

Design sprints and substance: Assessing the spectrum of design education opportunities for non-designers

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Abstract

Design education opportunities for non-designers are abundant and growing, many offered as rapid sprints through executive education style workshops or online courses. While these quick immersions may serve to infuse design thinking into the work processes of other disciplines, there is a risk of oversimplification. How can courses impart an appropriate sense of design without minimizing its complexity? What are the essential components of design, and optimal timing and formats needed for meaningful delivery? On the other hand, how can we educate those who seek a robust design complement to their existing professions, and those seeking a full transition of their careers into design practice? This study looks at the inception and early iterations of a one-year degree program providing an in-depth education to non-designers seeking a complementary education to other credentials or a full conversion to design through modular degree options. The first years of the program suggest several findings. For example, interdisciplinary cohorts introduce a mix of rational and intuitive approaches. Students need mentorship into design processes and practices, such as subjectivity in assessments and feedback through critique. Educators are challenged to acknowledge the past education and professional backgrounds of students, capitalizing on their unique strengths rather than homogenizing all students into a singular version of design. Students need tools to assess their professional identity during their transition to design. This work in progress will examine the spectrum of design education opportunities for non-designers, including key factors differentiating a degree program from the proliferation of short course exposures.

Keywords: design, non-design, executive education, graduate, pedagogy.

Design and design thinking has become prominent everywhere. Design processes are promoted as a tool for enhancing creativity and innovation in the workplace. A plethora of opportunities are presented to infuse design methods into professional business practices, or into other areas as diverse as healthcare, education, and public policy. Forms of delivery range from intensive workshops, short courses and webinars, through to certificates and design degree programs.

However, given this proliferation of opportunities, it can be difficult to parse the difference between design offerings as significant adoption, tangential exposure, or misused buzzword. How can courses impart an appropriate sense of design without minimizing its complexity? What are the essential components of design, optimal timing, length, and formats needed for meaningful delivery, depending on the intended purpose by those delivering curriculum, and the goals of audiences seeking a design education?

On the one hand, executive education and short immersive workshops offer an opportunity for efficient exposure to design principles and methods, which may be enough for adoption by those primarily immersed in other forms of work. These formats also may be the only realistic way for busy working professionals to gain sufficient experience within a limited amount of time. On the other hand, those who want to understand the significant complexities of design to competently engage in the practice of design methods and processes will need more education, through either longer or deeper exposure, or ideally, both. And finally, those seeking to fully convert to professional design careers from diverse backgrounds need a comprehensive pathway for this transition.

The Carnegie Mellon University (CMU) Master of Arts (MA) in Design offered by the School of Design is a one-year intensive program attracting three different primary cohorts of students.

First, those seeking a robust design education complementary to their existing qualifications commonly return to professions or transition to new careers with an infusion of design methods, tools and processes to enhance work that is not primarily characterized as design. Second, those seeking to convert their current backgrounds or careers to become professional designers utilize the MA as a prerequisite to continue through the Master of Design (MDES) or Master of Professional Studies (MPS) degrees offered by the School of Design, thus graduating with a terminal credential. Third, a small subset of students use the MA degree as a point of entry into other related degrees, at CMU or elsewhere. The MA in Design program does not, in itself, claim to qualify graduates as designers, clearly positioned as a complementary degree to other professions or as a prerequisite for further design study.

Students enrolled in the MA program span a full diversity of backgrounds, including the social sciences, sciences, and engineering, liberal and fine arts, humanities, and education. Some remarkable examples include an archaeologist, a dancer and choreographer, a language translator, a kindergarten teacher, a florist and wedding planner, a medical illustrator, and a comic book artist, with degrees ranging from anthropology, computer science, business, and chemical engineering, through to philosophy and mathematics, peace and conflict studies, and East Asian studies.

The structure of the MA is predicated on a two-semester sequence, with broad exposure to design fundamentals followed by a more focused introduction to interaction design. First semester coursework consists of a visual communication fundamentals studio paired with a software lab, an introductory seminar on design thinking, and a design principles and practices course. The second semester studio provides an introduction to interaction design paired with a prototyping lab, complemented by a seminar on transition design, and an open elective. The transition design seminar examines design as a potential catalyst toward socially and environmentally sustainable futures (Irwin, 2015).

This paper presents a work in progress. A brief review of literature and precedents will summarize some of the current thinking on educating non-designers, followed by an overview of methods used to assess the MA Design program and other forms of educational delivery. This background summary will then lead to a discussion of the spectrum of potential opportunities in design education for non-designers, outlining the relative merits of various

formats through comparison and contrast. Several key findings will be identified, particularly through ongoing review of the MA program. As this work progresses, the goal is to identify essential elements of design, with timing and formats for meaningful delivery that are effectively and sufficiently comprehensive for a given audience and context.

Literature Review

Despite the abundance of educational opportunities, there is a limited body of literature dedicated to the study of design education targeting non-designers. In 1982 Nigel Cross presented work on fundamental ways that designers think and practice (Cross, 1982), ultimately building toward his landmark book on design thinking (Cross, 2011). Texts on the essence of design include the collection of *How Designers Think* (Lawson, 2005); *What Designers Know* (Lawson, 2004), and *Design Expertise* (Lawson and Doorst, 2009). Many of these sources are essential reading for designers, yet would likely have a limited readership among non-designers, unless assigned as part of a formal design education.

Several references target a wider, specifically non-design audience for applications of design thinking, typically in business (e.g., Kunitake, 2017; Lockwood, 2010; Brown, 2009). Still other sources focus on providing technical design skills to non-designers (e.g., Williams, 2015). Others have attempted to demystify how designers think and practice (Kolko, 2015), or explain the differences between design and non-design communication (Drysdale, n.d.). In describing his materials, Drysdale states, “Non-designers will learn the important parts of design, so that you can understand what designers do, achieve your goals, and better communicate your ideas.

Designers: learn to teach and guide others through your design process so they'll better appreciate what you do.” Carrying this one step further, some authors have explicated how to *train* non-designers on design thinking, with a goal of building more effective teams (Seidel and Fixson, 2015). These lessons have also been the subject of conference papers and workshops (e.g., see Miller, 2015).

However, formalized study of the education of non-designers on design is limited. In 2009 Anne Burdick espoused a view of design that included an analysis of what non-designers (and designers) see in design, as determined through a series of case studies of university programs (Burdick, 2009). Aspects of design seen by non-designers include thinking, making, artifacts, tools, methods, and studio as a model of collaborative working. These terms are further parsed under design as a research paradigm, a way of learning, a mindset, and as literacy. Burdick cautions against a reductive commercial definition of design in business terms, advocating instead for the empowerment of design as “shaping culture, knowledge, and the human-made world, including commerce.” (p. 13).

In a 2013 conference paper, Morehen, Wright and Wrigley presented a case study detailing how an immersion workshop curriculum can play a role in developing design thinking and innovation capabilities in non-designers, including “problem solving, collaboration, adaptation, entrepreneurialism, oral and written communication, critical analysis, and imagination.” (p. 56). Results highlighted common issues of communication and professional language barriers; ambiguous project definition and non-designer tendencies toward solutions

over process; acceptance of failure as part of learning; and challenges and benefits of working in multi-disciplinary collaborative teams. The study also noted “a global lack of evidence-based research regarding the perceived value and role of professional designers in teaching design thinking and design led innovation processes to non-designers.” (p. 62).

Research Methods

A variety of methods were used in assessing the CMU MA in Design program and other design offerings in this ongoing study. Informal feedback was offered by and collected from students during teaching of a required course, Design Principles and Practices. At the end of the first run of this course, a voluntary survey was issued to all students enrolled. Feedback on this course was also provided through formal Faculty Course Evaluations (FCEs) mandated by the University. Limited access to course evaluations for other classes was taken into account. Email correspondence and in-person conversations with students provided further feedback on the MA program, through my advising capacity as Director of Graduate Studies. Ongoing discussions were held with a core of faculty colleagues who were instrumental in developing and delivering the MA curriculum. Confidential exit interviews conducted with all graduating students by a graduate program coordinator provided a final measure of input.

In assessing the range of other forms of educational delivery, an informal audit was conducted of a sample of executive education offerings, as well as short courses, workshops, and webinars delivered by both corporate entities and academic institutions. Information was collected from websites and other forms of promotional materials, examining key common variables such as length of time, themes, target audiences, and cost. These examinations were supplemented with several first-hand experiences teaching executive education workshops, both to other entities within the CMU campus environment, and to outside participants from various organizations. In summarizing executive education offerings, the focus was on general courses such as design thinking, rather than specific skills training. Programs similar to the CMU MA in Design, i.e., degree-granting programs aimed at or accepting students with non-design backgrounds, were also considered.

Future research should include an expanded number of assessed offerings, as well as surveys, interviews, and other forms of direct information collection from administrators, instructors, and student participants, representing this range of programs.

Discussion

Findings from assessments of the MA program begin with student motivations for entry into the degree. Whether they were approaching a conversion of their career to design or adding a design complement to their existing credentials, many have very specific goals. As one student indicated, “I originally came to CMU because, when working at an art museum, I asked myself who in the museum I would most like to trade places with. Hands down, I wanted to do what the UX designers at the museum were doing.” Other common motivations that attracted students to design included collaborative work in interdisciplinary teams, an emphasis on action with visible impact versus theory, the design process, skill building, and employment potential. As articulated

by one student, “I needed a process - from taking ideas, sorting through them and picking the good ones and moving them forward. Design has taught me those things and I feel prepared now in any setting to be a better communicator and make things come to fruition.” Significant findings arose in three areas: student backgrounds, forms of evaluation and feedback, and applied skills.

Although they recognized the need for intense design education, students wanted their prior backgrounds to be respected. It was critical to many that rather than being homogenized as a singular version of designer, that their unique undergraduate education and work experience in other fields be acknowledged, and guidance provided on how they might integrate these backgrounds into their emerging design education and future careers. In one instance, a seminar instructor proposed that a challenging question within a classroom discussion would be better answered by an anthropologist, overlooking that there were students with anthropology degrees in the room. Others saw the potential of merging their past credentials with design to forge new and powerful careers, yet felt ill-equipped to navigate this trajectory or position themselves on the job market alongside competing portfolios aimed at commonly sought-after skills. Students claimed a need for a combination of guided self-reflection and mentorship to see them through this process.

Second, depending on the backgrounds from which they came, many students need help in understanding design approaches to feedback and evaluation of work. Those transitioning from disciplines that operate from a rational or empirical model may feel uncomfortable with the subjective forms of critique common to design, and may expect more rigorous criteria and regular checkpoints to determine if their work is proceeding according to expectations. While some of these results suggest the need for explicit guidance in transitioning non-designers from rationally-based disciplines to some of the more intuitively-based aspects of design, it also suggests that design educators could often times be more clear in their articulation of criteria for grading and feedback, and communication of project assessments.

Third, students appreciated the practicality of hand skills, and applied principles and practices of design. This has implications for degree and long-term programs, as well as executive education. For degree programs, students obviously need the requisite skills to be able to perform well within their coursework, and to present themselves competently on the job market through their portfolios. However, we have also learned in the delivery of executive education, that participants from almost any background with any goal appreciate the simple confidence given to them through even a basic drawing workshop, exposing them to the essential tools and techniques of visualizing to document observations, and to generate and communicate ideas.

Programs competing with the CMU MA in Design in the university market include a similarly based intensive education in design. The curriculum at Illinois Institute of Technology (IIT) Institute of Design (ID), for example, offers a nine-month (two-semester) foundation program in design for students entering the Master of Design (MDES) without a design background.

Likewise, for non-designers entering the two year MDES at University of Washington (UW), the school offers “a three-year course of study that emphasizes mastery of core design skills while pursuing graduate-level study.” In these two examples, a two-year degree

becomes a three-year degree with no additional credential granted. While this simplifies things administratively, it provides no opportunity for a standalone credential, awarded to those who only want the one-year intensive to add to their qualifications or to apply within other careers, or to use as a stepping-stone to other programs.

Other degree programs admit non-designers and designers alike, into the same program, with no additional time required for non-designers. The Master of Integrated Innovation in Products and Services (MII-PS) at CMU admits students from design, business and engineering, and cross-trains in the three disciplines. UW offers a Master of Human Computer Interaction and Design (MHCI+D), attracting a diverse cohort from across design, technologies, and other disciplines. The School of the Visual Arts (SVA) has an MA in Design Research, Writing, and Criticism inviting applicants from various backgrounds. The one-year MA in Social Design at Maryland Institute College of Art (MICA) attracts a wide range of applicants, as does the social-change oriented Austin Center for Design (AC4D). These programs provide a rich context for study with an interdisciplinary mix of students, particularly when structured around team projects.

However, there are ambitious challenges to providing an equivalent experience and end-qualification to cohorts of both designers and non-designers alike, especially within such a limited time.

An alternate model offered by both the Stanford d.school, and Northwestern University Segal Design Institute, provides design courses for the campus at large, as well as to working professionals through public workshops and executive education. The courses open to the wider campus allow students studying in various fields to add design components to their education on an ongoing basis, infusing design thinking and skills into their emerging professional credentials and practice. Stanford further categorizes their offerings into core, boost, and pop-out classes.

Core courses represent immersive and comprehensive courses; boost courses are quick skill-builders, and pop-out courses are activity-based weekend workshops. Northwestern offers introductory courses in human-centered design, intermediate courses, capstone courses, and featured courses in specific topics. Some sequences of courses can lead to a Segal Design Institute certificate.

Factors differentiating executive education and other short-course offerings include institutional or corporate affiliation, target audience, key themes, duration, mode of delivery, and cost (see Table 1). The largest target audience appears to be business, broadly defined across other terms including leadership and team management. Key words most frequently occurring in program and course materials include design thinking, problem-framing and problem-solving, team collaboration, innovation, and human-centered, user-centered, or customer-centered design.

Much of the material is then sequenced through the “design process” variously described, with some including elements of prototyping and other forms of hands-on making. Some courses offer a particular focus, such as service design, social design or sustainability. There are a large number of both on-site and online and webinar-based courses, ranging in time from 90 minutes to several weeks. Cost ranges from free, to several thousand dollars.

Table 1: Sampling of Executive Education and Short Course Design Offerings

COURSE	INSTRUCTOR	AUDIENCE	THEMES	LENGTH	MODE	COST
Introduction to Human Centered Design	Acumen + IDEO.org	Various design and non-design, all levels of social change-makers	Social innovation, human centered design	9 weeks, 4 hours / week	Online	Free
Harnessing the Power of Design Thinking	Dark Horse (Germany)	Innovative start-ups and passionate entrepreneurs	Complex problems, collaborative innovation, holistic, sustainable, human centered solutions	One day workshop	On site	\$530-\$875 (450-740 Euro)
Design Thinking Workshop	Harvard Continuing Education	Professionals from any industry who are tasked with problem solving and are looking for new approaches to finding solutions	Design thinking processes and methods	2 days	On-site	\$2700
Hello Design Thinking	IDEO	Non-designers and designers	Design thinking process and creative problem solving	90 minutes	Online	\$199
Design Camp	Illinois Institute of Technology IIT, Institute of Design ID	Innovation leaders, directors, managers and problem-solvers from all disciplines	Problem framing, user research, analysis, concept generation, prototyping, design communication	5 days	On site	\$5500
Fundamentals of Innovation through Human-Centered Design	LUMA Institute	Those who want to accelerate innovation in their organizations and to learn about human-centered design – various non-design and design	Human centered design, innovation	2 days	On-site	\$1600-1900
Design Thinking for Non-designers: How to Become User-centered at Rapid Speed	O'Reilly (via Safari Books Online)	Developers, product managers, innovators	Design thinking, user centered problem solving	Three, 2-hour sessions over 3 weeks	Webinar	Unknown
Design Thinking Bootcamp: From Insight to Innovation	Stanford d.school	Executives and managers responsible for tackling strategic challenges; Team members who want to collaborate on design thinking	Design thinking, human centered, prototype-driven design	4 days	On-site	\$12,600
Specialization in Design Thinking & Innovation	University of Virginia / Darden Executive Education	Business, healthcare, education, or nonprofit	Hands-on training, core principles of human centered design thinking, collaboration and leadership	Four, 5-week project based courses	Online modules	\$1200

Note: In 2014 Northwestern University in collaboration with Bruce Mau and the Massive Change network offered an executive education short course called “Design for Non-Designers” described as “an immersive, hands-on experience introducing non-design professionals to the practice of using design thinking as a strategic tool for innovation.”

Conclusion

Executive education and short course workshops could benefit from a study of new and established degree programs, to better understand the key ingredients of a thorough, robust design education. Even if these essential elements are not possibly delivered with the same depth and rigor afforded through longer credentialed education, the subject matter and methods may provide relevant insight into content and delivery. These essential elements will of course vary by design profession and for each intended audience. However, some basic tenets of design would be contextualizing problems before seeking solutions, adopting a human-centered approach (including participatory design and testing of ideas), interdisciplinary collaborative teamwork, combinations of creative divergent and convergent thinking, visualizing to explore and communicate shared ideas, and iteration and critique. Further contextualizing an executive education course or workshop as a sprint, and acknowledging the deeper education undertaken by professional designers, would help convey respect for the profession of design.

While the longer education and a credential offered by a degree program sounds like a preferred option for those who can afford the cost and time, there are elements of executive education and workshop formats that are better suited to the audiences they serve. Furthermore, for those still exploring the potential of design, whether as a complement to or conversion of their existing career, shorter educational opportunities allow them to understand more about the field before deciding to make a significant investment of time and money into a degree program. By referencing degree programs, students of short courses would better understand the context of their abbreviated exposure, and could investigate the longer opportunities if they were interested. Based on the findings of the MA program assessment, for example, students could begin to map their journeys from past and current backgrounds, to their experience with design, and to a desired future career.

Additionally, many of the elements of executive education could be beneficial within a degree program. For example, the short intensity of workshop formats could be integrated as a series of exposure points within a longer program. With a more agile degree program subject matter could be more easily kept relevant as the world changes, in contrast to the investment that goes into crafting a full semester course for longevity. Short workshop formats within a degree could contribute to a more dynamic and active curriculum, and, could create a more professional- friendly schedule with greater flexibility for those navigating full time work and part time studies. A restructuring of a degree program into flexible modules may furthermore resonate and provide opportunities to a wider diversity of people. And finally, the content of executive education courses may highlight relevant topics from current design practice that should be included in mainstream classroom and studio curricula.

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