clearly communicate its own nature to its practitioners, how are others outside the field expected to understand and respect its role?

Once the naming conventions have been established, the dichotomy between the traditional, form- and technique-based model and the newer model dealing with complex interacting systems—what Davis describes as “design as a craft and design as a discipline” (2008)—may be examined. Ultimately, it becomes evident that including everything in a single program’s curriculum is unrealistic and the two must diverge as separate paths with trajectories toward building completely different skillsets. As addressed in the *First Things First Manifesto 2000*⁴ (Lasn, 1999) the idea of shifting the mindset of designers from simple commercialism toward “broader contexts” with farther-reaching social and cultural goals illustrates a need for this type of philosophical separation (Kelly, 2005), irrespective of technological considerations which were at the time just beginning to be felt. The types of higher-level projects in which some programs may be engaged at the graduate level need to be provided to undergraduates, as practicing designers typically do not go on to earn graduate degrees, but such skills are becoming more and more vital in the workplace. Of course, there is no proven correct way to approach an education that prepares students for increasing complexities and constant technological advances, but the need for an attempt is more urgent than ever (Fleischmann, 2013). Perhaps changing the

⁴ Lasn, Kalman, et al. 1999, URL: <http://www.eyemagazine.com/feature/php?id=18&fid=99/>

mindset of educators and curriculum developers is a place to start (Santos & Tschimmel, 2018).

In order to expect our future designers to be innovators, this new curriculum path must be designed and innovated as an emerging field. So, what might a study to effectively build an undergraduate curriculum for the new design look like? If problem-solving is the act of representing the problem in a new way that makes the solution evident (Simon, 1969) would it not make sense to treat a design program as a design thinking exercise (Santos & Tschimmel, 2018)? With a diverse team of experts asking better questions (Monahan, 2002) challenging existing methodologies, projecting what does not exist, analyzing, comparing and contrasting philosophies, inverting, substituting, poking holes, prototyping, revising and starting over again, a new approach to the curriculum should present itself. A carefully considered series of steps could help narrow the focus on the most relevant skill sets and build a curriculum responsive to the demands of the evolving profession.

Treating curriculum development as a design thinking project, the first step is to define the desired outcomes, i.e. what we want the designers of the future to be able to do. With the formal/technical branch of design more than sufficiently fulfilled through many existing programs and MOOCs, this new direction would focus on the higher-level problem solvers, able to facilitate any wicked challenges, regardless of context, situation or discipline. The new curriculum would begin with a process of deprogramming the students entering the program; un-training them from previous teaching methodologies (Kelly, 2019) that may not have taught them how to adapt, apply knowledge to different situations other than to repeat from rote memory, (Kainose, 2014) and to fail successfully (Sutton, 2007). The tendency to teach to the test in grade school has severely limited students' ability to think *beyond* the test. With all emphasis being placed on coming up with the correct answer, to get the "A" by any means necessary, students have been robbed of the opportunity to experience failure as a teaching tool (Sawyer, 2018), to discover knowledge on their own through trial and error, and, most importantly, to recover from setbacks and adapt their thinking as they receive feedback and data that indicates their first solution is less than perfect. When the world is presented as correct or incorrect, with no gray areas or shades of meaning, and when being correct leads to promises of eternal success, it becomes all-important to avoid being incorrect. Surveys of current design students established that the fear of the unknown is a key factor in their classroom behavior. Additionally, the goal of getting the "A" is the top priority for the majority of students across many programs and grade levels (Kelly, 2019). These results justify the need for further large-scale studies and warrants discussions to begin to address these issues in the overall higher education curriculum conversation.⁵ As put by Ken Robinson, international advisor on education in the arts, "If you're not prepared to be wrong, you'll never come up with anything original."

Even more importantly, a deprogramming of the faculty must take place. Faculty behavior, like that of their students (and people in general) shows a psychological reticence to engage in new and innovative processes – even while most acknowledge the changing environment for which they are supposed to be preparing students (Davis, 2008). There is an inherent defensiveness when confronted with the concept of "learning" (Tagg, 2012) and they do not want to appear unprepared to teach; therefore, they fall back on the safe, tried and true curriculum, but their resistance to evolve is amplified through ties to an industry that tends to evolve seismically in short periods of time. "Four-fifths of provosts at doctoral research universities reported greater faculty engagement as their number one challenge" (Kuh, 2009). So, the task of deprogramming and energizing faculty to meet the demands of the new field may be as daunting as it is imperative, but students cannot evolve if their teachers fail to do so.

Success and failure, target audience, visual aesthetics, messaging and idea generation would be redefined and no longer considered in the traditional sense. Student learning and experimentation could actually improve without the distraction of a grade and the fear of failure weighing on them (Flaherty 2019). New forms of project evaluation and grade assessment would be explored. The design process itself would act as a vehicle

⁵ Of the students studied, 78% said that receiving an "A" was very important to them and 62% commented that their "fear of the unknown" with regard to the potential success of a project or the opportunity of submitting a less creative solution for a guaranteed passing (but not exceptional) grade.

for assessment (Crowther, 2013), engaging in the steps necessary to invent, test, and reinvent a solution or multiple solutions. Failure along the way would be expected as an “unavoidable part of the creative process” (Santos & Tschimmel, 2018), and rewarded to a certain extent in order to remove it as an obstacle to experimentation. An “A” is not an option. Integrated design teams and interdisciplinary courses with students in revolving roles would be employed, positioning engineers as designers, business students as engineers and designers as business majors. As the “core of all professional training” (Simon, 1969), design offers a common language to the different groups, a starting place for the exchange of ideas on which they can build unexpected solutions. Innovation and entrepreneurial courses, research-driven courses, and adaptability-centered projects would be established, with “What if?” problem-solving curve balls thrown in the mix.

There is much work involved in creating any curriculum; developing one with such revolutionary overtones in an industry that has very strong traditional practices seems extraordinarily challenging, but the profession is undoubtedly changing. More and more responsibilities of the traditional graphic designer are being automated, devalued and digitized. Like it or not, the design survivors are those adapting to the changes, and the educators would require the built-in ability to adapt as well—and adapt quickly. Although design thinking has rarely been used to develop an educational system (Santos & Tschimmel, 2018), it seems particularly appropriate in this case. The process of self-evaluation would be necessary at regular intervals, possibly following each semester. Obsolete or ineffective courses would be removed, and new courses included, based on the trajectory of the field as indicated by professional and graduate feedback. This degree of flexibility is not typical of institutes of higher education, so implementing it in practice would most likely face plenty of hurdles. However, designers are the makers, the trendsetters, the pioneers of an unknown future and as educators, we are responsible for enlightening and inspiring the design thinkers of tomorrow. If successfully preparing our students to survive the ongoing paradigm shift means a separation from stagnant traditions, we should honor our past by celebrating our future.

References

- Abehsera, M. (2016, January 25). Dribbble and The Creation of The Useless Designer. Retrieved April 2, 2019, from <https://uxdesign.cc/dribbble-and-the-creation-of-the-useless-designer-3caf85805fa>
- AIGA Design Educators Community | AIGA Designer 2025. (n.d.). Retrieved July 27, 2018, from <https://educators.aiga.org/aiga-designer-2025/>
- Baratta, D. (2017). The “T” shaped designer expertise. The “reverse-T” shaped designer horizon. *The Design Journal*, 20(sup1), S4784–S4786. <https://doi.org/10.1080/14606925.2017.1352992>
- Brown, T. (2009). *Change by Design*. New York, NY, HarperCollins.
- Burnette, Charles H P. (n.d.). The Role of Aesthetics in Design Thinking. Retrieved from https://www.academia.edu/19251847/The_Role_of_Aesthetics_in_Design_Thinking
- Cabianca, D. (2016). A Case for the Sublime Uselessness of Graphic Design. *Design and Culture*, 8(1), 103–122. <https://doi.org/10.1080/17547075.2016.1142347>
- Convert technique to skill. (n.d.). Retrieved March 28, 2019, from <https://us.humankinetics.com/blogs/excerpt/convert-technique-to-skill>
- Crowther, P. (2013). Understanding the signature pedagogy of the design studio and the opportunities for its technological enhancement. *Journal of Learning Design*, 6(3), 18–28. <https://doi.org/10.5204/jld.v6i3.155>
- Davis, M. (2008). Toto, I’ve got a feeling we’re not in Kansas anymore.... AIGA 4-6 April, Boston.
- Design Census 2019. (n.d.). Retrieved April 8, 2019, from <https://designcensus.org>
- Design Thinking Mindsets for Human-Centered Design. (2018, November 14). Retrieved April 3, 2019, from <https://www.innovationtraining.org/design-thinking-mindsets/>
- Difference Between Knowledge, Skill and Ability – Pediaa.Com. (n.d.). Retrieved March 25, 2019, from <http://pediaa.com/difference-between-knowledge-skill-and-ability/>
- Dutton, T. A. (1987). Design and Studio Pedagogy. *Journal of Architectural Education (1984-)*, 41(1), 16–25. <https://doi.org/10.2307/1424904>
- Dziobczenski, P. R. N., Person, O., & Meriläinen, S. (2018). Designing Career Paths in Graphic Design: A Document Analysis of Job Advertisements for Graphic Design Positions in Finland. *The Design Journal*, 21(3), 349–370. <https://doi.org/10.1080/14606925.2018.1444874>
- Ettenson, 2017 Lara. (n.d.). U.S. Clean Energy Jobs Surpass Fossil Fuel Employment. Retrieved December 12, 2018, from <https://www.nrdc.org/experts/lara-ettenson/us-clean-energy-jobs-surpass-fossil-fuel-employment>
- Eye Magazine | Feature | First Things First Manifesto 2000. (n.d.). Retrieved April 2, 2019, from <http://www.eyemagazine.com/feature/article/first-things-first-manifesto-2000>
- Finland schools: Subjects scrapped and replaced with “topics” as country reforms its education system | The Independent. (n.d.). Retrieved November 21, 2018 from <https://www.independent.co.uk/news/world/europe/finland-schools-subjects-are-out-and-topics-are-in-as-country-reforms-its-education-system-10123911.html>
- Finnish National Agency for Education - Basic education. (n.d.). Retrieved October 8, 2018, from https://www.oph.fi/english/curricula_and_qualifications/basic_education
- Fleischmann, K. (n.d.). After the Big Bang: What’s next in design education? Time to relax? *Journal of Learning Design*, 8(3). Retrieved from https://www.academia.edu/22672808/After_the_Big_Bang_Whats_next_in_design_education_Time_to_relate
- Fleischmann, K. (n.d.). Big Bang technology: What’s next in design education, radical innovation or incremental change? *Journal of Learning Design*, 6(3). Retrieved from https://www.academia.edu/5553285/Big_Bang_technology_What_s_next_in_design_education_radical_innovation_or_incremental_change

Fleischmann, K. (n.d.). THE DEMOCRATISATION OF DESIGN AND DESIGN LEARNING: HOW DO WE EDUCATE THE NEXT-GENERATION DESIGNER. Retrieved from https://www.academia.edu/22672654/THE_DEMOCRATISATION_OF_DESIGN_AND_DESIGN_LEARNING_HOW_DO_WE_EDUCATE_THE_NEXT-GENERATION_DESIGNER

Friedman, K. (2016). From IDEO to Innovation Economics and the Growth of a Research Field. *She Ji: The Journal of Design, Economics, and Innovation*, 2(1), 1–4. <https://doi.org/10.1016/j.sheji.2016.06.001>

From T to Pi: design skill expectations in change. (n.d.). Retrieved April 8, 2019, from <https://futurice.com/blog/from-t-to-pi-design-skill-expectations-in-change/>

Flew, T, (2008). *New media: An introduction* (3rd ed.). South Melbourne, Australia: Oxford University Press.

From T to Pi: design skill expectations in change. (n.d.). Retrieved March 20, 2019, from <https://futurice.com/blog/from-t-to-pi-design-skill-expectations-in-change/>

From Mass Communication to Networked Communication: Thoughts 2.0, Lisbon Internet and Networks International Research Programme, Cardoso, G. http://www.liniresearch.org/np4/?newsId=9&fileName=GCardoso_LINI_WP1.pdf

Gleeson *, D., & Keep, E. (2004). Voice without accountability: the changing relationship between employers, the state and education in England. *Oxford Review of Education*, 30(1), 37–63. <https://doi.org/10.1080/0305498042000190050>

Gray, C. M. (2016). “It’s More of a Mindset Than a Method”: UX Practitioners’ Conception of Design Methods. In *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems* (pp. 4044–4055). New York, NY, USA: ACM. <https://doi.org/10.1145/2858036.2858410>

Hasa. (2016, July 13). Difference Between Knowledge, Skill and Ability | Definition, Examples, Comparison. Retrieved April 3, 2019, from <http://pediaa.com/difference-between-knowledge-skill-and-ability/>

Heller, S. (2004). *Design literacy: understanding graphic design*. 2nd ed. New York, NY: Allworth Press.

Hemsley, J., & Kelly, R. (Forthcoming). Scratching a Niche: How Smaller Social Media Players such as Dribbble Reflect the Viral Phenomenon. *Social Media + Society*.

Huber, A. (2017). Design Research: Off the Rails or on the Right Track? *Design Management Journal*, 12(1), 40–55. <https://doi.org/10.1111/dmj.12034>

Is Rote Learning of Number Concepts ‘Inherently Rotten’ or Is It Just a Blame and Shame Game that Vitiates Principles of Natural Progression? Michael Kainose Mhlolo (Dr). (n.d.). <http://dx.doi.org/10.5901/mjss.2014.v5n27p1581>

Kadam, A. R. (2018, March 12). Design Thinking Is Not A Process, It’s A Mindset. Retrieved March 27, 2019, from <https://www.entrepreneur.com/article/310282>

Karnjanaprakorn, M., (2012, February 14). Does The Online Education Revolution Mean The Death Of The Diploma? Retrieved April 1, 2019, from <https://www.fastcompany.com/1679315/does-the-online-education-revolution-mean-the-death-of-the-diploma>

Kelly, R. (n.d.). Design in Decline: Breathing New Life Into an Industry Through Education. *DMI: Design Management Journal*. Retrieved from https://www.academia.edu/38586090/Design_in_Decline_Breathing_New_Life_Into_an_Industry_Through_Education

Kelly, V. (n.d.). ‘Towards a Design Community: Collaborative Practice in Design Education,’ ACUADS 2005. Retrieved from https://www.academia.edu/9622690/Towards_a_Design_Community_Collaborative_Practice_in_Design_Education_ACUADS_2005

LaBarre, S. (2016, January 4). The Most Important Design Jobs Of The Future. Retrieved December 11, 2018, from <https://www.fastcompany.com/3054433/the-most-important-design-jobs-of-the-future>

Lasn, Kalman, et al. 1999, URL: <http://www.eyemagazine.com/feature/php?id=18&fid=99/>

- Leow, M., (2018) (n.d.). 'LoGAN' The AI Designer Creates A Brand New Logo When You Pick A Color - DesignTAXI.com. Retrieved November 2018, from <https://designtaxi.com/news/402141/LoGAN-The-AI-Designer-Creates-A-Brand-New-Logo-When-You-Pick-A-Color/>
- Logan, Cheri. D. (2006.) "Circles of Practice: Educational and Professional Graphic Design." *Journal of Workplace Learning* 18 (6): 331–343. doi:10.1108/13665620610682062.
- Monahan, T. (2002). *Do-It-Yourself Lobotomy*. New York, NY: John Wiley & Sons, Inc.
- More than you think, Less than we need: learning outcomes assessment in American Higher Education. Kuh, G., & Ikenberry, S. (n.d.). www.learningoutcomeassessment.org/documents/niloafullreportfinal2.pdf
- Muratovski, G. (2015). Paradigm Shift: Report on the New Role of Design in Business and Society. *She Ji: The Journal of Design, Economics, and Innovation*, 1(2), 118–139. <https://doi.org/10.1016/j.sheji.2015.11.002>
- Professors' reflections on their experiences with "ungrading" spark renewed interest in the student-centered assessment practice. (n.d.). Retrieved April 3, 2019, from <https://www.insidehighered.com/news/2019/04/02/professors-reflections-their-experiences-ungrading-spark-renewed-interest-student>
- Nowacek, N. (2001). US versus them. In S. Heller (Ed.), *The Education of an E-Designer*. New York: Allworth Press.
- Santos, J., & Tschimmel, K. (n.d.). Design Thinking applied to the Redesign of Business Education. Retrieved from https://www.academia.edu/37064796/Design_Thinking_applied_to_the_Redesign_of_Business_Education
- Sawyer, R. K. (2018). The role of failure in learning how to create in art and design. *Thinking Skills and Creativity*. <https://doi.org/10.1016/j.tsc.2018.08.002>
- Shaw, P. (1984). Tradition and Innovation: The Design Work of William Addison Dwiggins. *Design Issues*, 1(2), 26–41. <https://doi.org/10.2307/1511497>
- Simon, H. (1969). *The Sciences of the Artificial*. Cambridge, MA: The MIT Press.
- Singh, G., O'Donoghue, J., & Betts, C. (2002). A UK study into the potential effects of virtual education: Does online learning spell an end for on-campus learning? *Behaviour & Information Technology*, 21(3), 223–229. <https://doi.org/10.1080/01449290210136774>
- Study Explores The Impact Of Uber On The Taxi Industry. (n.d.). Retrieved January 26, 2019, from <https://www.forbes.com/sites/adigaskell/2017/01/26/study-explores-the-impact-of-uber-on-the-taxi-industry/#2a5285b216b0>
- Sutton, R. I. (2007, June 4). Learning from Success and Failure. *Harvard Business Review*. Retrieved from <https://hbr.org/2007/06/learning-from-success-and-fail>
- Tagg, J. (2012). Why Does the Faculty Resist Change? *Change: The Magazine of Higher Learning*, 44(1), 6–15. <https://doi.org/10.1080/00091383.2012.635987>
- Tan, S., G. Melles, and N. Lee. (2009.) "Graphic Designers' Activities During the Conceptual Design Phase of Client-Initiated Projects." *Art, Design & Communication in Higher Education* 8 (1): 85–92. doi:10.1386/adch.8.1.85_1.
- Welch, D. (n.d.). TEACHING CREATIVE THINKING TO DESIGN STUDENTS AS FUTURE- PROOFING. Retrieved from https://www.academia.edu/6413871/TEACHING_CREATIVE_THINKING_TO_DESIGN_STUDENTS_AS_FUTURE_PROOFING
- Werner, R. (2015). The focus on bibliometrics makes papers less useful. *Nature News*, 517(7534), 245. <https://doi.org/10.1038/517245a>
- What Parts Of The Workforce Might Be Safe From Robots? (n.d.). Retrieved October 23, 2018, from <https://www.npr.org/2017/09/04/548505776/what-parts-of-the-workforce-might-be-safe-from-robots>