

Abstract

Graphic design students no longer need to attend institutions of higher education (IHE) to gain entry-level skills for a variety of design related areas with the rise of new learning platforms like YouTube, edX, etc. A recent series of studies found that 70% of respondents (working designers) reported learning their craft online. This study examines these do-it-yourself designers (DIYD), and the implications of their educational choice for both the practice of design and for traditional design education.

Due to the changes in educational opportunities, what and how designers learn is important to the design industry and IHE. Enrollment in formal design education has steadily decreased, and topics like design thinking, critical thinking, and strategic design may become diminished, posing a significant threat to the ideals within the field and higher education.

The research uses a mixed-method, multi-case case study approach, centered on 30 semi-structured interviews along with visual analysis to explore the differences between self-taught and college-educated designers' portfolios and analyzes the data through the Principle of Least Effort.

Findings from the interview phase include, one: questioning the value of a degree and employment readiness, two: the nature of the topics that self-taught designers are learning and not learning, and three: the experts' portfolio assessments which mirror the findings from the interviews about a priority value shift towards software techniques.

These findings indicate that software skills are emphasized over creative thinking, which will shift the design industry's values and reputation and how the impact of this shift in thinking will manifest in the design industry and IHE.

The study uncovers a gap in content in online learning which creates a shift towards aesthetically centered design at the expense of critical thinking skills, for example.

As the value of a degree in higher education has never been more publicly questioned, this study becomes more important than ever in opening a dialogue between the profession and education to assure that their mutually beneficial relationship is maintained.

The Democratization of Design :
A case study Looking at the Do-It-Yourself Designers on Dribbble.

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THESIS

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CHAPTER ONE: Thesis Statement and Research Overview

1.1 Introduction

Thesis Statement: The Who and the What

In what ways can Do-It-Yourself Designers (DIYD), those who trained outside traditional higher education, impact the professional design industry, altering both the focus and the method of instruction in the teaching of graphic design? Despite the possible advantages of delivering graphic design education in an online medium, problems arise because online course delivery limits the potential for dialogue and feedback. In addition, this educational method can fail to develop a student's understanding of the practical elements of design and can also shift future designers in the industry towards aesthetically focused design and away from higher-level thinking and processes. The continued success of the discipline depends on teaching students ethics, professionalism, higher-level problem-solving abilities, and critical thinking, etc., in addition to a foundational education beyond software proficiency. These qualities are identified, addressed, and passed on to future designers through lectures, case studies, internships, clients collaborations and impromptu discussions in the classroom and these valuable skills demonstrated in the workplace working with clients and agencies. The importance of these high-quality standards is exemplified through ethics guides, seminars, lectures, and keynote figures in organizations such as the American Institute of Graphic Arts (AIGA¹). Ethics and the like are vital to the industry as they shape the impact and perception of professional work with standard agreements that practicing designers are expected to follow, for example, representing products and services honestly and with authenticity, plagiarism and copyright infringement.

¹ AIGA is communications/graphic design's oldest professional organization whose members practice a wide variety of communications design, graphic design, typography, art direction interaction design, user experience design, branding, illustration and identity design. www.aiga.org

As a design educator and practicing designer, this researcher has made empirical observations that both areas within the design landscape are changing. This study shows that the new self-taught designers learn design through new channels of information delivery by studying their information-seeking behaviors. This study will answer why this line of inquiry is important to both the design industry and education. These determinations are supported by compelling observations, such as a consistent annual drop in enrollment in design programs and an increase in openings of design courses in free online sources through organized Massive Open Online Courses (MOOCs) and social media platforms, such as sites Skillshare, Lynda, etc. as well as more social media-focused sites like YouTube, Reddit and Dribbble, etc.. Additionally, observations have revealed an increase in competition for design jobs as the availability of designers has grown exponentially through the global online marketplace. This research will obtain data through interviews with designers populating one such graphic design oriented social media platform —dribbble.com (Dribbble)—to gain insight into participants’ experiences learning and working in design through their chosen information gathering pathways. This paradigm leads to the question of whether Institutes of Higher Education (IHE) and the industry should respond, evolve, ignore or merge these new ways of learning design?

Research Overview

The overview presents essential information about this research in order to provide a cursory big-picture view which ultimately leads to a more detailed examination. The motivation and rationale of the importance of the project, followed by the state of the literature review including the gaps will be discussed in this first summary section. The next part of the first section is a look at the key concepts necessary to understand this research followed by the research questions.

The second section in this thesis entitled ‘Literature Review’ provides more detail about how design has been democratized, followed by the framework for the study including the key structure that Shoshanna Zuboff’s work provides for this research. Section two is finished with additional figures that complete the literature review and the current state of research.

The third section (Methodology) acts as a guide to keep the project manageable and effective and contains more detail about the previous work utilized to add credibility to this study, specifically Robert Yin’s (2018) framework for qualitative case studies. Following this is a description of how the data was collected, analyzed and stored. After the methodology section there are detailed analysis (Chapter Four) and discussions (Chapter Five).

1.2 Motivations/Rationale

1.2.1 Observations

Why Should People Care

Why should people care about the influence of technology on IHE? If there are emerging generations of designers who study using these new technologies and learning channels, what and how they are learning is likely to alter the industry, especially as formally trained designers represent an increasingly smaller fraction of the workforce due to decreasing enrollment in IHE and retirement. What new designers are being taught becomes the new norm while what they are not being taught becomes forgotten. This study seeks to highlight the missing topics which will contribute to a definition of the design industry under the influence of these new information-seeking behaviors of the new DIYD collective. Design programs in IHE need to understand how this shift in learning and those outcomes impact the profession and in what ways? How do these changes impact IHE in the long term? IHE should not step aside or

relinquish their role in educating the well-rounded designer of the future, but adapt to assume a leadership role with honest and direct conversations with industry leaders. It is the interaction between IHE education and the design industry that establishes a mutually beneficial relationship that must be protected.

Noticing a Trend

An earlier study focusing on online virality and trends using the same design-focused social media platform, Dribbble.com (Nahon & Hemsley, 2013, Hemsley & Kelly, 2019), led to the research agenda presented here. (*See Table 5 for data sets overview.*) An analysis of the raw data revealed new types of practicing designers who did not attend traditional four-year graphic design classes, yet are working in the design field. Through the lens of a practitioner of design and as a design educator, this data appeared worthy of exploring as the topic could have a potentially consequential impact on the future of design education and industry.

New Generations of Designers

It is clear from the Dribbble designers interviewed in this study that there are new ways of learning and practicing design. People are, in fact, building careers founded on this relatively new means of information-seeking behavior in order to learn how to be a designer or at least to design at a basic level.

When looking at the participants' information, other questions arise regarding the backgrounds of these designers—who these individuals are and how they began working in design, and their specific learning pathways. What are those paths and how are they succeeding? Is it possible to gain the same understanding of design via these alternative pathways? Are there gaps in knowledge? Are gaps appearing in their design process, conceptual development or in

the work itself? Finally, in what ways, positively or negatively, are these alternative learning channels impacting IHE and the industry?

1.2.2 Rationale/Importance:

Changes in the Design Industry

Not specific to graphic design, automation can be seen as a catalyst of change—negative change for those whose tasks it renders obsolete—and this holds true for professions in the information age as much as for those in the industrial era (The Economist, 2016). The advancement of technology repeatedly challenges graphic design. Skills that designers once mastered can be obtained cheaply and easily by anyone with internet access, with drag-and-drop website building, the availability of stock illustration and photography, and now the rise of the DIYD and AI-driven design. This access has also changed design education. Are higher education design students facing competition from DIYD? Are the IHE design programs facing challenges to the curriculum from MOOCs? How can educators maintain their value preparing students to stay relevant and become successful post-graduation in a career so tied to changing technology? As hinted in the American Institute of Graphic Arts (AIGA) Designer 2025 report, the traditional curricula that involve teaching skill sets are in direct competition with the DIYD (AIGA Educators, 2017). Now that everyone has the access and technological skill sets learned online, where does this leave design education and the practice itself?

The findings of this study will be valuable to the industry practitioners and IHE design educators as it will allow both to develop industry-elevating alignment such as quality, integrity, etc. Additionally, the research will act as a pilot study for other professions and areas of study

decentralized by online learning environments. This work has the potential to start conversations and other research in areas concerned with the concepts of future work and education.

1.2.3 Gaps in the Literature

The literature review for this study revealed a lack of graphic design-focused research, specifically studies with a focus on learning design online, the future of graphic design related to industry and education, the impact of MOOCs in design, and online learning outcomes in design. There is an abundance of information about learning by project-based design case studies but they do not contribute to this study in terms of the current state of graphic design as it relates to the future of graphic design in IHE and the profession. This type of work instead focuses on how learning design through projects as “case studies” provides documentation on the projects which will benefit future educators as the process becomes repeatable (Shae, 2013) or other types of research in which a case study format is used, looking at “participatory design” projects (Lundmark, 2018) where shareholders contribute to a design solution. Instead this study used parallel research to build a framework that supports this line of inquiry. Technology’s impact on information-seeking behaviors, how learning is evolving, the economic and educational impacts of MOOCs, and the effectiveness of online learning were used to build this literature review.

Following the Covid-19 pandemic, more studies debate the pros and cons of online learning and some evaluate its effectiveness from a pedagogical perspective; for example MOOCs are more student-centered focusing on mastering technical skills and providing students instant grading of quizzes and tests, etc. (Glance, et al., 2013). These conclusions do not necessarily relate to the practices used in teaching design and cannot be used to gauge its effectiveness in teaching design online. Thus gray literature became important to this study to

provide a holistic view of the state of knowledge from a research perspective. The use of gray literature and its importance to this work is addressed in section two, including detail about what was used to form a solid literature review.

What Exists: Identifying the Gaps

There are major gaps in the current literature that are important to this research. The three categories identified are under the general themes of the *democratization of design*, *impacts of learning online* and the *Principle of Least Effort (PLE) effect on online education*. PLE is the theory under which the data was analyzed. Initially, the existing literature seems to align with this work, however, upon closer inspection it becomes clear they were outside the scope of this research. Below are a few examples demonstrating the gaps in the literature that indicate these topics are understudied areas of research when looking at how it relates to graphic design.

In the first category, *democratization of design*, there is literature surrounding the concept of “democratization” as well as the “democratization of design.” However these studies focus on topics such as the work of Fleischman *The Democratization of Design and Design Learning (2015)* specifically pointed to industrial design factors. Here, the work discusses industrial designers collaborating with community members to learn how to design (product design) by committee or larger groups and that industrial designers would be more prepared for the future if they also had graphic design skills.

Regarding the second category, *learning online* provides an abundance of literature exists on the topic, however it appears that there is little scholarly research published focused specifically on learning graphic design through Massive Open Online Courses (MOOC). The body of work focuses on the effectiveness and the appeal of the fair access of online learning, revenue models, etc. While beneficial to understanding the current research, the effectiveness of

learning graphic design is an understudied area. Another example of peripheral studies not specific to graphic design is a paper that discusses the idea that higher education could benefit from using MOOCs as a supplement to classroom lectures (McNamara, 2015). While a worthwhile endeavor, the study of the benefits and effectiveness of learning design without any type of content framework or context guided study is limited and warrants further investigation.

Finally, the last category in terms of a literature gap falls under the *PLE effect on graphic design and online education*. There are several studies that utilize a similar theory (cost/benefit analysis) specifically on “completion rates” of online education (MOOCs), however the main focus is on other factors that influence learning effectiveness (Tamjidyamcholo, et al. 2020), low completion rates, knowledge growth, information seeking behaviors from a library sciences perspective, but again, studies specific to design are limited.

Presented here are the three core gaps in which this research intends to fill. These missing pieces or insufficient information in published studies research offer opportunities for further research because they are unexplored or under-explored. A more detailed discussion about all three of these gaps is found in the literature review chapter.

What Exists: Standing on the Shoulders of Giants

Conversely, there are several key figures whose studies support this research in the literature review and it is through this body of work that this paper finds structure. Presented here in three general categories, is the work of several key figures, the first of which is a study by Zuboff as the primary focus with a nod to Perez in the *technology/innovation category*. The second category is comprised of *pedagogy and MOOCs*, supported by work from Belleflamme et al., whose focus is on the student centered benefits of online learning. The third and last falls into the IHE category that builds upon the works of Christensen, Shirky, Shaprio, and Selingo as

experts providing perspectives on the future of IHE, including the audience and economic reaction of IHE towards technology, technology's impact on IHE in terms of audience (social and reactive viewpoints) and the future of the historical perspective of IHE. Although there is more detail in the literature review section, a brief overview is provided below.

Category: Technology; Zuboff and Perez

In *The Age of the Smart Machine* (1988), "Big Other: Surveillance Capitalism" (2015) and *The Age of Surveillance Capitalism* (2019), Zuboff's work provided this study's foundation. Her approach to "computer-based information technology" and the shift from labor to mental work, become important to this research because a similar alignment is found that ties the research together. Through her interviews she came full circle to state that her understanding that technology is not neutral in its role and the same is found in this study. Instead of new technology adoption being neutral or even equalizing roles, it seems to divide roles during these new implementation processes. New roles need to be defined in the different strata of the design industry. These new ways of learning mark only the beginning of the changes to the design industry and education. As Zuboff states, it is the thinking and inquiry that become or should become the result of the new ways of learning with technology adaptation. Applying that same thinking to this study, learning skill-based work in design should not be the end of this new area of learning design but the beginning. Perez, building upon the work of Schumpeter, suggests that these significant shifts as a result of new technologies are almost cyclical and although there is some destruction that comes from these shifts (or "creative destruction" Schumpeter 1942:1975) that we may be at the intersection of two new curves (Perez, 2002). With these predictive cycles,

it is suggested that some sort of response–adaptation or acceptance–should be considered with respect to these new learning phenomena.

Category Two: Pedagogy and MOOCs: Belleflamme & Jacqmin and Glance

The last two pillars supporting this research are “The Pedagogical Foundations of Massive Open Online Courses” (Glance, et al., 2013) and “An Economic Appraisal of MOOC Platforms: Business Models and Impacts on Higher Education” (Belleflamme & Jacqmin, 2015), which focus on characteristics of MOOCs and discuss them from different perspectives. These two articles are important in that they both discuss the key benefits of MOOCs which helps explain their appeal in contrast to the traditional IHE route. These works debate the numerous advantages of online learning, such as “retrieval-based learning,” which benefits students in their learning processes. This current study builds a solid connection between the ease of use and access with Zipf’s Law (now the Principle of Least Effort) and will investigate the psychological appeal of MOOCs’ offerings (investing the least amount of effort, time and commitment necessary to learn to be a designer, and stopping once the minimal amount of skills are learned, along with the acceptance of a lesser quality education by the MOOC learner. The success of online learning platforms will be discussed in more detail in a separate section.

There are numerous education-focused studies on online learning, through experts and the works of Belanger & Thornton (2013), Koller, et al., (2013), and Bouchard (2009), for example. However, the findings and implications of those studies (the appeal of online learning, the intention of learning online, or the benefits that MOOCs offer student-centered learning, instantaneously graded tests, etc (Glance, et al., 2013) do not specifically apply to learning graphic design or are beyond the scope of the study. It is clear, however, that academic research

on the impact of online learning/MOOCs on the future of graphic design and graphic design education, and related topics in visual communication, appears to be an understudied area of research. Using the studies on MOOC effectiveness of learning design is discussed in more detail in the literature review. Most of the topics related to the future of IHE are found in gray literature, but while appearing to be relevant, the literature is not specific to design. Nevertheless, by building a strong structure with the work of other experts in related categories, this study is able to make inferences about the economics stemming from the democratization of education and design as a result of MOOCs and the influences of new technologies on future workers.

*Category Three: Institutions of Higher Education Reactions & Evolution;
Christensen, Shirky, Shapiro and Selingo*

The third category discusses topics related to IHE, specifically its future, the responses to economic shifts, technology's influence, attitudes about IHE, and IHE as a learning economy and the commodification of education. Christensen et al. categorize innovations such as Uber or Airbnb as "disruption innovators" if they qualify by satisfying a four-part assessment. Key to understanding these qualifications is the response the incumbents have to this new threat. The incumbent's response determines either the consumption by these new innovations or the incumbent's success in defending their current market placement. Shirky and Shapiro discuss the increasing decline of not-for-profit IHE as well as the closing of established, smaller institutions plus the often illogical responses of IHE to out-compete the competition (others schools and perhaps new ways of learning, MOOCs). Selingo provides expert opinions on higher education futures in the gray literature realm. He specifically focuses on IHE's rationale behind decisions from budgets to rankings, enrollments, requirements, etc. Together these authors contribute to the

business/ecology side of IHE that when considered together all remark on the uncertainty of future of IHE.

1.3 Overview of Key Concepts

To level the understanding of critical concepts used in the study, this section is used to explain nuances of the relevant terms and processes from both the past and present as related to design.

1.3.1 Key Concepts of the Study

In 2008, graphic design researcher and educator Meredith Davis noted during her AIGA keynote presentation that design education has its “head in the sand” (Davis, 2008) when it comes to technology’s influence and the evolution of design education. She expressed her concerns, stating that by continuing to teach old practices, design educators are no longer able to train future designers how to face the onslaught of new and constantly emerging practices (Davis). In essence, she suggests that the demand within the industry for designers who possess a knowledge base that supports new practices should be addressed by higher education, because the practice of design is changing and both education and industry must evolve (Davis, Poggenpohl, 2015).

In combination with those insights from Davis, design programs in higher education face competition from DIYD as well. These are the DIYDs who primarily study design from free MOOCs and resources such as Skillshare, Lynda, etc. as well as more social media-focused sites like YouTube and Dribbble. Sites like these are included even though teaching or learning via tutorials occurs, but is not the primary focus. In addition, for-profit online higher education

institutions which include businesses like the University of Phoenix and Southern New Hampshire University make up another factor in this online landscape.

1.3.2 Who are the People Discussed in this Study?

Before moving forward in this study, it is important to have a fundamental understanding of what graphic design is, what design does and who the participants are in terms of the types of design they practice. Generally, a basic definition of design is the practice of using the principles and elements of design² to create conceptually driven visual communication deliverables using image and typographical combinations to develop messages, logos, magazines, advertisements, books, posters, etc., in print and digital media to specific audiences. It is vital to understand that there needs to be a distinct definition between graphic design as a tool for manipulation (persuasion) and the ability to inform consumers with accurate, honest and trustworthy communications (information) in order to make informed decisions prior to the intended actions: purchases, voting, volunteering, donating, educating, taking action, speaking out, gaining awareness, etc., (Becker, 2001, Poyner, 2000, Greenhalgh, 1990). Thus, clarity in communication becomes an essential element of a designers' repertoire (Poyner, 2000). The people in this study are practicing designers, meaning graphic designers or people working in the design industry in various roles. In this study, the designers are practicing as either full-time employees of companies or design agencies or freelancing (independently from a company or agency on a project-by-project basis) in the following roles: visual designers, communications or graphic designers, print and digital designers, illustrators, brand developers or user experience/user interface experiential designers (UX/UI). Designers are either formally trained in a four-year IHE

² The formal principles and elements of design are defined commonly, as unity, movement, variety, movement, white space, pattern, rhythm, repetition, hierarchy, proportion, emphasis, balance and contrast, (Tomai, 2015).

or are considered a DIYD, who utilize these new channels of online, less-formalized, self-driven training. A more detailed definition of design is presented in the following section.

1.3.3 Key Terminology

The following industry-accepted definitions will be used in this study for consistency and clarity to help the reader understand the differences between the types of online education systems. See Table 1.

Table 1
Definitions commonly used in this research.

American Institute of Graphic Arts	AIGA	The design industry’s largest and oldest professional association for design. Members enjoy conferences, guest speakers, job listing and networking opportunities, etc.
Communications Design	CMD	A field that uses strategic planning and thinking to develop concepts that communicate messages visually and verbally about an issue, product or service combining the skill sets of graphic design, marketing, and communications through exquisite art direction to produce work that includes advertising, packaging, publication, web design and social media, while continually exploring new channels through which to distribute tailored messages. It is important there is a critical distinction between the study of graphic design is not a tool for manipulation (persuasion), but the ability to inform audiences with accurate, honest, and truthful content (communication) in order to provide targets with the necessary information to make informed decisions (Becker, 2001, Poyner, 2000, Greenhalgh, 1990). Variously referred to as graphic design, visual communications, visual design, and similar monikers, each possesses shades of difference. In this study, CMD will fall under the umbrella of graphic design.
Desktop Publishing	DP	A superficial type of design that grew out of drag-and-drop features of personal computers beginning in the 1970s. This type of work was typically self-taught and produced simple designs like church flyers, newsletters, outdoor signs, etc. Considered more “production work” versus more “conceptual,” higher-level work that graphic designers partake in.
Design Research	DR	For the purpose of this study, design research is divided into two concepts. The first is Design Research in IHE, the study of graphic design related research for academic research, and the second is Design

		Research in industry, in which research is conducted by the designer assigned to a client-driven project: who, what and when are typical types of research conducted here, plus ideally, design thinking processes.
Do-It-Yourself-Designer	DIYD	A person that is a practicing designer that did not learn graphic design in a traditional, four-year, college or university program and did not earn a degree in design. For this study, they learned design through Massive Online Open Courses, like Lynda, Skillshare, YouTube or Dribbble online platforms.
Formal Design Education or Institutes of Higher Education	FDE IHE	A typical, four-year, higher education degree completed at a college or university level program. This educational path would typically terminate in a Bachelor’s degree such as a Bachelor of Fine Art (BFA) which is considered the preferred degree in the profession with a concentration in graphic design, communications design or design-centric related program (AIGA, 2021). Typically, these are held in person, on campus; however, these types of programs may include online programs that offer the traditional BFA degree.
Graphic Design	GD	A professional practice that utilizes a detailed creative methodology sequences and iterative ideation process to solve problems. Typically that combines visual elements (including the principles and elements of design with type, images, illustration, photography and color) and precise written messages to communicate ideas to specifically designated audiences with precise language to convey information meant to inform, educate, evoke emotion or action in an intelligent, innovative and meaningful ways, using various tools for print, digital media or other communications channels. It is important there is a critical distinction between the study of graphic design is not a tool for manipulation (persuasion), but the ability to inform audiences with accurate, honest, and truthful content (communication) in order to provide targets with the necessary information to make informed decisions (Becker, 2001, Poyner, 2000, Greenhalgh, 1990).
High-Level Thinking	HLT	High-level thinking (similar to critical thinking skills or high-order thinking) are skills that are typically more conceptual in nature, and here are defined as conceptual development, strategic thinking, big picture thinking, planning, idea generation, problem seeking and solving, creative thinking, analytical thinking, etc. in other words - beyond basic design skills, like the use of software techniques (Vygotsky,1978, Dewey, 1934).
Low-Level Thinking	LLT	Low-level thinking generally means observation, memorization and interpretation of observations. In design it refers to basic software, technical skills as LLT is about recall abilities, instructions, information gathering and memorization of tasks (Bloom, 1958).
Massive Open Online Courses	MOOC	An online model for the delivery of learning different types of content for anyone who wants to take courses without limitations as to the number of courses. These are typically free courses but for fees, students can earn certification. In this study, these courses are sequenced, and completed over a designated period. These include sites like Udacity, edX, Udemy, Coursera, etc. but can also include courses from top universities like University of Texas, Georgia Tech, Purdue, Harvard and MIT, etc. In 2021,

		Harvard and MIT sold their edX online courses to 2U's network for \$800 million for online instruction with their name attached but without degrees.
Principle of Least Effort	PLE	PLE is a broad based theory often used in information science research. The basic understanding is that an organism will choose actions/activities that require the least amount of effort or energy to accomplish a task. Here this study uses the definition of the least effort that includes cost, time or effort in order to achieve the basic skills necessary to become a designer. Once that minimal level of basic skill is achieved, the learner stops searching/learning (Fisher, et. al, 2005), while sacrificing the quality (Christenson, et. al, 2018) of the information to be obtained due to ease of accessibility without regard to the reliability or quality of the information (Hardy, 1982).
Professional Practices In Design	PPD	Activities which will help maintain the standards of the design field that elevate the profession. These practices insure reliability, honesty, consistency and accountability creating a valued, positive reputation in the design practice. These include integrity to clients, other designers, the public, cultures and the environment utilizing fair wages and fees, authentic publicity and authorship, (counteracting acts of plagiarism, creative and intellectual property misuses, intended or not). It is the designer's responsibility to uphold these high standards of ethical practices.
National Association of Schools of Art & Design	NASAD	Establishes national standards for undergraduate and graduate degrees and other credentials for art and design and art/design-related disciplines, and provides assistance to institutions and individuals engaged in artistic, scholarly, educational, and other art/design-related endeavors.

1.4 Research Questions

The broad research questions support the use of a case study methodology: to answer the *how* and *why* questions that surround design education and the profession and the relationship to online learning. As a reminder, the research questions for this study were developed to examine the long term implications on the industry from new generations of DIYD. Explicitly stated:
 RQ1: *What are the drivers of choosing either an IHE or DIYD education?* RQ1.2 *How do those reported outcomes impact the future of IHE/IND education?*

RQ2: *Are there differences between the IHE/DIYD portfolios?* RQ2.1: *What are the differences?* RQ2.2: *After the expert evaluations, compare those results with the transcript answer to provide their process and definitions of design, is there a relationship with their interpretation of design, their own process and their evaluations?*

To gain insight into those ideas, included are examples of the type of sub-set questions (SQ) that are under the research questions developed to build a framework about the Dribbble user and to add nuance to the data. See *Appendix: A* for the full list of semi-structured interview questions.

SQ1: How can sites like Dribbble influence design education?

SQ2: How can sites like Dribbble influence the design industry?

SQ3: Why do you use sites like Dribbble?

SQ4: How have you been able to gain work from sites like Dribbble?

SQ5: How are you able to learn new design skills from Dribbble?

SQ6: Where else do you learn new design skills/stay current in design?

SQ7: How can a site like Dribbble influence pricing/freelance?

SQ8: How do you define design?

SQ9: If you did have formal education, do you see a gap between what you learned in IHE and how you practice in the industry?

SQ10: Are you aware of academic work in design pertaining to education or industry?

Essentially, these questions were designed with a case study framework in mind and therefore were structured to discover the insights about the *how and why* questions that Robert Yin (2018) suggests are best for this type of research. Specifically, how are these new learning environments changing the design industry and why is this important?

1.5 Contributions:

This research seeks to discover the positive and negative impacts of new channels of learning graphic design online, including self-directed training. As evidenced by the insights from the interviewees in this study, both practitioners and educators in design can begin to discuss the future of design in terms of what the design industry prioritizes. For example, by focusing on software skills with designers learning technical solutions online, then what happens to the critical thinking skills that used to be the priority of IHE design programs? Does the profession prefer one over the other? Do clients get the final vote outside of the professional input and what happens if the client and profession aren't aligned in those conversations with IHE? What happens due to that relationship shift? Are designers matriculating from IHE becoming more involved in higher-level decision making at earlier stages of conceptualization and strategy development? Design thinking is frequently being utilized as a valuable tool for Fortune 500 corporations and pioneering startups; however, proper training is crucial and that is often not found in basic online graphic design courses.

These are the questions that educators and industry professionals together must begin to formulate: are programs meeting the needs of the industry or successfully preparing the new type of designer? Are programs responsive and adaptable to technological innovations and do they need to be? To begin, a consensus should be reached regarding the definitions of design thinking and critical thinking (Bahr, 2010). If the principles and practices of design thinking are becoming pervasive across diverse industries and cultures, a logical first step for design educators is to agree on its meaning and methods, encompassing all areas of design, not just communications or graphic design. This work will expose potential pitfalls or opportunities for IHE especially in design to become thought leaders about the future of design and design education.

Additional contributions to the existing body of knowledge about the future of design education are available from this work. Insights into the future of design education will be uncovered using the Principle of Least Effort (PLE) to explain a designer's behaviors when considering whether to obtain a traditional design education or use these new channels of learning. Building off of Zuboff's 1985, 1988 work, where she explains the proliferation of the new roles and behaviors in "informed" scenarios in this work, the ideas of "informed" Dribbble designers being both a cause of and an effect of design becoming more digitized/decentralized.

1.6 Overview Methods

As stated previously, the goal of this contemporary research was to study the potential impacts of non-traditionally trained designers on IHE design programs and the industry. To build a deeper case study of the interviewees (users of Dribbble, both self-taught and formally trained), the methodology utilized here consists of two stages: individual interviews of Dribbble users and analysis of those discussions (Stage One) and a visual analysis of their work by expert designers active in the field (Stage Two). Both of these procedures allowed this researcher to build a clearer understanding of the relationship between how the users learned, how they worked and how their work compared to the participants' own definitions, scores and processes. The results of these comparisons will benefit discussions about the future of design education and industry implications.

1.6.1. Connection to Zuboff; A Qualitative Multi-case study

To obtain the information needed for this research, it was decided that a qualitative multi-case study method in the form of semi-structured interviews would be the best way to gain insights. Nuanced and thoughtful answers from the Dribbble users would explain their choices of training online versus following a traditional four-year IHE design program. The intention to engage in semi-structured interviews of the DIYD follows Zuboff's example in which her precise and personal conversations pivoted her perspective and subsequent discussions about technology's adoption and position by the users of these new behaviors. Her conceptual stance on technology's impact on workers changed after she conducted qualitative case study interviews to gain unique insights from the people most impacted by technology adoption.

1.6.2 Yin's case study Steps to Ensure Validity

Understanding challenges to qualitative research concerning the ongoing debate has centered on the difficulty of establishing validity criteria in qualitative research (Whittemore, Chase & Mandle, 2001, Yin, 2018). This research established several ways that were enacted to develop appropriate validity standards for this project including following Yin's six steps towards case study development. Those key phases are to develop an organized plan, a design, prepare and collect data, and finally analyze and share results. The steps that were taken are visualized in chart form in Chapter Three: Methods/Research Design.

Additional steps were taken to ensure validity and transferability, which are often difficult to affirm with a case study method. As it is often debated, qualitative research can present challenges due to the necessity to incorporate rigor and objectivity as well as creativity into the scientific process to the point that ways to offset these challenges were employed. Understanding

that this interview structure could be very subjective in nature, Zaltman's techniques (2003) were utilized through which the interviewers summarized some of the more significant responses back to interviewees to ensure the correct understanding of the participants' answers. This validated the objectivity of the interpretations and minimized the subjectivity or interpretative pitfalls of the responses.

A team of researchers was intentionally organized to best facilitate the interviewing and interpretive process. There were two members established to interview volunteers. The first was a PhD candidate trained to conduct fair and ethically phrased questions without leading the participant towards certain answers. The second was a professional designer acting as the "interviewer expert" (Augustin & Coleman, 2012) and an educator familiar with industry terminology, culture and processes in both arenas. This partnership also allowed interviewers to triangulate the qualifications of the interviewees against their work, the public personas, the backgrounds, clients, etc.

As mentioned above, data was collected through multiple means: interviews, empirical observations/conversations and visual analysis of the interviewees' work. This layered technique of data collection was used to not rely on a single data source (Creswell, 2009) which added validity to the interpretive nature of qualitative data collection.

1.6.3 Interview Expectations (Stage One)

The expectation for the insights derived from this type of data collection was to gain a greater understanding of the self-taught designers and the knowledge gained through their online learning channels, for example how their training relates or doesn't relate or is represented in their work, what are their motivations for learning design online—a gap in their IHE curriculum

or a cost or timing issue? This study also aimed to understand their expectations from training in a self-directed, self-taught DIYD capacity versus a traditional IHE pathway, whether they expected courses to be technically focused or involve higher-level thinking experiences. It was the goal to discover what the gaps are between industry practice and education, with possible unexpected revelations that may either benefit or hinder from professional practices.

1.6.4 Visual Analysis and Comparison Expectations (Stage Two)

In this research there is a second stage of data collection that was developed to deepen or thicken this case study research. The purpose of this layering of information is to determine if there is a visual difference between the two different designers, which becomes key to this study. After a blind visual analysis between the two types of designers (DIYD and trained through a traditional IHE), is there a noticeable difference and can experts determine a difference between the two?

Detailed information on these methodological rationales is found in *Chapter Two: Literature Review and Chapter Three: Methodology*.

1.7 Summary Overview of the Rest of the Thesis:

In summary, this research project will present insights from people working in the design industry in two different ways 1) those who learned in a variety of new online learning environments and 2) any differences between their professional portfolios. These outcomes provide an opportunity for IHE design educators and practitioners to discuss the future of design based on their experiences and comparisons of their work. Despite possible advantages to non-traditional (online) learning, there is a potential for consequences on design education and

the profession, specifically regarding standards, ethics, professionalism, and higher-level problem solving abilities. This research looks specifically at positive and negative consequences of technological advances in graphic design in IHE and the profession, which is vital to educators, institutions and the industry.

The specific problem that this research will address concerns the potential long-term impacts that new generations of the self-taught designer will have on the design profession and IHE. The research is aimed at uncovering gaps in education that could redirect the objectives of an entire industry from valuing higher-level thinkers/problem solvers back to service-minded aesthetic technicians. Additionally, it will address the ethical and professionalism gaps and their long-term implications. There is the potential for either scenario of the findings to become a valuable starting point for future research. If there are no differences found between the two types of designer portfolios, that has implications for higher education, and if there are differences, those differences provide points for discussion for the design industry.

The ultimate goal of the research is to develop a formalized understanding of what is being taught online and what may be missing from this educational route, and to provide a comprehensive review of the behaviors that self-taught DIY designers are learning. The findings of this study will be valuable to the industry practitioners as well as IHE design educators in that it will allow both to develop better practices that elevate the industry and continue to ensure IHEs remain relevant.

A preliminary literature review showed a distinct lack of studies of online learning through social media outlets specifically to graphic design. Accordingly, this research used parallel areas of study in order to build an understanding of the current body of knowledge in related areas, most of which did not relate to the impact on industries in terms of quality of

education or qualifications of the workers. However, the key pillar supporting this study is Zuboff's (1988) work using qualitative case studies surrounding technology adoption. Shirky and Shapiro review the decline of IHE enrollments, causes and responses. Glance, et al., 2013 cover benefits of MOOCs and their student-centered learning, however this model in terms AI instant grading of tests, etc. does not fit the pedagogical methods necessary in design. What is missing from the past studies is a comprehensive and structured analysis of design pedagogy in online learning through a MOOC or social media use.

This case study research utilizes a mixed method qualitative interview process that follows Robert Yin's argument that this methodological process is best for a contemporary social phenomenon exploration. By framing this study in a case study method similarly used by Zuboff, this study will seek to understand the shifts occurring in industry and impact on IHE. This framework consists of six phases to ensure that this case study does not lack trustworthiness, reliability and has transferability credentials: plan, design, prepare, collect, analyze and share (Yin, 2018). The interviewees were observed by a member of the team of researchers who was the expert in design in order to provide multiple levels of triangulation. Themes were identified based on frequencies which provide a review of current industry practices of the self-taught designer. In the second part, interviewees' online portfolios will be examined by design experts in order to compare the two types of designers' work and the results will add richness to the individual case studies. For a more detailed outline of the steps see *Chapter Three section, Methodology*.

The following section will cover the *Literature Review in Chapter Two* summary. In this chapter, existing literature on a variety of perspectives was used to build a robust framework for this research. Also, in the next section the discussion begins with a definition of the

democratization of design and the importance of this concept. A construct about the understanding of technology's impact on online learning, specifically the rise of MOOCs and those implications was employed. Finally, in this literature review, the key primary pillars in which this study is introduced in order to lay the foundation for this work.

In the *Chapter Three section, Methodology* a more thorough inspection of this research design will be discussed including the unveiling of this investigator's personal biases and detailed instruction of how Yin's key phases for a case study were implemented. In the last portion of this methods chapter is information about the data collection and management, analysis and interpretation used in this work and, finally, the limitations of this study.

Chapter Four first provides the demographics of the 30 interview participants from a holistic perspective to understand the larger pool of designers, followed by a more detailed explanation of who they are as individuals prior to presenting their narratives. This level of detail is important to understanding their individual nuances of choices, employment, trajectory and definitions and to explain their rationale in the subsequent interviews and scores.

The chapter then moves to the findings from the interviews (Stage One) including the three major themes and sub-themes. The themes are provided with participant quotes that support those findings through a narrative dialogue. Next, the study demonstrates how the interviewees were organized by type of education and work experience for the 12 design expert portfolio assessments, and visualizations are provided to show how the experts evaluated the work so that the process of assessment is clear. A detailed overview of all expert scores and comments is given in both a written and graphical format. Each expert score is visualized in digestible ways and compared with the others to gain a better understanding of the findings using a key for support, along with a table comparing all 12 assessment findings. The last part of this chapter

includes the verification steps that were taken to support the findings by utilizing a Chi-Square statistical analysis and findings.

Lastly, a cursory explanation of the contents of the *Chapter Five Discussions and Recommendations* section is presented, beginning with the limitations of the study to lay out any influences that have been recognized in order to offset any outcomes, biases and conclusions of the research.

Once those limitations of the study have been acknowledged, the study summarizes the interview discussions about the implications of those findings. The same steps were taken for the expert assessment findings summary discussions and the Chi-Square summary and discussions. Once those discussions are concluded, all of the findings are brought together so that the research considers all areas for a big-picture understanding of the impacts of all of the different types of learning are having on industry and education, along with recommendations based on a combination of the literature review, observational awareness and experience as a design educator and practitioner. That last part of chapter five is a discussion of the potential future studies opportunities that stem from this research.

CHAPTER TWO: Literature Review

2.1 Introduction

Statement of the Problem

Technology has always had a significant impact on industries. Often, these technologies force companies willingly, or not, to respond by adapting and evolving in new directions, or inversely, ignoring advancements and risking obsolescence. Within the design industry and many others, automation—including new technologies—can be seen as a catalyst of change holding true in the Information Age as much as in the Industrial Era (The Economist, 2016), negatively assuming tasks of professions in both.

Similarly, the teaching of visual design has become more complex for instructors responsible for keeping up skills, tasks, new roles and responsibilities that come along with the advent of online learning in relation to IHE and industry expectations. The design field as a whole is influenced more than ever before by different education pathways: Including IHE, junior colleges, community colleges, DIY learners, randomly chosen individual MOOC and MOOCs with certification—often including predetermined courses, internships, apprenticeships, etc.—each with unique offerings and distinct ways of delivering new knowledge or information.

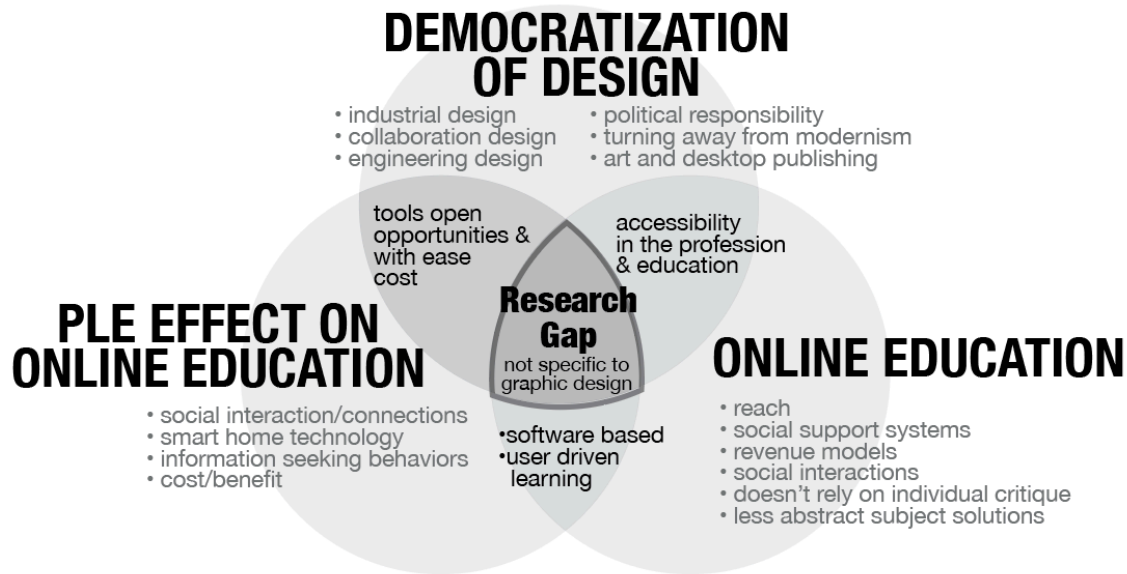
This thesis proposes that gaps exist in certain areas of study in academic literature, specifically the process of learning graphic design with MOOCs. See Figure 1 below. This literature review confirms that many studies relate to the three core areas defined above, however these studies are not viable for this particular work due to the lack of specificity to the distinct topics within the design practice and the teaching methodologies related to design. The three

core areas initially appeared to align with this study in terms of titles and subject matter, but upon further analysis the focus of the work was beyond the scope of this work.

The three core gaps in the academic literature are: *democratization of design, impacts of learning online and the Principle of Least Effort (PLE) effect on online education*. In all of these areas, online learning resources are missing critical fundamental methodologies, pedagogical necessities, and particular subject matter. These absences have the potential to change the perception and nature of the industry at large and, in some ways, alter current industry practices. Existing studies currently demonstrate various effects of MOOCs on IHE, but very few, if any, focus specifically on design education, especially within the DIY and social media learning pathways. Recognizing the potential for additional studies on visual design and possible negative effects of online learning, this research focuses on lack of instruction in online learning options regarding ethical practices, authenticity, quality control, trustworthiness, conceptual development, etc., in the design field. There is more detail below to the specific gaps in all three core areas: *democratization of design, impacts of learning online and the Principle of Least Effort (PLE) effect on online education* in the *Implications* section.

Figure 1

Diagrammatic representation of the research gap identified in this review.



Note: Source: Rebecca Davis Kelly.

Following those three key gaps in the literature in the *Implications* section, there will be discussions on the practical and theoretical applications relevant to this work followed by the key figures used to establish a framework for this study. Following that, the effects of technology on education will be cross-examined in a variety of ways. For example, the relationship between technology and industry is briefly discussed, with a focus on delineating *good* from *bad* impacts on multiple industries, whether intentional or not. There is also a brief history of MOOCs and their ability to share information in new, innovative, immediate ways: including the implications of information sharing and technological advancements within a variety of business scenarios, followed by application to design fields. A brief statement next offers justification for the use of gray publications, or literature produced outside academic publishing in this context. Lastly, in this literature review section, there is a consideration of the ramifications of new types of

information-gathering behaviors on industry, and education from a design focus and the professional behaviors that result from these new technologies is discussed.

2.2 Implications

Democratization of Design

First, in this section, the phrase “democratization of design” describes the rising phenomenon of an increased ease of accessibility. From instruction and empirical observations, because of this new type of 24/7, on-demand, and unlimited access to design resources, anyone and everyone can be a “designer.”

A literature review reveals that there is academic literature surrounding the topic of the “democratization of design” but once again, they are either not specific to graphic design or their focus is on specific topics that are beyond this work. For example, the typical discussions of democratization revolve around societal, political and social justices, the political responsibility of designers, and the collaborative nature of design (either through an industrial or engineering design lens). However, for the purposes of this study, the concept of democratization is approached differently than described above: the ease and availability to learn and practice design has allowed people with internet access and a base knowledge of software to be a graphic designer.

Past technological advancements, such as desktop publishing, was once considered one of the first “democratization of design” crisis moments in graphic design history and these events garnered substantive studies and academic literature on the ideas of opening design skills to the general public via personal computers. However the literature reveals more studies that are beyond the scope of this work, for example, the studies highlighting the differences between

desktop publishing (not a degreed practice) and graphic design and the dated nature of this body of work. In the work, “In Our Own Hands: The Democratization of Graphic Design,” (Becker, 2001) begins with the contradictions of experts during a 1980s conference between two lead designers (Massimo Vignelli and Bruno Monguzzi³) who were publically debating the pros and cons of bringing design to the people via desktop publishing. The work ultimately reviewed the encounter which ultimately discussed the political responsibility of designers and the tragic shift that would see untrained professionals steering design away from the modern Swiss design movement. Additional works that studied the desktop publishing phenomenon that are similar but do not align with this research focus on the concepts of the ethics of templates used in desktop publishing (Sickman, 2014). Other areas of study must be reviewed to provide the framework in which this research fits, as there is a paucity of academic publications on the effects of free and accessible websites (regardless of the type) that use information transference as a way to resolve various problems—in this case, learning to be a graphic designer. Data on the topic is more abundant in gray literature which will also be examined to draw conclusions.

To begin, the term “design” itself has been democratized. *Design* as a title is claimed by many and varied fields: industrial design, engineering design, graphic design, interior design, fashion design, etc., and it is partially the designers’ fault (Schneider, 2020). Initially, facing a gap in understanding between process and product, graphic designers hoped to educate clients on the terminology and processes involved in the field to have more informed conversations about projects, to be more comprehensive and solve problems in larger groups with diversified viewpoints and experiences. Speaking the same language would simplify the process, leading to

³ Massimo Vignelli is a world-renowned modernist designer who was formally trained in architecture in Italy and specialized in furniture, product and graphic design for a wide array of well-known, high-end clients. Bruno Monguzzi studied in Geneva and London and has primarily worked as a graphic, editorial and exhibition designer and finished his career as a teacher in Venice and New York.

mutually satisfying solutions. Non-designers were taught design thinking in order to be more collaborative and inclusive. Design thinking was developed for all participants to use the most learnable and teachable parts of design—generally labeled as empathy, optimism, iteration, creative confidence, experimentation, and an embrace of ambiguity and failure while centering the users and their experience. Within higher education, design thinking techniques were used to solve problems, moving across campuses to share with other disciplines—a trend that has extended to industry (Burdick, 2009). The problem with this movement and the well-intended notion of teaching non-designers this innovation-generating process is a surge of non-designers taking control, ultimately leaving design out of the conversation and out of context (Kelly, 2019, Sinclair, 2016, Davis 2008, Lupton, 2006). Design professionals are arguing universally that with the accessibility of design-specific software, everyone is now a designer, at least by one definition of the term which has led and will continue to lead to various implications. (Kelly, 2019, Sinclair, 2016, Davis 2008, Lupton, 2006).

When conducting a literature review among academic journals on the topic of democratization of design, there are a few papers that were found to relate specifically to professionalism, graphic design, etc. and fewer still to graphic design's relationship with MOOCs. The following literature review scenarios below represent the spectrum of what seems to be considered “design research.” Design research in IHE crosses a wide range of design disciplines (graphic, industrial, engineering, etc.) and what is considered “research” under the “communications/graphic design” umbrella. Research in this area can be considered design compositions, active professional practices such as client work, exhibitions or bookmaking, etc. The lack of an organized and didactic definition of graphic design and the wide range of design research types in academia creates complicated literature review opportunities. For example, in

IHE in graphic design, client work is often considered research as an alternative to traditional whitepapers, so the lack of literature search results is not surprising. The complication arises when facing the challenge for those studying graphic design in a more scientific method application, using a theory to explain actions or behaviors, collecting data, and analyzing that data. One must be willing to use parallel research and gray literature more specific to design. With this in mind, there are a few studies that help explain the current landscape of “design focused” literature. The first significant work was published in the journal, *Art, Design & Communication in Higher Education*, in which McNamara (2015) proposes utilizing MOOCs as a supplemental teaching tool. This would allow graphic design professors to outsource the teaching of technical skill sets needed by student designers, thus reserving the classrooms for more vital critique-competent design education (2015). In the second paper (Fleischmann, 2015), “The Democratization of Design and Design Learning – How Do We Educate the Next-Generation Designer,” democratization is viewed as work done in a “collaboration-practiced way,” in which designers using MOOC environments create products and followed up by “taking care of their own aesthetics” (product design and graphic design rolled into one). This study comes from an industrial design point-of-view with the aesthetics of a graphic designer being included as an added value asset of the industrial designer education (Fleischmann, 2015). She states because the collaborative nature innate to graphic design, that the new goal of design education in the future is a “collaborative endeavor” or design by groups of different types of designers (industrial, product design) to produce graphics in support of industrial designers. In other words, the influence of new information technologies (graphic design software) is producing graphic designers by other types of designers or groups of

“design” amateurs in which no one is an expert in graphic design due to insufficient virtual instruction (2015).

Concerning the design amateur, another contributor, prominent design practitioner, scholar and educator Anne Burdick (2009), delivered a keynote speech entitled “Design without Designers.” She voices fears, alongside excitement, that design education is changing in part due to “technology, culture and theory” (Burdick). She states that new collaborations and problem-solving through design processes can be very successful without designers and provides examples of the benefits of a multidisciplinary approach in today’s new design realm (2009, Cheng, 2014). Highlighted in that work are ideas and case studies of multiple IHE organizations putting design at the center of their curriculum, without designers as a part of these projects. This “designing without designers” concept is similar to how the design thinking process has been adapted to areas outside of design and embraced as successful practices for problem solving initiatives outside of traditional design environments, such as MBA or entrepreneurial areas of study.

The idea that design is being practiced not by a thoroughly trained practitioner but by one without a minimal level of understanding of the design nuances and processes is not a new argument (Belleflamme, et al., 2015). What harm could be done? Should design be open to everyone who can work for a client, for example delivering visual messages about product promises without the moral and ethical understanding and obligations to tell the “truth” in their work (Becker, 2001, Greenhalgh, 1990). For example, understanding copyright infringements laws, intellectual property violations, pricing fairness, accurate messaging, authenticity and honesty or just for the professionals who master software tools? Readily accessible yet possibly incomplete or even inaccurate information and tools to become a designer along with a gap in

content at some point will influence the design industry in the long term. In the design field in which professional behaviors are valued (Cezzar, 2020), where are these new generations of self-taught/trained designers acquiring the soft skills and best professional practices, such as networking, copyright infringement laws, intellectual property development, concepting, meeting deadlines obligations, understanding intellectual property, avoiding plagiarism and appropriation? A quick search of one popular MOOC course reveals that there is a lack of topics on ethics and professional practices in the design industry.⁴ The combination of providing only access to information about how to navigate software tools without the total big-picture of a designer's knowledge including roles and responsibilities (gaps in the content) will have an impact on the design industry and the perception of what it means to be a designer. Looking at a few of the potential problems that stem from this disconnection between the DIYD and the professional industry, including shifting the designer beyond a focus on aesthetics away from the strategist and problem solver will be discussed below. In other words, this represents a migration from the thinking behind design, processes, consequences, the *how* to the *why* designer (Bettiol & Micelli, 2014, Kelly, 2018) to more of a technical, software skills focused profession.

Gaps in MOOC Literature with a Focus on Graphic Design

There are numerous education-focused studies on online learning, through experts and the works of on enjoyment of learning online (Belanger, et. al.,2013), and the value of stand alone courses found online and motivations behind MOOCs (Koller , 2012), low completion rates (Jordan, 2014, Yuan, et al., 2013) and finally, MOOCs as the great leveler in education (Liyaganawardena, et al., 2013). The studies examined for this research encompass topics such

⁴ Udemy cursory search for critical thinking, ethics and professionalism in design.
<https://www.udemy.com/courses/search/?src=ukw&q=ethics+in+graphic+design>

as the effectiveness of online learning, the ethics and intention of both the creators of the online content and the users, the positive effects of online learning offering social support systems and revenue models. Once again, design is understudied, as gaps are found when looking for design as the subject matter as presented in the recent studies about the integration models of MOOCs into traditional higher education programs. Often the studies focus on less subjective areas such as “computer science, biology, communications, statistics and pre-calculus,” (Griffiths, et al., 2014, Israel, 2015). These types of courses and the pedagogical methods that may be effective in the online environment but aren’t necessarily the best practice for teaching design as individualized critiques are an essential part of the graphic design iterative learning process. These points directly contradict the work found in the Gance, et al., (2013), discussed in more detail in the *2.3 Technology’s Impact on Industry - MOOCs* section.

*Gaps in Literature : the Democratization of Design
(specific and not specific to design)*

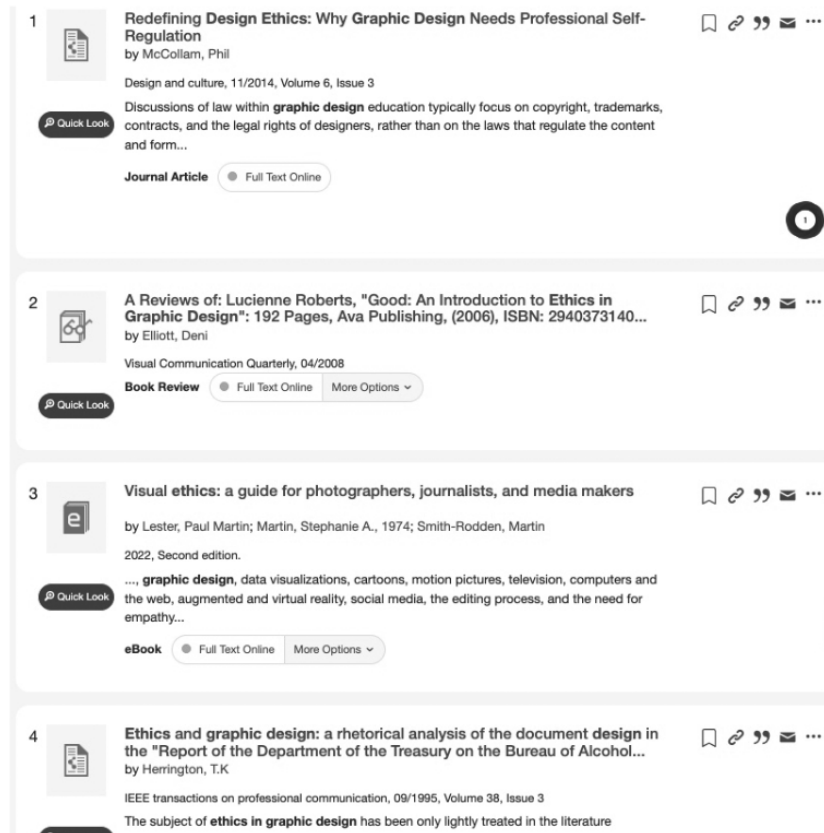
Although there is literature (academic, popular and gray) on one of the most vital aspects of graphic design professionalism such as teaching design and ethics exists, the content varies widely in this under-researched area of study. Even within IHE design programs there are a few books focused on the professional practices used as textbooks. A primary resource that is often used in the IHE design classroom, *The Education of a Graphic Designer* (2015) by design educator expert Steven Heller is a good specimen for the types of “academic” literature (although it is a commercial book) for the teaching of a modern graphic designer by the industry’s leading design educators such as Katherine McCoy, Gunnar Swanson, and Moria Cullen. However this significant work is focused on subjects related to design such as design as

profession (McCoy), design as a liberal art area of study (Swanson) and the economic implications of IHE investments in the latest technology (Cullen). Another area of focus is the ethics in design. For example, *Good: An Introduction to Ethics in Graphic Design: Ethics of Graphic Design* (Roberts, 2006). This author states that ethics discussions in design are relatively “unexplored territory.” A more well-known book, *Citizen Designer: Perspectives on Design Responsibility* (Heller & Vienne, 2018), challenges the roles designers play in society and suggests that designers of the future have the power to create social change (design for good). Renowned designer Milton Glaser⁵ created a list of questions that every responsible designer should ask themselves before committing to certain types of clients, entitled “12 Steps on the Road to Hell” (Glaser, 2004). These three are examples of the heavily referenced work brought into IHE as conversation starters about responsibility and ethics; however, in regard to academic research on ethics in graphic design this topic is understudied. The following is an example of a Syracuse Library Summons search that found only two pieces of research on this specific subject matter: One was a work by McCollam shown below and the other was the Roberts work discussed above. The remaining suggestions dive immediately into lesser, unrelated topics, such as the ethics in photography and the ethics of the design of a report for the Department of the Treasury on the Bureau of Alcohol, Tobacco, and Firearms. See Figure 2.

⁵ Milton Glaser (1929-2020) is a widely celebrated American graphic designer known for several of his projects, most notably the “I love New York” logo.

Figure 2

Example of sparse results for journals search in graphic design related topics like “ethics.”



Note: Source, Syracuse University Libraries, Summons search for “ethics in graphic design.”

Similarly, a Google Scholar search of ethics in graphic design and related search phrasing produced similar “academic” research on the topic, including, the Roberts’ *Good* book, the McCollam work, as well as an AIGA article of unknown publication of a graduate school thesis entitled “Ethics in Graphic Design: A Call to Arms for an Undergraduate Course” (Kane, 2010). This author states that despite surveys in which copyrighting issues are a priority for designers, there is limited information on this topic and very little in a majority of design curricula (2010).

There is gray literature on the fine line between inspiration or homage and plagiarism in design, which becomes both an ethical and legal issue (Following Trends: Homage vs. Design Plagiarism | Toptal, n.d.). See Figure 3.

Figure 3
Inspiration or Plagiarism.



Note: Source, Inspiration, appropriation or plagiarism? From “Following Trends: Homage vs Design Plagiarism,” by C. Chapman, Top AI Designers (n.d.).

The majority of the findings in this area exist in a professional capacity for the national design organization, AIGA, via conferences and periodic self-publications entitled *Design Business and Ethics*, (AIGA, 2001), which has essentially moved online. Despite all of the thorough and important work in this area, their efforts focus on topics such as how to find the right designer and the skills they need, a paragraph on intellectual property, pricing fairness, respect for other designers and the like. There is only one section out of nine that discusses copyright and protection laws of original work from the perspective of a designer’s ownership if someone uses their work, but not on designers plagiarizing one another. “Authorship” is discussed neatly in one sentence: “5.1 A professional designer shall not claim sole credit for a design on which other designers have collaborated” (Resources | AIGA Standards of

Professional Practice | AIGA, n.d.). Clearly, there is a scarcity of academic research and significant gap in scholarship discussing design-specific ethics practices. There are articles found in professional design magazines, such as a piece by D.K. Holland found in *Communications Arts*, entitled “Where Our Wild Things Are” (2010) which concludes that there is still no widely adopted or central code of ethics in design.

There are also additional studies on ethics in design, where they admit that the area is understudied. Bagheri, (2021) has studied ethics specifically in social responsibility in advertising, which is not specific to graphic design.

The aim of this literature review section is to search for research that defines and studies academic literature on the topic of ethics, professionalism in graphic, visual and communications design, seeking out publications that deal with the ideas of ethics in design, specifically: plagiarism, copying, appropriation, and the stealing of design work. There are a few examples of academic work on this topic and more often found are commercial publications from design educator leaders, Steven Heller, Meredith Davis mentioned previously; however, regardless of the content, the subjects are decidedly more likely to be brought up in the IHE classroom compared to online, whether as the focus on a project, a specific class or an extemporaneous discussion that pops up during a lecture or critique. The student becomes aware of the implications of ethical behavior in their own work and brings this knowledge into the industry. A DIYD learner is much more removed from those discussions. As previously stated above, there is an absence of modules regarding ethical practices in one of the most notable MOOC platforms that offers design courses⁶. Therefore, the repercussions to the industry and designers with no

⁶ Udemy cursory search for critical thinking, ethics and professionalism in design.
<https://www.udemy.com/courses/search/?src=ukw&q=ethics+in+graphic+design>

knowledge of these types of important discussions ten or fifteen years down the road would seem to be exponentially significant.

There are ways to find this information, but it is important to note that one must be aware of the topic to search for the specific subject matter. Further, considering the psychology behind the principle of least effort, it seems improbable that the DIYD will spend the requisite time and effort to discover and study these important topics. The unlikelihood of a student self-discovering the importance of best professional practices like trademark and intellectual property violations, ethics, accessibility issues, etc., is unsettling considering the value of these subjects to the design industry. The potential results of ignorance in the matter could cost agencies and/or clients in damages through related lawsuits and copyright injustices. For example, the most cited academic work offers a legal case study, *Maguire v. Sydney Organising Committee for the Olympic Games (SOCOG)*, featuring an agency that designed a website for the Olympics in Australia which was not accessible to people with visual impairment disabilities (McCollam, 2015). The web design agency at fault had to pay the plaintiff damages of \$20,000 AUD and was required to fix the existing site within 368 days which would cost an additional \$2.2 million AUD. This ruling from the Australian Commonwealth now requires all agency websites to pass accessibility tests and certification (Web Accessibility Initiative, 2009), however, this precedent does not apply globally. *Maguire v. SOSOG* calls for the proper certification of designers to avoid or lessen legalities related to misinformation, inaccessibility and other ethical concerns. Self-taught designers in particular would need to pass certain tests or obtain certifications in order to mitigate risks when practicing design.

Gaps in the Principle of Least Effort Effects on Online Education

In a similar literature review of the effectiveness of online learning, there are gaps found in terms of the concepts behind the Principle of Least Effort in online education. Numerous studies focus on the perceived consequences of learning online through a cost-benefit analysis (similar to the PLE theory which centers on when the cost of learning outweighs the benefits of obtaining this new knowledge online cheaper, faster and with less commitment than required by a four year degree). Here, researchers study the knowledge growth of PLE learning through the concepts of cost benefits to PLE learning, the cost of smart home technology to obtain the benefits of PLE learning in addition to user expectations of PLE learning, and imposter symptoms that comes along with PLE learning. These concepts are found in the work “Examining the Perceived Consequences and Usage of MOOCs on Learning Effectiveness,” (Tamjidyamcholo, et al., 2020) all through the cost/benefit analysis lens. There are some studies looking at the PLE effect on information seeking behaviors similar to this study but they are specific to human behavior and library studies. One study focuses on bibliometrics (statistical methods) research and was used mainly for comparisons with other informetrics laws or research results, versus a qualitative study. There is a lot of work that supports using PLE theory as a motivation for the increase and acceptance of a lower quality education provided by MOOCs (Chang, 2016) along with an expense driven mindset (Case, et al., 2005), not laziness, (Gratch,1990) but those studies do not include graphic design studies.

After identifying the understudied topics specific to graphic design education and industry that tie together all three gap categories discussed above, it is the intention to address these topics through this research and future studies. Below are additional discussions about academic work that helped guide this literature review framework.

2.3 Support in the Literature: Technology's Impact on Industry - Historical Examination

2.3.1 Effect of Technology on Industry and Education

It is inevitable that as information technology advances, there are positive and negative effects on those managing the infrastructures and producing new methods of doing business. A more detailed discussion is provided in Zuboff's '2.4 Pillars of this Framework' section. Zuboff's work is foundational to this study in that it repeatedly shows how new advances in technology affect all aspects of an organization, and information technology acceptance is positively or negatively impacted by how it is addressed. Although Zuboff highlights paper mills in this body of work, the essence of the meaning can be applied to almost all areas in the diverse landscape of industry, including the body of social media suites studied here which encompasses digital social media learning. These include MOOCs, DIYD on sites like Dribbble and YouTube and more formalized groups like Coursera, Udemy, etc. Zuboff concludes that managers of new technology failing to consider the pros and cons of accepting new advances can have unintended consequences which ultimately lead to a weaker workforce. This statement will be discussed in further detail in *Chapter Five: Discussion and Recommendations*. It is important to understand that Zuboff talks of organizations, institutions and managers; however those concepts can be applied here in a similar fashion when talking about freelancers, or an extension of employees and a looser organized group of designers.

Early discussions about intentional and unintentional consequences can lead to better business decisions at the outset, preventing mistakes that often follow high-profile events, such

as the launch of new websites and apps. Early discussion also applies when considering the implications of future learning methods, including the impact on IHE when technology and massive amounts of information are involved, such as in social media learning, MOOCs, DIY learning and mixed classroom environments. The lack of discussion of the positive and negative impacts and consequences of technology and information (relating to social media learning) on individuals, society, education and business is a rarely considered discourse when it comes to IHE, but is even more scarce with respect to design education in general.

However, discussions surrounding the impact of technological innovations become imperative when applied to ideas behind the democratization of industries, with the abundance of easily accessible information and the potential for negative outcomes (i.e., misinformation). Perez (2002) studied these “creative disruptions,” noting that they occur fairly consistently even if understanding their full scope takes decades to accomplish. By acknowledging this consistency, industry professionals, educators and designers would be more likely to have a dialogue over technology pros versus cons before implementation in the educational space in anticipation of the impending consequences. In a similar fashion, Hemsley, Jacobson, Gruzd and Mai (2018) discussed social media being categorized by others as good, bad and neutral based on either the benefits of the “democratizing force” that social media can yield or, conversely, drawbacks such as privacy violations and disinformation. Kulwin’s article, *The Internet Apologies* (2018), reads as a response to Tim Berners-Lee (1996), who cautiously addressed the democratization of information via the World Wide Web and humans’ potential to abuse this revolutionary system of information networking. Kulwin gathered together platform designers and engineers involved with creating the digital world to highlight various nefarious tools that social media offers to those with entrepreneurial interests looking to grow their wealth such as

investment techniques, while simultaneously attracting innocuous users despite societal consequences and business upheaval.

Uniting all of the aforementioned research by Zuboff, Perez, Hemsley, et al., Lee, and Kulwin is a sense of the importance of people's interaction with information and technology, and the unintentional misuse of that interaction which can lead to unpredictable consequences. Even with this important body of work to draw from, there is noticeably limited discussion of the potential negatives of human misuse, the business models of these sites, and the negative effects of MOOCs and social media learners.

Research specifically addresses graphic design education in terms of the influences upon future and long-term goals; research on subjectively good and bad consequences of social media in graphic design is understudied, therefore parallel research in other industries impacted by social media/technology becomes critical, specifically in the topics of education, business and MOOCs. *A Study on Positive and Negative Effects of Social Media on Society*, a well-cited paper in the International Journal of Computer Sciences and Engineering, looks from a wide perspective at the positive and negative impacts of social media on a variety of professions, including health and medicine and business and education (Akram, 2017). However, while it is more contemporary than the speculative papers regarding MOOCs and social media, the work seems flawed and unusable for this study due to its focus on primary and secondary education levels, and overly sweeping and shallow observations. The majority of papers on the topic of social media's impact on education tend to consider the psychological impacts on students' mental health, which although important respectively, is not the focus of this study.

The existing literature on the effects that social media sites have on education either focuses on the psychological impacts or lists the positive and negative effects on students versus

learning outcomes. Positive findings include communication and networking for homework assignments, ease of expressing feelings online, careers in marketing, opportunities to teach digital citizenship and using the internet for productivity. The negative effects tend to center on distraction, privacy issues, inappropriateness, loss of face-to-face communication and misinformation. For the most part, the research focuses on breaking down the types of activities by engagement, such as text messaging and playing video games (Siddiqui, 2016). The ultimate conclusion is that social media's impact on education in collaboration with the accessibility of false information will lead to educational failures. Siddiqui defines the failures related to educational oversight tied to social media by assessing the productivity of the communications and systems. Briefly discussed is also the invasion of children's privacy and occurring questionable behaviors related to online learning, which influence them negatively: behavior problems ultimately cause a breakdown in learning. However, Siddiqui's *Social Media its Impact with Positive and Negative Aspects* seems to be an underdeveloped study, and, based on review of its bibliographies, appears to rely heavily on gray and business-oriented websites as sources.

2.3.2 MOOCs

There is some academic work on the pedagogical foundations of MOOCs, but researchers have admitted that evidence directly related to its impact on IHE is difficult to find (Glance, et al., 2013). Research tying the educational effectiveness of MOOCs to design specifically is even harder to locate, especially prior to the Covid-19 pandemic. In the infancy of MOOC development, many articles were written about the economics of MOOCs. Although this is helpful to understanding the current state of research generally, there is not a large body of work in academic journals about design and MOOCs. That being said, research in graphic design is

growing in new directions and online learning post-Covid (Mitchell, 2021) from a design project-based “case study” perspective as discussed in *Chapter One: Thesis Statement and Research Overview*. A large amount of work that supports this research argument comes from gray literature where there is more of a connection to design. Burdick, one of the few graphic design researchers in IHE close to this topic, states that “the emphasis on design as a profession rather than as a discipline has left us without the scholarship that validates other fields. Our inability to advocate for design in larger terms excludes us from discipline defining, knowledge-producing, and policy-generating activities, especially within research, education, and government” (Burdick, 2009), therefore limiting the depths of design-specific research in academia.

While not the focus here, it is important to juxtapose different types of online learning models to discuss their similarities and differences. In this context, MOOCs encompass digital delivery of online topics on a variety of subjects, often free, and can involve one-off classes or more structured lesson plans. When there are “certification” options for more specialized subjects, there is often a series of courses in a package. MOOCs can be tied to a university or independent businesses, like Coursera, edX and Udacity (Glance, et al., 2013). These have partnered with universities, offering thousands of courses to millions of students around the globe, many with enrollments in the hundreds of thousands (Fazackerley, 2012). As previously mentioned, two publications relevant to this study are authored by Glance, et al., (2013) and Belleflamme and Jacqmin (2016). Both papers focus on characteristics of MOOCs and discuss them from different perspectives. Below, the similarities have been juxtaposed as MOOCs and social media learners to compare as they fall within a similar learning structure. The qualifiers that many papers suggest using to define the following characteristics of MOOCs can also be

applied to social media learners where users of Dribbble and YouTube are able to learn design skills. See Figure 4.

Figure 4
MOOCs qualify as a Social Media Platform

ONLINE LEARNING CHARACTERISTICS	PEDAGOGICAL BENEFITS (GLANCE, 2013 and)	MOOC CHARACTERISTICS (GLANCE, 2013)	MOOC CHARACTERISTICS (BELLEFLAME, 2015)	SOCIAL MEDIA LEARNERS CHARACTERISTICS (DRIBBBLE, YOU TUBE, etc.)
ONLINE MODE OF DELIVERY	EFFICACY OF ONLINE LEARNING	●	●	●
ONLINE QUIZZES AND ASSESSMENT	RETRIEVAL LEARNING	●	●	●
VIDEO INSTRUCTION	MASTERY LEARNING	●	●	●
PEER AND SELF ASSESSMENT	ENHANCED LEARNING THROUGH ASSESSMENT	●	●	●
SHORT VIDEO INSTRUCTION	ENHANCED ATTENTION AND FOCUS	●	●	●
ONLINE FORUMS	PEER ASSISTANCE OUT OF BAND LEARNING	●	●	●

Note: Source, Glance, D.G., Forsey, M. & Riley, M. From “The Pedagogical Foundation of Massive Open Online Courses.” March, 2013. Belleflamme, P., & Jacqmin, J. From “An Economic Appraisal of MOOC Platforms: Business Models and Impacts on Higher Education.” CESifo Economic Studies, September 2015.

While Social Media platforms are viewed generally as having different benefits and purposes than MOOCs, users are learning skills from both of these platforms; therefore, in this study, there will be an overlap when talking about MOOCs, social media learners and DIYD. To further support this argument, research on student use of social media sites shows that through information-seeking behaviors, social media may be used in a similar way to MOOCs, toward the same ends (Bicen, 2017).

2.3.3 *Rise of MOOCs*

After Tim Berners-Lee, who is credited as being one of the first to usher in the World Wide Web with the idea to network and bring networked information to everyone (Berners-Lee, 1996), design education has had a back-and-forth relationship with technology, sometimes as a leader and sometimes as a follower in the design teaching environment (Kelly, 2018).

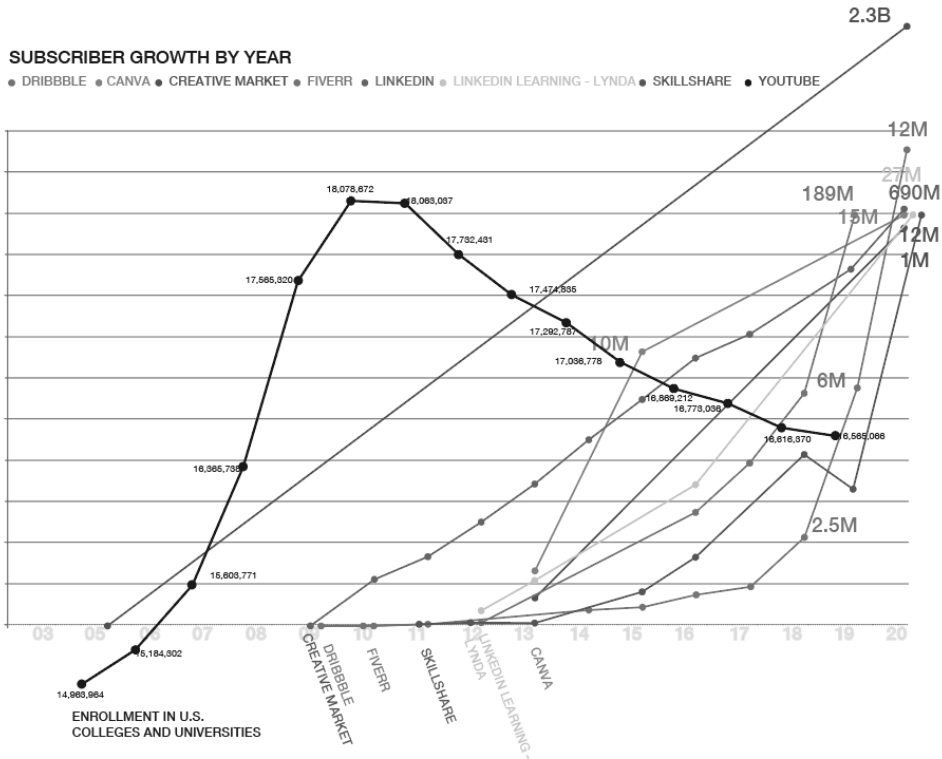
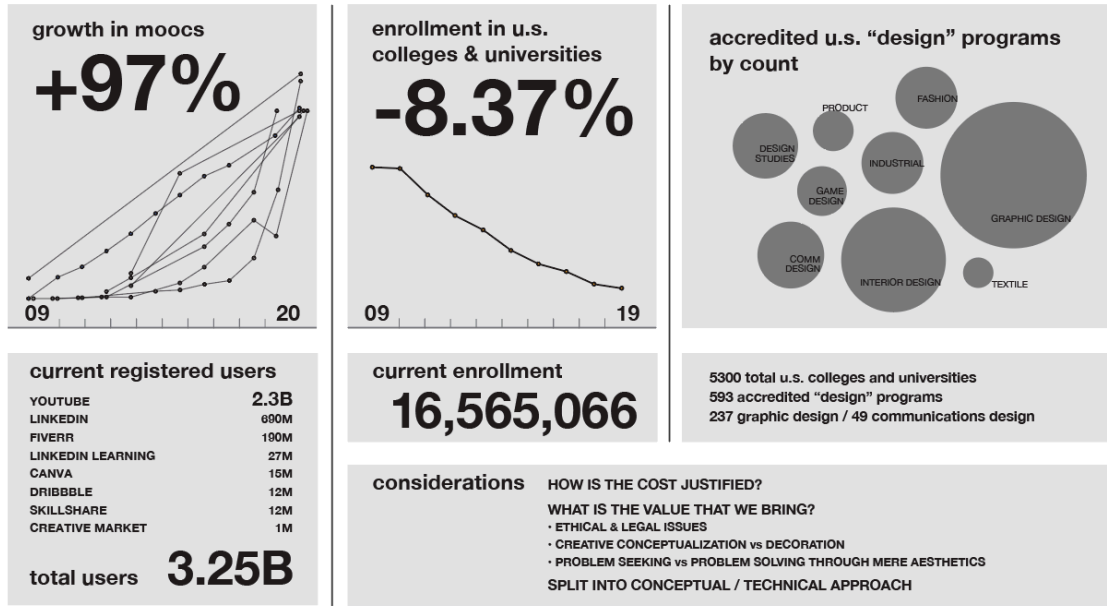
In 2007, the year before Meredith Davis predicted design education's inadequate response to technology, the internet was booming with networks and shared information/communication. Facebook and Twitter went global. Google bought YouTube, and Airbnb was founded, changing the way people were doing business altogether. Some of these innovations and their novel business models are considered to be "disruptive innovations" as previously mentioned (Christensen, et al., 2017), with changes affecting everyone, including design and design education (Fleischmann, 2015, Deming, Lovenheim, and Patterson, 2016, Kelly, 2018). With the relatively rapid rise of connected networks and platforms, some argue that this level of information networking via technological advancement should be labeled the Third Industrial Revolution as Zuboff (2015) and others state (Anderson, 2012), while dissenters do not consider this classification. There is some level of disagreement, for example Castells' strong viewpoint calling it a New Age of Information or a movement (Castells, 2010), which is vigorously debated by Zuboff (Zuboff, Möllers, Murakami Wood, & Lyon, 2019).

With regard to connectivity, in 2000, Brown and Duguid wrote that "infoenthusiasts predict that with this new way of receiving information we will see the end of many things, documents, narratives into hypertext and reduce knowledge into pure data." They explain that "endism" can disrupt long-established organizations and institutions, like television, bureaucracies and universities (Brown & Duguid, 2000). As if working in conjunction with the

authors above on aspects of “endism,” in the same year, the first MOOCs were born. Although it took years before MOOCs were officially named and became a more permanent fixture, the first MOOC deemed “successful” was engendered when Sebastian Thrun and Peter Norvig from Stanford launched a course to 160,000 students for free in 2011 (Yuan & Powell, 2013, Brief Very Brief, 2021).

Perez’s 2002 work about the collapse of old systems relates that these “creative destruction” moments are not only technologically driven but economically based as revolutions destroy the old ways while creating new ones (Schumpeter 1942:1975). As evidenced in data Figure 5, there seems to exist a correlation or a causality between the increase of online learning in the various forms and a decrease in IHE enrollment; this relationship leads to the notion of categorizing these information delivery systems as a “creative destruction” phenomenon, which assists in the emergence of the not formally trained designer.

Figure 5
Correlation or Causality between the increase of online learning in the various forms and the decrease in IHE enrollment.



Note: Source: Rebecca Davis Kelly. Information gathered from, the National Student Clearinghouse Research Center, <https://nscresearchcenter.org/stay-informed/> and National Association of Schools of Art & Design, <https://nasad.arts-accredit.org/>

The MOOC market has drawn interest from major corporations (Google, AT&T, etc.), venture capitalists, and IHE themselves (MIT, Stanford, Harvard, etc.), because of the financial potential involved. These organizations confirm that they want to “enter the IHE market using the MOOC approach,” (Yuan & Powell, 2013). Despite the research that suggests the highest area of growth in the emerging MOOC markets is from the least discerning institutions in terms of entrance requirements (Deming, Goldin and Katz, 2012, Deming, Lovenheim, and Patterson, 2016), many of these entrepreneurs are even partnering to develop new types of MOOCs (Lederman, 2019). Undeterred by acknowledgements from CEOs of major online learning companies that they are providing lower quality education (Schuman, 2013, McNamara, 2015) with “less learning, lower degree completion and worse labor outcomes” (Deming, Lovenheim & Patterson, 2016), they proceed onward. The question becomes: if there is an admittedly poorer quality product with less selective admissions, is it really for the benefit of the users (for fair and free access)? Many additional questions for consideration arise, for example: are these innovations primarily financially driven (to the benefit of capitalists, corporations, education)? Are evolving MOOCs a better teaching model? These types of questions become significant considering that more traditional IHE are competing for students due to this new free and online landscape.

There is a new trend in which private and public formal higher education institutions, including Ivy League universities,⁷ are lowering or eliminating admittance qualifications to

⁷ According to Princetonian Newsletter, as of February, 1, 2021, Columbia, Cornell, Harvard and the University of Pennsylvania make up four top Ivy League schools to waive testing requirements for the Class of 2026. This trend “has been gaining traction for a significant amount of time. Recent years have seen a slow movement away from colleges and universities issuing testing requirements, with 1,070

accept more students (Lee, 2020, Jaschik, 2020). Loosened requirements are created for a variety of reasons: standardized test scheduling difficulties, impacts from the Covid-19 pandemic, diversity and economic conditions (Deming, Lovenheim & Patterson, 2016). It is also meant to offset the loss of students due to the increase of open access, free, online, MOOC competition, especially with growing hesitations in the value of the large investment to attend college as costs of tuition continue to increase (Americans' Confidence in Higher Ed Drops Sharply, n.d.). Are universities making decisions based on the present economic situation instead of looking at the long-term objectives such as the needs of the students, the profession and society, or are they making decisions based on their own survival instincts? To gain insight into the emerging situation, one can look at the United States Post Office's response to various disruptive factors stemming from technological advancements, such as the advent of email, which greatly reduced the need for letter writing, and alternative forms of delivery services such as Amazon, FedEx and UPS. With the lure of free shipping meant to attract customers, USPS has responded by raising shipping costs without adding value, which seems counterintuitive, but a similarly inappropriate direction can be identified in the IHE response to MOOCs. In an equally impulsive reaction, IHE have lowered standards and increased accessibility to attempt to compete on the level of MOOCs, rather than maintaining their point of difference: the quality of instruction and benefits offered through traditional education that historically justify the additional cost and effort required of the students. By failing to retake a leadership role and attempting to play catch-up to online resources, IHE are undermining their own interests, equating their level of instruction to that of MOOCs. Like USPS, IHE seem to have reacted to their challengers without fully considering the type of disruptors they truly are. This would help dictate the kind of response

colleges already possessing a "test-optional" status before the pandemic."
<https://www.dailyprincetonian.com/article/2021/02/standardized-tests-princeton-college-admissions-ivy-league-sat-act>

that would be most effective in their bid to maintain relevance and possible dominance in the educational sphere.

Here, the research continues to look at the relationships between education and industry models, in terms of actions and potential pivots in response to declining enrollment numbers in IHE. Several proponents of a new era of higher education propose different methods to maintain the status quo as a potential outcome of this technology-influenced tug-of-war between education, industry and innovation. This new competition emerging on the horizon may evoke innovations in higher education, adapting to the new type of learner from “typically sluggish and unresponsive institutions of higher education” (Deming, Lovenheim & Patterson, 2016). As stated by Yuan and Powell, “the speed of development opens up the risk that decisions will be made in a fragmentary way by different unconnected groups without a deep understanding or clear analysis of MOOCs and other potential education delivery models. Institutions will need to develop a cohesive strategy to respond to the opportunities and threats posed by MOOCs and other forms of openness in IHE” (Yuan & Powell, 2013), to prevent uninformed decision-making.

2.3.4 Implications in Design

There are studies of the predicted impacts of MOOCs on IHE in which the new systems would force IHE to lower tuition at traditional institutions. This reduction did not occur. Instead, IHE increased tuition and sometimes eliminated preemptive quality control systems, such as more intense the application processes, standardized testing requirements and benchmarks (Burd, et al., 2015). But what if by eliminating parts of the application process (good or bad) admitted students who pay full tuition to get their desired degree are admitted, but are ultimately not

capable of succeeding: is that ethical? Are IHE rethinking the ethics of knowing the student might not finish their program, when the free or nearly free MOOC certificate programs operate under the assumption that the student will most likely not finish the bare minimum of training in part due to the PLE? Is this practice ethical and how does this affect the industry's future workers? IHE offers value-added models (credentialing) that arrive from pivots due to these disruptors while competing with the new and improved "unbundled" but growing education trajectory (Sheets, 2012). Is it ethical for an IHE/Industry affiliated MOOCs to hand-pick the top performers in a class to ensure face-to-face contact with the top tech companies (Leckart, 2012)? Where is the advantage of priority networking to students who pay the full tuition at a four-year institution? These considerations occur as a result of the varied response by IHE to MOOCs, and the undoubtedly immense concerns that have risen as a result.

As all the literature reviewed thus far suggests, with new information-seeking technologies and new behaviors of adaptation, the implications that come with use and acceptance or denial are fraught with ethical considerations for all involved. Next, is a discussion to help clarify the ideas behind the term "democratization" in a design context and explain the importance to this work followed by a look into the current state of ethics research in design.

2.4 Framework

Practical Application as a Guide

Of the three research frameworks that are used to make sense of data (theoretical, conceptual and practical) (Leshem & Trafford, 2007), an applied or practical framework (Scriven, 1986) is implemented in this study. This approach is used to guide observations from

the data in an applied manner, considering established theories and principles in order to enhance knowledge around a practical aim. Focusing on identifying information will help to explain or solve real-life problems faced by the design education and industry. This work emphasizes the benefits of theory-based research, in opposition to claims that theories are restrictive and fail to advance new ideas in qualitative research (Grbich, 2019). A practical framework in combination with the PLE lens is applied because it can highlight potential flaws in the new online learning environments and offer improvements to the negative behaviors that might arise in the real world versus a theoretical or conceptual framework. This research and this data, uses an “interpretivism” viewpoint and sees theory as a ‘lens’ applied to make sense of the world. An iterative, expert-informed, evidence-based process is applied here for conceiving interventions into new education and design practices that could lead to negative behavior and mistrust within the industry, while exposing gaps in content and contextual nuances.

With this practical framework in place, structure and meaning can be applied to behaviors along with the PLE theory through which to interpret information found in the data and empirical observations. This application of a theory is imperative in order to help explain the phenomenon discussed throughout this research (Reeves et al., 2008). Summarized here, DIYD are increasingly being employed in the professional design field. There is also a widespread decline in enrollment in IHE occurring in numerous majors, including but not exclusively concerning design programs. Simultaneously, there are increasing numbers of new learning platforms and surging enrollments in existing MOOCs offering new information-based/information-seeking educational channels that the DIYD are taking advantage of, despite the admittedly lower-quality education (Belleflamme & Jacqmin, 2016, McNamara, 2015, Schuman, 2013, Hardy, 1982). MOOCs offer quick, low-cost and easy accessibility for information seekers

when they are offered a “certificate” in a subject. However, when there is more structure, such as a formalized sequencing of recommended courses, and a required dedication to the program, completion rates are very low⁸ (Men, et al., 2017). Identifying an appropriate theory to explain such behavior becomes useful as a next step in this study.

Applied Theory: The Principle of Least Effort

Information interpretation is approached in this research using a theoretical lens involving the “Principle of Least Effort” theory (Zipf, 1949⁹). Although Zipf developed this broad-based theory as a linguist (Nordquist, 2020), information behavior researchers have often employed this principle (which is also called the path of least resistance) as a way to interpret their research, (Zhu, 2018, Fischer, 2005, Case, 2005, Mann, 1987) particularly applied to electronic resources, primarily websites, (Adamic & Huberman, 2002, Huberman et al., 1998). Here, this framework is used as a basis to understand not only the structure of the platforms that DIYD are using to seek information, but also to determine the minimal amount of dedicated time and effort they will invest in order to gain the appropriate level of understanding through this relatively new channel of information delivery. With this theory applied, Zipf’s PLE shows that the DIYD as information seekers will most likely find and utilize the cheapest, most accessible way of gathering information in the least demanding means available. There are two additional points about the PLE theory which are of significance to this study. By interpreting the behaviors and the data with this theory understanding that the DIYD information seeking users, have made the choice to select this type of online learning for the ease and accessibility of the information

⁸ When using the free, online sites there is often a “certification” option, especially when the organization is connected to an IHE. This pathway is slightly more structured in terms of the requirements of classes to receive the certificate, which is more structured, in terms of class sequencing and is often at a cost.

⁹ An initial theory of PLE was first discovered in 1894 by a French philosopher, Guillaume Ferrero but for this study the adjustments made by Zipf will be used as both empirical and theoretical applications are appropriate under this version. (Zhu, Zhang, Wang, Li & Cai, 2018)

sources on the basis of minimizing the effort or cost in obtaining knowledge, while point one, accepting to sacrifice the quality of the information to be obtained (Christensen, et al., 2018). The impact on the design industry of DIYD choosing “accessibility” (Hardy, 1982) over the reliability or quality of the information is compounded by point two, that whether the MOOC courses are free or paid, less than 10% of the users complete the courses (Israel, 2015, Jordan, 2014, Yuan & Powell, 2013, Pappano, 2012). To summarize those important points, using PLE in this study suggest that the DIYD choices in their educational pathway includes the consideration of cost, time and or effort as favorable to MOOCs in order to achieve the basic skills necessary to pass as designers, but of the significance to the industry and educational trajectory of the IHE graphic design programs, once the minimal skills are achieved, MOOC learners stop searching/learning (Fisher, et al., 2005). So what are those types of learners *not* learning?

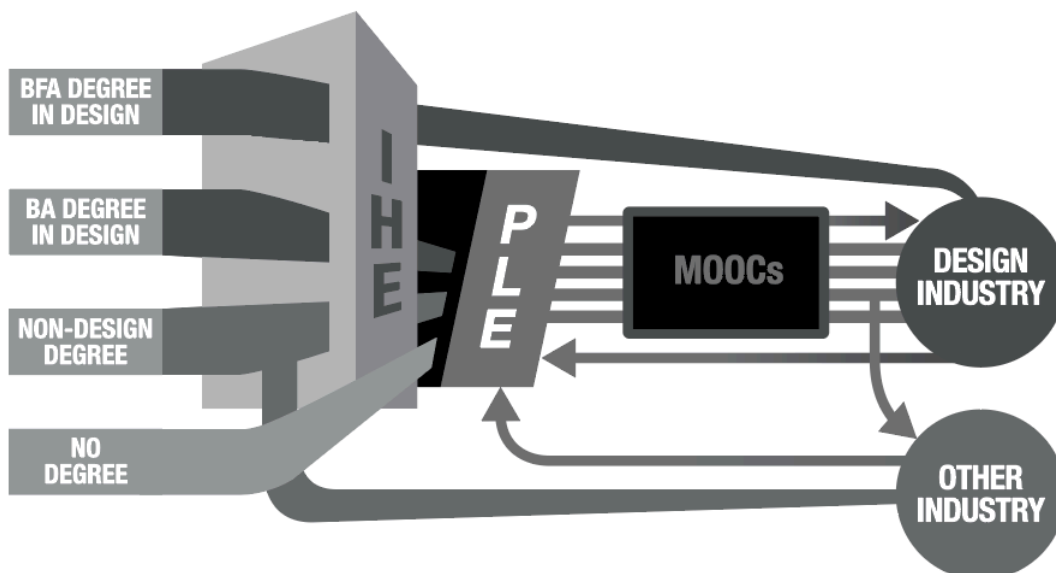
This ultimately leads to learning skill-based techniques, not the high-level thinking skills, long-term processes, or intricate problem-solving projects that extend over long periods of time and require large expenditures of energy, work, time and/or money. In applying the concept to this research project, the question becomes: what is the quickest, easiest, most accessible education with the least degree of dedication of time, money and/or effort in order to reach the minimal knowledge needed to solve a problem? How does one become a designer *quickly/easily/cheaply*? MOOCs fit this need perfectly as they represent a low-commitment, on-demand, often free learning alternative. To tie the theory into practice, how are the interviewees utilizing platforms like Dribbble to learn design? What were their experiences, etc.?

This theory can help explain why with the easily accessible, affordable online learning certificate/mini-certificate programs (Özbek, 2019) have low completion rates (Men, et al., 2017, Belleflamme & Jacqmin, 2016), yet are more popular than ever despite the known lack of quality

(Belleflamme, Schuman, 2013, McNamara, 2015). The question then arises: are MOOCs a viable threat or potential partner of IHE or simply a new route for people to join the design industry? See Figure 6 for a visual representation of how IHE and MOOC learning interact with PLE and professional pathways. Several key factors must be considered prior to making a determination: first, the DIY students are using a variety of online courses to learn the basics of design; second, the courses are shorter, often cursory introductions to design basics; finally, even when the DIYD sign up for the more structured, didactic courses that are offered with a “certificate,” the completion rates are very low (Men, et al., Belleflamme, et al., 2016). What implications do these factors have for the profession in terms of depth of knowledge, experience, professionalism and expertise?

Figure 6

A visual representation of potential pathways between IHE, MOOCs and the industry and PLE interact.



2.5 Pillars of this Framework: The How

2.5.1 Primary Group: Zuboff and Perez

A few key pillars support the framework under current examination, with a primary focus on Zuboff, particularly her work, *In the Age of the Smart Machine: The Future of Work and Power* (1988). Zuboff's later work, "Big Other: Surveillance Capitalism and the Prospects of an Information Civilization" (2015) and her book, *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power* (2019), are also both thematically similar and relevant to this research.

In the Age of the Smart Machine, a widely debated book about "recent advances" in computer-based information technology, which are innovative to the point of changing the nature of the work, announces "a historical transformation of immense proportions" (Zuboff, 1988), demonstrating the influence of these innovations on society. Her argument still holds solidly true today. The author focuses on the impacts of technology on designers' and managers' intentions and on the shift from manual work to mental work. Zuboff identifies a "new division of learning" as the change between the rigid types of labor held over from the industrial revolution (Howard, 1998). This new way of learning would have the power to be accessed and exploited by both workers and managers alike, which could theoretically lead to more of an equalization of workers in an organization; however, it creates the potential for less knowledge and greater skill disparity.

Zuboff reveals through a qualitative case study of both blue- and white-collar perspectives that the latter effect had occurred: greater disparities emerged between employees. Through a qualitative method of both observations and interviews rather than through surveys, she gained firsthand detailed insights on technology adoption that a survey or observations

would likely not have revealed. She finds through these methods that when dealing with digital innovations, the new technology divided, rather than equalized; the different types of employees as work became intangible, now digital, as opposed to physical. Roles post-digitalization can become unclear, altered or obsolete, and work processes and their structures must be inherently reconsidered. Zuboff notes that when information is digitized, it does not signify the end of the process to user consumption; the new information must be made meaningful and applicable. The thinking, inquiry and understanding of the new digitized work and “consideration of options and discussions” (Zuboff, 1998) relevant to problem solving, must now begin. How this perspective applies to this research and ultimately the Democratization of Design will be discussed in *Chapter Five: Discussion and Recommendations*.

As evidenced in the preliminary article, “Big Other: Surveillance Capitalism,” (2015) and her other book, *The Age of Surveillance Capitalism: The Fight for a Human Future*, (2019), Zuboff seems to have changed her perspective regarding technology’s impact on humans. First, she identifies information technology as the Fifth Revolution, which is debated as other scholars consider it the “Second Machine Age” (Perez, 2017, Brynjolfsson & McAfee, 2014, Castells, 2010), and merely an extension of its prior manifestation. Second, Zuboff expands on the impact of knowledge advancement to discuss surveillance capital, or the monetization of user behavior by companies seeking to benefit from “shadow text” (Evangelista, 2019). Shadow text is largely publicly-ignored accumulation of personal user data and behaviors that can be intrinsically valuable to companies (Zuboff, 2015, 2019, Zhenghao, et al., 2015). Data monetization as such leads to division of labor, in regards to learning and furthers the dehumanization of workers (Zuboff, 2019 & 1998), which appears to be happening again presently.

Although the monetization of shadow data is not Zuboff's primary focus, similar ideas are applied here, as behaviors of "big data" derived from MOOCs are also big business, and, although it is unclear who owns it—the MOOCs or the providers—this information comes with "indirect financial advantage" (Loukis, Pazalos & Salagara, 2012). Zuboff makes note of the division among workers and the decrease of their value through technology's impact on business, relevant to IHE as "by now this is a virus that has infected every economic sector" (Zuboff, as cited in *Surveillance Capitalism Expert Takes on Tech Industry*, 2019). With the new ways of learning, especially surrounding the DIYD using MOOCs, a similar path emerges for users, considering how and what designers are learning is being "informed," (Zuboff, 1988), or subjected to a power shift caused by previously private information becoming newly explicit and public.

2.5.2 Secondary Group: Belleflamme and Jacqmin, Glace

The next two pillars supporting this research are "The Pedagogical Foundations of Massive Open Online Courses" (Glace, et al., 2013) and "An Economic Appraisal of MOOC Platforms: Business Models and Impacts on Higher Education" (Belleflamme, et al., 2015), which focus on characteristics of MOOCs and discuss them from different perspectives. These two articles are important in discussing the key benefits of MOOCs which help explain their appeal in contrast to the traditional IHE route to becoming a professional. Although arguably apparent, Belleflamme & Jacqmin (2016) enumerate the little to no barriers to learning through DIY/MOOCs: open and free access, on-demand learning, and customized learning. This method is accessible and flexible, relying on retrieval-based learning with nearly instant feedback via automatically graded quizzes and tests. The authors also state that the feedback from student to

student in the form of reviews is critical as it gives DIY/MOOC pathways a “student-centered” component. Additionally, the mastery learning process—a pedagogical technique that involves the introduction and repetition of tasks until mastery of a skill takes place—is claimed to be “evidenced-based education” at work (Belleflamme & Jacqmin, 2016) Glance, Forsey and Riley (2013) give a similar list of benefits to DIY learning environments, naming on-demand short videos and lectures, automated assessment via quizzes, and peer review with almost instantaneous feedback; all of which make up an optimized learning environment based on “sound pedagogical foundations” that are at least on par with face-to-face traditional classroom learning modes (2013). Part of the authors’ primary argument is that with the DIY learning method, MOOCs are comparable to an average course at an IHE. However, this statement is subjective, based on selected criteria listed above: blanket pedagogical skill sets cannot be applied equally to all areas of study, in particular in the design field. How MOOCs are teaching design, both tangible and intangible skills, will be discussed in detail in *Chapter Five: Discussion and Recommendations*. These considerations begin to challenge arguments about whether MOOCs are truly considered a disruptive innovator to IHE.

Even after the Covid-19 pandemic, which essentially made online learning temporarily universal, there is an ongoing debate on the validity and pedagogical effectiveness of MOOCs. Numerous perspectives express that online learning platforms are at least equal to courses taught at universities (Glance, et al., 2013, Mitchell, 2021), from an educational foundation perspective; however, at the same time, these scholars acknowledge that online learning sites like Dribbble, YouTube, MOOCs, etc. “are not designed to optimize learning” (Glance, et al., 2013, Schuman, 2013, McNamara, 2015, Deming, Lovenheim & Patterson, 2016 and Zuboff, 1998). Their usage centers more on information-seeking behaviors (see application of PLE below). Conversely,

there is a comparable number of scholars who argue that the intentions behind MOOCs are profit-focused, which impacts their effectiveness (Zhenghao, et al., 2015, Association for Learning Technology, 2012; Baker, 2012; Moe, 2012). In the Glance, et al. work (2013), the authors state that “these claims have been backed with only a scant amount of evidence or indeed agreement as to the defining characteristics of a MOOC and the pedagogical foundations it rests upon.” The analysis of the multi-perspective pedagogical study is not this work’s primary focus, but there are important concepts that must be considered to equalize all the different learning avenues.

Glance et al. (2013) tend to disagree with the previous lists of the benefits of MOOCs, and instead suggest that not only are there viable counter-arguments to each of the above mentioned premises, but also gaps in these online environments, especially in design and regarding professional practices within and outside the design industry. This topic will be discussed in detail in *Chapter Five: Discussion and Recommendations*.

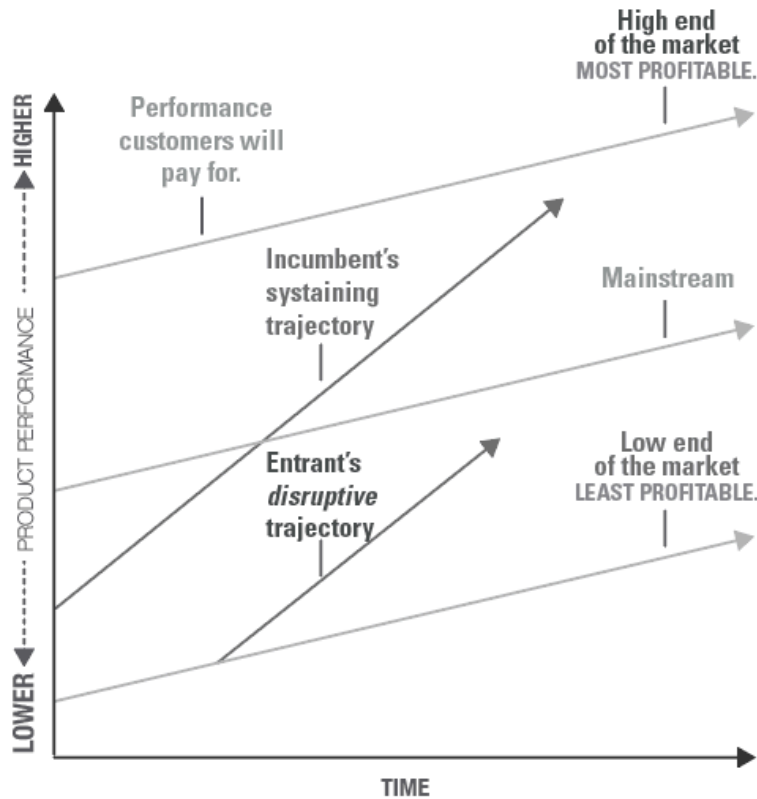
2.5.3 Tertiary Group: Christensen, Shirky and Shapiro, Selingo

Previously stated is Zuboff’s line of thinking on the impact of the advancement of technology upon workers’ behavior, workplace practices and an increase in the division of labor and the dehumanization of workers (further discussed in *Chapter Five: Discussion and Recommendations*). Following a discussion on how users become money generators through their information behaviors via “surveillance capitalization” or “the (by) product of online services” (Hoofnagle, as cited in *Surveillance Capitalism’ Expert Takes on Tech Industry*, 2019), an analysis is made of MOOCs through economic-focused perspectives. These additional supporting topics include work by Christensen, Shirky & Shapiro, and the Belleflamme &

Jacqmin (2016) and Glance, et al. (2013) group. The discussion is organized according to overlapping content found in their research, which is all pertinent to this subject.

Christensen is well-known for his and his collaborators' controversial work about the "Disruptive Innovations Theory" found in a number of publications (Christensen, et al., 2003, 2015, 2017, 2018). Disruptive Innovation is described as a moment in time when a smaller company with a significantly limited number of resources challenges established incumbent businesses successfully by capitalizing and targeting overlooked, often neglected consumers (2015). See Figure 7 for an overview. The theory's influence on business is impactful as a way to identify and test businesses, through a series of qualification requirements, as having "disruptive innovative" status. In other words, a disruptive innovative company upends the traditional way of doing business and alters the market away from long-term successful incumbents, in their respective industries. These actions exemplify the "gale of creative destruction" that Schumpeter (1934, 1942) discusses, which is similar to Perez's advancement of Schumpeter's economist view of repetitive, dynamic and often upended business competition cycles (Perez, 2002).

Figure 7
Disruption Innovation: Christensen Disruption Interruptions: Overview



Note. Source: Clayton M. Christensen, Michael E. Raynor and Rory McDonald, from “What is Disruption Innovation,” Harvard Business Review, December, 2015.

Although the Disruptive Innovations Theory is primarily used as a business assessment filter, this analysis includes IHE under the notion of their business-minded agendas. Shirky, among others, warns that IHE should stray away from a solely business-focused mindset as some of their decisions defy logic from an economic perspective (Shirky, 2021, Scott, 2018a, 2018b). Additionally, numerous scholars see MOOCs as “disruptive innovation” to the long-established incumbent IHE. Most notably, in determining the response by the incumbent force—IHE in this

study—in a decision-making moment, the competition’s behavior must be assessed properly. Experts like the Joint Information Systems Committee¹⁰ stress that in this case, disjointed, individualized responses from IHE in regard to MOOCs are not the answer (Yuan & Powell, 2013).

Christensen’s work becomes important in two major ways. First, Uber’s disruption of the taxi industry is one of many case studies used to exemplify disruptive innovation (Dudley et al., 2017, Urbinati et al., 2021, etc.). However, as Christensen discusses the importance of correctly categorizing businesses, he opposes the widely accepted labeling of Uber as a “disruptive innovator” as it fails to satisfy his four conditions of this categorization (Christensen, et al., 2015). See Table 2 for more detail. An accurate distinction between innovations is important for the survival of incumbents because the proper categorization of a threat determines its appropriate response to ensure their success in combating that threat. IHE’s response to MOOCs exemplifies Christensen’s sentiments, as the concurrent dropping of enrollment at IHE (specifically communications/ graphic design majors in this research) has led to changes within the IHE business model, including labeling MOOCs as disruptors (“Rethinking Higher Education Business Models,” 2012, Rubin, 2013, Burd et al., 2015, Lichy & Enström, 2015). Scholars who are focused on the future of IHE—Shirky (2021) and Shapiro (*When the End Comes to Higher Education Institutions, 1890-2019* | Virginia Shapiro, n.d.)—pick up the conversation in a very similar fashion with IHE as their focus, compared to Christensen’s use of a general business model. Both authors state that the business/ecology model that education is applying is not sustainable, a perspective which will be discussed in more detail in the *Decline of*

¹⁰ The Joint Information Systems Committee is a UK based agency whose sole purpose is focused on tertiary education, research and innovation. Jisc covers educational related uses of digital, data and technology. Jisc functions as a not-for-profit organization and the mission states that education and research improves lives and that technology improves education and research. <https://www.jisc.ac.uk/about>

the IHE section. Second, the work highlights the commodification of educational trends, not from IHE (Lawrence & Sharma, 2002) but from the disruptors themselves. The disruptive innovators, the MOOCs, have taken traditional instruction that was once artisanal and specialized and transformed it to be depersonalized, scaled up, sped up and financially attractive. These changes along with the psychological effects of PLE put IHE in a tough position, in competition, adaptability and responsiveness, if any, to these “disruptors.”

Table 2
Series of qualifications for new innovations to be considered a Disruptive Innovator

DISRUPTION INNOVATION CHARACTERISTICS	DETAIL	NEW CHALLENGERS	INCUMBENTS	WHY GETTING IT RIGHT MATTERS
OFTEN CONSIDERED LOWER END	ACCEPT QUALITY IS NOT AS GOOD	UNDERSTAND LOWER QUALITY	NOT WORRIED THEY OFFER SUPERIOR PRODUCT	CHALLENGES ARE FUNDAMENTALLY DIFFERENT, AND SUBTLE
ADDRESSES A NEW TARGET MARKET	WHERE NO MARKET EXISTED PREVIOUSLY	CAPITALIZES ON NEW OPPORTUNITIES WILL TO ACCEPT LOWER QUALITY	THEY SEEK TO TARGET EXISTING CUSTOMERS	HARD TO SEE IMPACT, TAKES TIME (CYCLES, PEREZ) TO MAKE SIGNIFICANT IMPACT
LESS QUALITY	NON TARGETS WILLING TO ACCEPT LOWER QUALITY - BETTER THAN NOTHING	NON TARGETS WILLING TO ACCEPT LOWER QUALITY - BETTER THAN NOTHING NEW CHALLENGERS KNOW IT IS CHEAP	EXISTING CUSTOMERS WILL PAY PREMIUM FOR THEIR NEW AND IMPROVED PRODUCTS - NO COMPARISON	STARTS WITH FRINGE AND NO PROFIT. EVENTUALLY PROFITABLE
NOT MAINSTREAM	GENERAL PUBLIC CONSIDERS IT LESSER THAN WHAT CURRENTLY EXISTS	WILLING TO WAIT UNTIL QUALITY CATCHES UP	THEY OWN THE MAIN-STREAM. THEY ARE NOT WILLING TO SWITCH	ONCE ADOPTION TAKES PLACE AT LOWER COST BY MAINSTREAM, DRIVES PRICING DOWN AND: DISRUPTION OCCURS

Note. Source: Clayton M. Christensen, Michael E. Raynor and Rory McDonald, from “What is Disruption Innovation,” Harvard Business Review, December, 2015.

2.6 Purpose Summary

As mentioned in the Introduction section of Chapter One, the goal of this research is to study topics surrounding the future designer from the perspective of design democratization. More specifically, this research project presents insights from industry design professionals who learned in a variety of new online learning environments and provides an opportunity for IHE design educators and practitioners to discuss the future of design based on their experiences.

Stated previously in this chapter, there is a lack of importance placed on research specific to graphic design education as well as graphic design research from a social science perspective. Along with the dearth of design-centered research, there are also gaps in other issues surrounding online learning regarding professional practices not learned by the DIYD going into the field, such as plagiarism/ethics, proficiency requirements and certification options. There is a growing discussion on the impact of MOOCs and the effectiveness of online learning as a result of the Covid-19 pandemic, which has brought theoretical studies into practical application. There is also growing interest in gray literature discussing decreased enrollment in IHE, for example, by best-selling author and former editor of the *Chronicle of Higher Education*, Jeff Selingo. The focus shifts to the previously mentioned work of Shirky and Shapiro who have emerged as leaders in the attempts to decipher the complicated and entangled hypotheses as to why IHE enrollment is dropping. There are others who focus on additional potential problems in declining enrollment such as increased competition. Regardless, there is a lack of discovery in this specific area with regard to visual-based design.

Chapter Three will present an investigation, through intensive interviews of social media users who engage in online learning platforms—in this case, [Dribbble.com](https://www.dribbble.com)—in order to identify who the users are, their education pathways, how they are using online learning and how

their behaviors could impact the design industry and design education. The study seeks to identify their experiences to explore whether human nature as viewed through the lens of the PLE could compound these gaps in learning. Stated another way, if users don't have the knowledge or motivation to seek information about topics like ethics, and platforms aren't providing them as part of their offerings, what does that look like for an industry filled with designers missing this vital knowledge. These interviews aid in investigating the behaviors of the users of this platform as they shed light on what could be an exponentially growing problem, not only specific to visual design but to other industries as well, and perhaps even affecting the future of IHE. Is there a correlated or causal relationship between these conditions—a decline in enrollment, increase in tuition, and evolving roles and expectations from industry? Either way, this study marks the initial stage of this design-focused research and will be addressed further in the *Discussion and Recommendations* section in Chapter Five. Before this, Chapter Three will clarify the framework for this study, the rationale behind using a case study method along with layers of validation to ensure trustworthiness in this research.

2.7 Chapter 2 Summary

This chapter presents an introduction to some of the recent scholarship that supports the framework for this study, which seeks to understand how technology has the potential to influence professions and higher education. More than ever before, there are numerous new ways to access graphic design-related knowledge and information without the need to attend institutes of higher education. These include Junior and Community Colleges, DIYD, MOOCs (with and without certification), internships and apprenticeships. Naturally, this leads to tangential research into the future of higher education, the design industry, and of designers themselves, considering

these new knowledge content avenues. This chapter also includes discussions about the lack of academic literature specific to design and justifications for including more gray and trade publications necessary to complete the literature review portion which provides insights into the current body of research on this topic. Also discussed here is the use of a practical/applied framework in combination with a theory that, when extracting insights from the data, will help in interpreting it to understand the implications in a real-world context as opposed to a conceptual or theoretical sense. This framework, along with Zipf's broadly-applied, practical theory of the PLE, ties into the applied research discussed in the studies put forward by Zuboff, Christenson, Shirky and Shapiro, Belleflamme and Jacqmin & Chase. The work of each of these researchers helps to further frame this study adding support to the nature of this applied research.

This study suggests that the new technology brought to design education through the wide variety of channels and MOOC-structured online learning, is challenging the traditional education apparatus (IHE). In a reaction to lower student enrollments, IHEs are now decreasing enrollment requirements while increasing student benefits such as expanded cafeteria, gym and dorm features while still offering less flexible processes while continually increasing tuition. MOOCs and the like are easily accessible, on-demand, often free and effective learning environments. However, when considering these new means of educational opportunities, this study suggests that there are gaps in learning and potential pitfalls in terms of online learning practices, and thus offers a counterargument to the Glance and Belleflamme work. A more complete understanding of these current scenarios can contribute to more unified conversations between IHE administrators, design professors and practicing designers working in the industry.

As framed by the literature review structure, it is clear that technology changes the processes and the way that people learn and work. As shown here, technological advances don't

always come with discussions and/or plans to deal with the influences, consequences (good or bad), or misuses of the new technologies. Documented here are several gray/trade publications that focus on the changes occurring to IHE for a variety of reasons as approached by Shirky and Shapiro. IHE, especially in design-related circles, have studied this less frequently despite some outliers calling attention to these concepts, as Davis did in 2008. The study described in this thesis seeks to examine the idea that technology will impact the design industry due to gaps in information-seeking behaviors and online learning content. Chapter Three describes in detail the research design plan that supports this work using case study research methods and presents additional information on the strengths and weaknesses, researcher biases, etc. This chapter relies heavily on the expertise afforded in Robert Yin's *case study Research and Applications* (2018) and the research plan structure of Barbara Stripling's 2011 dissertation, *Teaching The Voices of History Through Primary Sources and Historical Fiction: A case study of Teacher and Librarian Roles* due to a similar case study application method and educational focus.

CHAPTER THREE: Methodology

3.1 Introduction

Background: Preparing for the methodological framework.

The ultimate goal of this case study was to build a body of research that examined the DIYD who as a group have the potential to influence the design industry and subsequently higher education. By looking at their information-seeking behaviors through the PLE and their use of new technologies as learning tools, and examining their work, the study will show how these new generations of designers may alter the practice of design. They may likely affect how IHE responds to meet new demands of graduates entering the field. By addressing how industries could be impacted by new technological advancements, learning design in the open access on-demand environments would allow both industry and IHE to prepare to evolve accordingly.

This chapter is intended to demonstrate a carefully designed methodological framework to gain an informed understanding of the mindset of the interviewees and their conceptual development and processes, as well as their work. In the first step in selecting the proper methodology, it is important to understand the data that this study will be working with. As mentioned previously there are three key data sets: A, B and C. These sets are a mixture of data; both quantitative secondary data (*Set A*), qualitative primary data (*Set B*) and visual analysis and comparison, primary data (*Set C*). Understanding that the qualitative data (*Set B*) supports the initial findings of the quantitative data and expands these findings, it was decided that an embedded design structure in which mixing the quantitative, primary (*Set A*) with the qualitative primary leading to a more robust interpretation was the most effective foundational trajectory for the best interpretation of this work. The embedded design method is one of the four major mixed

methods designs for this type of research. Aligning the study in this framework suggests a more rigorous approach for the research design. See Figure 8 below. By utilizing a case study research methodology paired with key benchmarks recommended by case study proponents, this level of perspective and detailed insights might never have been achieved using different research methods, similarly to the Zuboff work. Here, the DIYD shared aspects regarding their educational and professional practices and other areas of importance, which brought accuracy and insight to the study. This was important to the investigation to carefully construct the proper level of generalized conclusions, offering the most contemporaneous reflections on potential solutions to the impending discussions surrounding a decline in IHE enrollment. This was important not just for the visual design IHE arena, but other areas of study that face similar enrollment trends.

Figure 8
Embedded Design using qualitative data to enhance quantitative data: primary and secondary data collection enhances the interpretation.



Note: Adapted from a discussion of mixed methods designs. (a. Embedded design could also have quantitative data embedded within a qualitative framework.), “Four Major Mixed Methods Designs,” Creswell and Plano-Clark, V., Huddleston-Casas, C., Churchill, S., Green, N., Garrett, A. (2008). Mixed Methods Approaches in Family Science Research. Journal of Family Issues - J FAM ISS. 29. 10.1177/0192513X08318251. Retrieved January 20, 2023.

3.2 Personal Biases

Due to the researcher's cons work in both IHE and the design industry, it must be stated that personal biases exist regarding this subject matter. Rigorous protocols have been followed to mitigate as much bias as possible. Efforts have included using multiple people to develop research questions and collectively code the data. Several participants requested to review the recordings and asked for copies of the results, which ensured certain factors, including an accurate representation of the interview itself and an accurate analysis of the interpretation. To ensure repeatability, the same analysis process used on the results of the first survey was employed in interpreting the second set of data prior to moving forward with this study. After looking at the same line of inquiry, the analytics of the second study produced a similar mathematical result. This suggested that the initial study results were not an anomaly. The data collected in the first and second data sets showed nearly identical results and thereby added another degree of authentication to mitigate any personal bias. Additional precautions were put in place to minimize biases which will be discussed in more detail under section 3.4 *Validity and Reliability/Trustworthiness*.

This researcher has worked as a design professional for over thirty years and understands the limitations, challenges, nature of the work and client expectations in the various roles within the profession. These roles include production artist, freelancer, illustrator, UX/UI developer, junior/senior art director, creative director and strategist. This insight, in terms of interpretation of the data, will be an added benefit to the nuances of the design processes and industry practices and standards.

As a design educator in IHE for almost 20 years, curriculum development, course objectives, program outcomes, learning outcomes and discussions on unexpected but important topics that spontaneously happen in a typical college classroom are fully understood. Outside of the classroom, the difficulties that come along with being a student: the costs, not only tuition, but also of supporting life as a student, including debt, rent, food, books and supplies are also appreciated. Clearly, the desire to minimize the time and money it takes to be a student as well as the bigger picture of the designer being more than a master of technical skills are considerations relevant to this work. There are clear biases about the role of software in design, as necessary to a degree but not the ultimate goal of design education.

Design research has an ever-changing definition, and, especially in visual design—communications design and graphic design—it varies from one IHE to another. Research can take on different forms, from client work to design competitions, to presentations at professional organizations or research papers (which are typically more reflective or observational). This is changing. Currently there are more design researchers than ever, but again the majority of them are in “design” from other areas, such as industrial design, design engineering and artificial intelligence. Although a Master of Fine Arts is the communications designer’s terminal degree, the writing produced by researchers at this level, more often than not, takes on a more reflective essay or anecdotal format and may lack the theoretical or research methodology that is critical to advancing new knowledge in the field. Many of these conversations through traditional design research are not reaching the professional arenas, at least in this particular level of study.¹¹ It is

¹¹ One of the questions developed in this second round of data collection, was to ask the interviewers (all professional designers) if they used or were aware of design research from IHE and all but one of the thirty said “no.” The one participant who was aware had a Masters in design from a prestigious research-based program (Kelly, Hemsley, Duan, 2020).

relevant to disclose this because as a design researcher, a bias could take the form of a preconceived idea of how the study will result based on outside experiences.

As mentioned above, the biases are clear and thorough efforts have been made throughout this research process with collaborators' awareness to set up measures and strategies that would ensure preconceptions were not affecting the data, findings, analysis and conclusion. Those measures will be further documented in the 3.4 *Validity and Reliability/ Trustworthiness* section.

3.3 Research Design

3.3.1 Yin's case study Approach and Grounded Theory

Moving forward in this methodology chapter, a case study approach (using a grounded theory perspective to analyze the data) was applied to ensure the validity and trust in the findings found in Chapter Four (Yin, 2018). Before this investigator decided to use a mixed methods, qualitative, embedded design approach to understanding implications of self-taught designers, there were still qualities of both a case study versus a survey method (both approaches would use aspects of grounded theory). However, it was imperative to find the method that best fit this topic from a multi-directional approach. Questions were asked about what kind of research method best fit a social science project, what method was best suited for education-focused research and what method also satisfied an applied, profession-impacting study. Whether this research used surveys, interviews, focus groups, experiments, analysis of primary or secondary data, surveys, archival study, mixed methods or a case study, an examination of the weaknesses and strengths were considered. Ultimately a case study method was selected due to the nuanced and detailed conversations this format provides. See Table 3.

Table 3
Comparative chart of different methodology assessments.

METHODS:	A) FORM OF RQ	B) REQUIRES NO CONTROL OVER BEHAVIOR EVENTS	C) CONTEMPORARY EVENTS	D) NUANCED INSIGHTS
experiment	how or why?	yes	yes	no
survey	who, what, where, how many, how much?	no	yes	no
archival analysis	who, what, where, how many, how much?	no	yes/no	no
history	how or why?	no	no	no
case study	how or why?	no	yes	yes

Note: Adapted from Robert Yin and COSMOS Corporation. (a. Relevant Situations for Different Research Methods.), Yin and COSMOS Corporation (2018), Yin, R. (2018). *case study Research and Applications, Design and Methods* (Sixth ed.). Los Angeles: Sage Publications, Inc.

In general, case study approaches work well in social science research for practicing professionals. According to case study expert Robert Yin (2018) case studies can also be used to understand complex social scenarios found in this work, and can be used to interpret small group behaviors (such as Dribbble and the DIYD). Case study methods also work with contemporary events and when a researcher has little to no control over the environments in which the phenomena are occurring (i.e., on-demand, self-paced online learning). Finally, it was decided that one platform in one stratum of designers would be studied to keep the framework manageable and make analysis more accurate instead of trying to source this specific type of

designer that is harder to find in the larger design ecosystem. The design profession is vast and complicated in terms of the layers of types of designers and the varying layered system in which they live and work. This stratum becomes important when developing the case study in terms of participants discussed in detail later in this chapter.

Initially, it was imperative to consider how a grounded theory and case study approach would be best regarding the framework. As mentioned previously, Yin (2018) states that the consideration of multiple research methods is a vital step to selecting the strongest method. With this recommendation, a series of filters or qualifiers needed to be considered before selecting the most effective method.

When considering grounded theory, many aspects made this method appealing, including flexibility, which is ideal for this type of work. It gives the researcher freedom to adapt to what the data is suggesting, make adjustments and explore newly discovered avenues of inquiry, allowing the researcher to follow paths that the data offers (Charmaz, 2014). As this method of data analysis suits grounded theory with the flexibility and reliance on empirical data collected, it seemed appropriate for the level of design experience of the researcher. However, grounded theory uses a heavier reliance on experience, and observation as well as a potential subject-matter bias, more structure seemed necessary. This was an opportunity to create a more exhaustive methodological framework for this study; here there is not a theory developed based on the data, or even the testing of a theory, but a theory is used to help explain the social phenomenon—in this instance, the theory of the PLE. As the goal of scientific research is to discover and build upon theories that can explain natural or social phenomena, in social science research there are more acceptable levels of ambiguity. With this known uncertainty, developing

a more comprehensive research design framework with an applied theory lens, this case study structure strengthens the trust in this work.

The main objective of a case study is to learn as much as possible about a smaller group that represents a larger community so that the information can be generalized to the larger group which exists in a more complex system. This works especially well when structured with a qualitative study to gain more specific insights on a specific topic. Admittedly, case studies tend to be highly subjective, and it is sometimes difficult to generalize results to a larger population, so Yin's (2018) system was followed to produce a more viable, reliable and trustworthy case study. In the first stage, each interview in the multi-case study was conducted with a *how* and *why* structure to tie back to the interview questions and draw insights into the users' experiences of learning online. The second stage of visual analysis of a sample of both types of designers may offer additional insights about the two learning experiences. This addition will thicken the case study data.

3.3.2 *Framework*

Yin's case study development framework (2018) provides the necessary structure to minimize the subjectivity of case study research. First, there is a set of criteria, followed here, that he suggests the investigator consider when selecting research conducted to collect, present and analyze data fairly. One must consider the *how* and *why*, the contemporaneous nature of the study and if there is an ability to control the participants' behaviors to best structure the research steps from the beginning. If there is no ability to control the research environment, then a case study is a better method to use.

Further, there is a series of phases that Yin has developed to offset the criticism that often accompanies case study research: lack of rigor, generalization, external validity and research bias (Idowu, 2016). His processes ensure that the study meets the repeatability requirement found in scientific research. Yin's phases are: plan, design, prepare, collect, analyze and share, all of which were applied in this methods section. See Table 4.

Table 4
Yin's case study Framework

Phases of case study Development:	Action Definition:	Steps Should Be Considered:	Steps Taken:
Plan:	<p>Consider multiple methods:</p> <p>Weigh advantages and disadvantages of each one. Select one that best aligns with research goals. Acknowledge strengths and weaknesses of selected research method.</p>	<p>When to include Grounded Theory</p> <p>or a straight forward</p> <p>case study Research Method</p>	<p>case study Research Method using grounded theory principles</p> <p>(no new theory and no hypothesis testing, used to minimize bias)</p>
Design:	<p>Define the plan:</p> <p>A logical step by step process that aligns with a case study research questions and therefore the data.</p>	<p>Why and How questions</p> <p>Multi or Single case study</p> <p>Generalizing:level one (statistical)or two (analytical)</p> <p>Validity, Reliability</p>	<p>RQ1 and RQ2 do answer how and why.</p> <p>Multiple case study</p> <p>Analytic Generalization</p> <p>Add an additional component matching the interviewees with an analysis of their work - conducted by design experts.</p>
Prepare:	<p>Understanding the steps to hone the data</p>	<p>Approval of Research/Data Collection</p>	<p>All steps completed:</p> <p>IRB Approval</p>

	<p>collection process: what you need to do before data collection.</p>	<p>Protocol Training</p> <p>Pilot Testing</p> <p>Screening of Applicants</p>	<p>CITI Training</p> <p>Collection Protocol with Team</p> <p>4 Pilot Tests</p> <p>Multilayer screening of applicants, expert reviewers and a research assistant to assist in coordination and blinding the samples.</p>
<p>Collect:</p>	<p>Principles of working with data / evidence: understand the strength and weakness of evidence collection.</p>	<p>Evidence from multiple sources</p> <p>Triangulation</p> <p>Data into database: formal and informal collection</p> <p>Assure blinding of the work for design experts to review.</p> <p>Recruit design experts to analyze work.</p>	<p>Multi-sourced evidence: interviews from multiple studies, repeated finding from two different studies, observations</p> <p>Triangulation: two different triangulation occurs 1) in interview process, repeating back of answers and multi-perspective of team members interpretation of data,</p> <p>2) triangulation of screening of applicants</p>
<p>Analyze:</p>	<p>Understand the different procedures of data analysis: looking for patterns, insights and exploring alternative (rival) explanations</p>	<p>Develop analytic strategy</p> <p>Define data priorities: what to analyze and why</p> <p>Demonstrate through analysis a familiarity with prevailing thinking and the topic including rivals</p> <p>Ensure researcher</p>	<p>Strategy: looked for recurring topics from multiple interviewees especially centered around education, their educational path and professional practices topics (done individually by researcher and research assistant for comparison)</p> <p>Interpretation: multi perspective interpretation process: student, educator, practicing designer and research assistant.</p>

		and research assistant alignment on goals and process of assessment	<p>Thematic Organizing/ Coding: Grouping recurring topics thematically to make categories of data with subcategories if necessary in a variety of arrays.</p> <p>Visual Analysis / Coding: Grouping recurring topics thematically to establish groups.</p> <p>After rubric assessment research and develop rubric specific to this research. Have education experts review.</p>
Share:	Understand the complexities of sharing results of the case study: which of the six basic sharing structures best support the case study composition.	<p>Define the various potential audiences (compositions would then vary).</p> <p>Determine ways to make an exemplary study: complete, significant, rival explanations, significant evidence and well executed, visually and verbally.</p>	<p>Potential audiences: dissemination in both popular-design focused publications in addition to academic articles and hybrid professional/ academic conferences</p> <p>Findings: chapter four will be a detailed structured analysis of the coded data.</p>

Note: Adapted from Robert Yin and COSMOS Corporation. (a. Relevant Situations for Different Research Methods.), Yin and COSMOS Corporation (2018), Yin, R. (2018). *case study Research and Applications, Design and Methods* (Sixth ed.). Los Angeles: Sage Publications, Inc.

In the following subsections, a framework for this case study research method is presented in order to provide validity and credibility despite this researcher’s biases on this subject matter. Aspects of grounded theory were applied here for the researcher to maintain data neutrality due

to the mutual nature of the case study-based framework and connection to the educational sector. However, there are several notable differences. As one example, Stripling uses hypotheticals and propositions as support to help drive her research questions and to create empathy (Cronbach, 1975, Merriam, 1988, Yin, 2009), unlike this current study, which avoids hypothetical structure for an assortment of reasons. The concepts learned from this case study may apply from “a variety of situations” (Yin, 2018) beyond any strict definition of the hypothetical population of “like cases” (Yin). This “generalization of findings,” according to Yin, is the key to whether or not to use a hypothesis framework. This is discussed further in the *Research Design* subsection.

3.3.3 *Qualitative Research*

As mentioned previously, design research steeped in a research methods foundation is lacking in terms of qualitative research skills, according to the body of work from Muratovski (2006, 2015, 2016), an industrial designer and expert in design-focused research. His assertions, along with this researcher’s observations represent a problem for the design researcher of the future. The problems arise when a design researcher lacks practice in the implementation of scientific research methods in the field including working with the intricacies of qualitative analysis. The field in which Muratovski’s examinations are framed is predominantly within the industrial design arena; research is even more lacking in the areas of visual design. Thus, it becomes imperative for these areas to embrace these methods.

These processes become more important in understanding the increased complexity of research practice in design and design education, and even more so as design becomes increasingly cross-disciplinary in its problem-solving endeavors (2006). It is the intention of this study that the findings will support future studies that advance applied knowledge to both areas

of design: professional and educational. Qualitative research methodology was used because it best fulfills the research objectives and goals of determining the mindsets of the various users of online learning that cannot be captured quantitatively. It was determined that to be able to gain more specific insight into Dribbble users' processes, decisions and insights, and explore all of the nuances and complexities in their perspectives, qualitative methods would provide more depth and detail. (Griffin 2006). This path ultimately provided enhanced support and added trust and validity to this research. In such an understudied topic, a qualitative method provided for more flexible research techniques important to further remove the possibility of influence by the researcher's biases mentioned earlier (Griffin, 2004), despite qualitative researchers stating that it is virtually impossible to eliminate all biases (Griffin).

Qualitative methods helped researchers see complex ideas from different angles with meaningful insights which "thickens the data" (Creswell, 2009) with respondents trying to make sense of the world as Yin (2018), Merriam (1988), Griffin (2004) and Muratovski (2016) and others suggest. Finally, yet another important rationale for the qualitative methods in combination with the use of case studies is in the findings that happen after the collection and analysis of the data. Yin writes about the two types of findings under the concept of generalization: analytic and statistical (2018), which is imperative when deciding on a design research plan. Generalizations will be discussed in more detail in the subsection, *case studies*, below.

3.3.4 *Plans for a case study Methodology: a Two-stage Approach*

This type of semi-structured interview process (Stage One) was selected as the preferred approach to gain insight about the users over surveys for several reasons: the qualitative nature

of semi-structured interviews allowed discussions to uncover unrecognized topics that might evolve from this structure, offering new, unconsidered insights (Wildemuth, 2009). Also, this researcher trusted in a more interpretivism understanding of the world, believing that this type of data collection fit with the definition; that the interpretive analysis of the conversations would reveal new knowledge supporting the justification of this study. A survey with predetermined options was not the primary focus of data collection because it went against this epistemology for this exploratory study (Augustin, Coleman, 2012) but was used as a way to verify some of the qualitative data of the simpler concepts of this research (see *Analysis* for justification). The primary research was put forward to discover different participants' experiences and paths towards establishing a design career using qualitative methods with surveys to thicken the data, and opening this up to a larger population justified "generalization" concepts.

The visual analysis component (Stage Two) was designed to add levels of detail to the case study. This extra step of "thickening" is supported by social media and humanities experts who agree that small samples that are thickened add the value and relevance often challenged by "small data" that comes along with qualitative case studies (Latzko-Toth, Bonneau and Millette, 2017).

3.4 Data Collection Processes / Management / Assessment

For this study, data sets came from three different compositions. For ease of understanding see Table 5. The first two sets (Set A & B) in *Stage One* of data collection were composed of already existing data sets, used as primary and secondary data. Both sets are semi-structured interview data collected for a pilot study on a similar topic. The first set (*A*) was collected in June 2017 and the second set (*B*) was collected between March and December 2020. The first and

second sets of data (n=58) were collected via advertising and snowball sampling specifically on the Dribbble.com website. This first set of previous data was important to use as secondary data because it demonstrated unbiased data (without a theoretical framework—see *Analysis* for justification and transparency) and represented a reasonable motivation for this research study (the second data *Sets B and C*). The *Set B* questions were developed by a research team of a professional designer, student researcher, and social media expert. *Set B* interview questions were developed by a basic set of overarching research questions and compiled with several theoretical lenses that could be potentially utilized, see *Appendix A* for detailed research questions.. In other words, the research questions informed the interview questions and, in turn, research questions and theories evolved under a grounded theory approach. The second set of data (Stage Two, *Set C*) the visual analysis was collected in the Spring of 2023 along with a rubric utilized by the design expert reviewers.

Table 5
Descriptions of the three different data sets used in this study.

Data set :	DESCRIPTION :	TIMING :
Set A: Stage One	Secondary Data : qualitative data, semi-structured interviews	Collected in June 2017
Set B: Stage One	Primary Data : qualitative data, semi-structured interviews	Collected between March-December 2020
Set C: Stage Two	Visual Analysis : design experts review select interviewees' online work from Set B using a rubric	Collected between March-May, 2023

Note: Original source: (R) Rebecca D Kelly’s adapted in part from data from the studies, Nahon, K., & Hemsley, J. (2013). *Going Viral*. Polity and Hemsley, J., & Kelly, R. D. (2019). “Scratching a Niche: How

Generally, for this study, secondary and primary data (Agustin & Coleman, 2012) was gathered through existing interviews collected for a similar topic (*Set A & B*). It was important for this thesis to look at these sites in particular with practitioners or the population representing different types of design positions (art directors, creative directors, creative strategists, production artists, designers, junior art directors, UX/UI designers, illustrators, agency-based, freelancers, etc.). These sites were chosen because each had the potential to be utilized by practitioners in different types of design positions or strata. The sample of designers consisted of users of social media sites for a variety of reasons—to promote their work, to receive feedback, to gain employment, to gain followers, to illustrate their processes, etc.

Two types of sample populations were used for this study for both the original and new data sets. Although there was some overlap, two distinct groups were sought out: EEU (early entry users) designers relatively new to the industry (2-7 years), gig or freelancers found on Dribbble (*Set A & B*) and more seasoned high-level designers (HLD) with 8+ years in the industry who use platforms other than Dribbble (more likely those who work for agencies in a full-time capacity) (*Set B*). In more detail, the first group (*Set A*) was composed of active Dribbble users and formed an existing dataset collected by conducting roughly sixty semi-structured interviews. The second cohort of participants (*Set B*) was also semi-structured. Both data sets employed semi-structured interviews as a method to best gain a body of diverse perspectives and to add thickening or depth to the data via self-reflective narratives during the interviews (Creswell, 2009, Latzko-Toth, et al., 2017).

Collection Detail : Stage One and Two

The participants in the group (*Set B*) were recruited between March and December 2020 initially by cold-call emails sent to designers who made the “Popular” and “New and Noteworthy” page, selected by the website’s algorithms, on the Dribbble.com landing page. In other words, they were not purposely chosen by the researchers’ subjective decisions in order to ensure a diverse sample population. For their voluntary participation, they were offered a \$20 Amazon e-gift card if they completed an hour-long recorded Zoom interview that was later transcribed. Due to a low response rate (14 in total) from the initial 120 emails, additional participants were gathered by snowballing samples or recommendations that made up the remaining 16 who were interviewed, totaling 30 interviewees in the first stage.

In more detail, the data collection was used in the following forms:

- Interviews/audio recordings: Audio files, MB file sizes, Mac OS, Voice memos
- Interviews/transcriptions: Text files, MB file sizes, Mac OS, Microsoft Word, Google Docs
- Online Surveys: Tabular data files, KB sizes, Qualtrics OS, Syracuse University
- Data Analysis: Text files, MB file sizes, Mac OS, Microsoft Excel, Google Sheets, Tableau
- Charts and graphs: Image files, MB file sizes, Mac OS, MS Excel, Tableau, Adobe Illustrator
- Written Summaries: Text files, MB file sizes, Mac OS, Google Docs
- Any additional datasets will be open sourced, tabular data files that are publicly available.

All questions were Institutional Review Board (IRB) approved by Syracuse University and the information sought were of such a nature as to ensure little to no harm to the human study

participants. All participants were informed of the subject matter and were required to sign consent forms prior to participation. For the second stage (*Set C*) visual analysis component, through both written and in-person conversations, the Director of Office of Research Integrity and Protections (ORIP) at Syracuse University concluded the following regarding an additional method for data collection: “The proposed change described below does not meet the definition of human subjects research. The information is about the design, not ‘about individuals.’ In addition, the information you will collect from the professional designers is considered ‘expert opinion’ and does not require IRB review/oversight.”

The metadata was documented and described through written summaries in combination with coordinated charts and graphs with clearly marked and matching labels, organized by subject matter, stored on the university’s Google Drive, and only accessible to the primary investigator.

The data and metadata were organized in such a way as to make the data understandable to others using standard recordings (written and recorded), documentation either by Microsoft Word or Google Docs. Charts and graphs were stored as the original Adobe Illustrator format, PDF and PNG files. Each dataset/metadata file was organized in its own folder complete with an “about” text document containing context and explanation along with the actual data. Additionally, the original datasets and the metadata files and any charts and graphs were stored in the same file as the “about” text file. Finally, there were additional summaries of the data in the methods and findings sections for further detail and insight to accompany the native datasets/metadata files.

All data was stored on Syracuse University’s private and password protected Google Drive for future use. A backup copy was stored on a portable USB password protected device and

stored in files in a locked office on Syracuse University property. At the end of each week that the project was conducted, a backup copy was saved onto a password protected laptop in a private location. This method was used to store earlier records so that each version was kept intact. The primary investigator was responsible for these secure storage methods.

Considering the thesis topic selected, the data did not consist of such high-level, overly sensitive material that it must be secured to extreme measures. However, all efforts to protect the privacy of all participants was made a priority including any regulations determined by the Syracuse University IRB committee. This primary investigator has passed IRB CITI human subject training and all public facing research related questions had IRB approval prior to conducting any surveys (both online and in person). Permissions were obtained from the subjects regarding the sharing and reporting of the findings and all Personal Identifiable Information (PII) was obscured to ensure total anonymity through a multi-step process.

For the Stage Two data collection, *Set C*, the goal was to delineate the two groups by qualifications such as experience in design, time working in design, agency status, and most importantly, by education level (formally or informally). Frequencies of these categories were meant to reveal trends and patterns making the common qualifications the dominant way to group the participants. Using this type of organization, the researcher and research assistant separately evaluated the *Set B* interviews in order to categorize interviewees into approximately six distinct groups, for example, “formally trained” and “informally trained” or DIYD. The research assistant then blinded all interviewee information to organize images of their work that were pulled from their public social media sites, including six groups, twelve portfolios in total. These images were analyzed by two design experts from various fields in the industry, one male,

one female of different age groups and time spent in the industry. The analysis followed a rubric that was designed for this study. See Table 6 and *3.4.1 Design the Rubric* below for more detail.

3.4.1 Designing the Rubric for Expert Assessment : Stage Two : Background

Portfolios can differ significantly in content and type of project, so the challenge for assessors was in judging the quality without subjectivity. The criteria for portfolio assessment are not in black and white so a rubric was developed to ensure that both experts were using the same criteria deemed important to this study. Further, this rubric was used to evaluate our interviewees online portfolio based on a predetermined set of guidelines. Rubrics listed the grading criteria for the portfolios and eliminated the possibility of bias in the evaluation. Here the single-point rubric was determined to be the best choice for this type of review. The guidelines for evaluation were based on the principles and elements of design, understanding that this review was limited to the more “formal” aspects of design and less on the vital components of process, ideation, feedback, and the concept of design. If the interviewees have written descriptions of the aforementioned, then experts were asked to comment on the written parts, leading to assessment criteria beyond aesthetics alone. See below for the rubric.

The rubric was designed to best evaluate the principles and elements of design used in the work and if any context or concept descriptions of the work was evaluated if provided.

3.4.2 Structuring the Rubric.

With this new data collection plan that was developed to deepen or thicken this case study research, determining if there was a visual difference between the two designers was key. In a blind visual analysis between the two types of designers, developing the rubric in which the

“experts” evaluated the online images became vital. There were two significant objectives to accomplish when building the rubric, 1) to determine the different types of rubrics and 2) to understand the limitations to each type of evaluation.

To develop a strong evaluation assessment, the best type for this study had to be determined. The goal was to obtain a fair evaluation, one that would equalize the scores to be fair to all types of designers - formally-trained or DIYD. There are three general types of rubrics used to assess design work: a holistic evaluation, an analytic rubric and a single-point rubric. Each of these has its own objectives, benefits and drawbacks based on the end user and purpose of the evaluation. The objective here was for experts to be able to look at a series of images and evaluate whether the designer met a minimum level of proficiency with regard to several key markers important when creating design. A holistic evaluation was not appropriate as that is used to guide improved performance, which is not the purpose of this study. Analytic rubrics are also not appropriate as they are best suited to analyze the success level of specific assignments into parts or stages of understanding. Single-point rubrics are used when describing reasonable criteria for demonstrating proficiency, and one is either deemed deficient in that skill or successful.

Next, it was important to understand the limitations to these types of evaluations. After reviewing not only the types of rubrics typically used for design evaluations, but the next step was to review rubrics from several other universities’ design programs. Additional steps were taken to analyze the assessment forms of graphic designs’ national professional organization (AIGA). There are notable trends surrounding how these forms are structured. See Figure 9, full sized examples are found in the *Appendix B*. In general terms, the rubrics break down not only the project (or design itself) into formal evaluations (aesthetics) but also the conceptual

(creativity) and often procedural aspects of creating the work, but nearly all aspects tend to be more subjective in nature. The formal attributes are items such as the principles and elements of design, use of color theory, use of appropriate typography, composition and communication, software proficiency, etc.

The more conceptual/creative categories vary in range but are considered to cover attributes such as knowledge and understanding, evidence of conceptual thinking, understanding the problem and using problem-solving skills, or developing unique and exciting solutions. Procedural categories tend to evaluate effort, proper use of materials, growth or advancement of the work, iterative thinking, sketching, response to failure and the development of the designer. The last two are vital to the development of a well-rounded designer and may or may not be evident in the images found in the interviewees' online presence.

3.4.2.1 Standard Rubric Samples Used in Graphic Design Assessments.

Figure 9
Sample graphic design rubrics:

COMMUNICATIONS DESIGN ASSESSMENT FORM JUNIOR											Area: <i>Graphic Design</i>	SPRING 2021																																																																																																																	
<p>This assessment form is an indication of your present level of accomplishment in areas vital to your success in the Communications Design Program. A rating in any category below 5.0 indicates an area requiring special attention if you want to succeed in the program. A cumulative rating below 4.0 indicates that, for whatever reason, you are not demonstrating the competencies and proficiencies needed to succeed in the program.</p> <p>This assessment reflects the consensus of the entire faculty. It should become the agenda for your work during the rest of the semester or over the break. If you would like to discuss it further, contact any faculty member during their regularly scheduled office hours.</p> <p>Roderick Martinez Rebecca Kelly Rachel Aubrey Margaret Dietz Meri Page Marc Stress</p>																																																																																																																													
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**** Please note that each part of criteria indicates overall accomplishment of each discipline observed by the instructor during each class. Students will be graded as an average letter by each assignment and the final grade will be delivered within 2 weeks from the final critique. Also you may consult with the instructor for the improvement.**

Evaluation Rubric

Criteria	Excellent (A - A)	Above average (B - B+)	Average (C - C+)	Below Average (D - D+)	Unsatisfactory (F)	
Process	<p><i>Following instructions & Evidence of design process (Homework, class activity, final due)</i></p> <p>Followed an excellent process from given guidelines/instructions without missing any due dates/activities.</p>	<p><i>Visual & written research</i></p> <p>Followed a decent process from given guidelines/instructions without missing any due dates/activities.</p> <p>Followed the minimum requirement but missed due dates/activities.</p>	<p><i>Idea sketches</i></p> <p>Followed the minimum requirement but missed due dates/activities.</p> <p>Followed the minimum requirement, but a lack of materials.</p>	<p><i>Professionalism</i></p> <p>Followed the minimum requirement, but a lack of materials.</p> <p>Followed the minimum requirement, but a lack of materials.</p>	<p><i>Critical thinking Process</i></p> <p>Followed the minimum requirement, but a lack of materials.</p> <p>Followed the minimum requirement, but a lack of materials.</p>	<p><i>Visual Creativity (Problem Solving)</i></p> <p>Failed the minimum requirement. "F" grade is based on overall assessment within evidence of academic learning disciplines. Any failure from each criteria may affect the overall grade per each assignment and final grade.</p>
Visual Creativity (Problem Solving)	<p><i>Visual concept Development (Proficient visual literacy)</i></p> <p>Presented the design process and management with excellent preparation professionally.</p> <p>Presented the design process and management with a good manner.</p> <p>Presented the design process with necessary information, but a lack of professionalism.</p> <p>Presented the design process with necessary information, but a lack of professionalism.</p>	<p><i>Aesthetic & Function (Clarity & Uniqueness)</i></p> <p>Presented the design process with necessary information, but a lack of professionalism.</p> <p>Presented the design process with necessary information, but a lack of professionalism.</p>	<p><i>Craftsmanship (Visual density)</i></p> <p>Presented the design process with necessary information, but a lack of professionalism.</p> <p>Presented the design process with necessary information, but a lack of professionalism.</p>	<p><i>PowerPoint (Document Report)</i></p> <p>Presented the design process with necessary information, but a lack of professionalism.</p> <p>Presented the design process with necessary information, but a lack of professionalism.</p>	<p><i>Critique Participation</i></p> <p>Presented the design process with necessary information, but a lack of professionalism.</p> <p>Presented the design process with necessary information, but a lack of professionalism.</p>	<p><i>Submission Requirements</i></p> <p>Presented the design process with necessary information, but a lack of professionalism.</p> <p>Presented the design process with necessary information, but a lack of professionalism.</p>
Finals	<p><i>PowerPoint (Document Report)</i></p> <p>The final document is well organized with excellent materials and quality of presentation.</p>	<p><i>Critique Participation</i></p> <p>The final document is well organized with good materials and quality of presentation.</p>	<p><i>Submission Requirements</i></p> <p>The final document is well organized with the minimum requirement.</p>	<p><i>PowerPoint (Document Report)</i></p> <p>The final document is well organized with the minimum requirement, but a lack of quality and quantity.</p>	<p><i>Critique Participation</i></p> <p>The final document is well organized with the minimum requirement, but a lack of quality and quantity.</p>	<p><i>Submission Requirements</i></p> <p>The final document is well organized with the minimum requirement, but a lack of quality and quantity.</p>

Name: _____

Assessor Use Only | Templates Intact? __
Total Score: __/40

GRAPHIC DESIGN RUBRIC

40 pts.

Be sure to follow the rubric thoroughly.

You will have the first 5 minutes to review it and then the rest of the hour to design the assessed piece.
You may choose between using Adobe Illustrator, Adobe Photoshop, or GIMP for this assessment.

If you delete any of the templates it's an automatic 10 points off.

	Effective- 5 pts	Adequate- 4 pts	Approaching- 3pts	Below Standard- 2pt
<p>Design and Composition</p> <p>Worth 10 points (raw score x2)</p> <p>The principles of design are balance, emphasis, movement, pattern, repetition, proportion, rhythm, and unity.</p>	<p>The design demonstrates an exceptional understanding of the principles of design, is aesthetically pleasing, and contains objects placed in a creative and/or fun way.</p>	<p>The design demonstrates an adequate understanding of the principles of design and/or the attempted use of them didn't add that much to your work. The design is mildly aesthetically pleasing.</p>	<p>The design demonstrates a basic working understanding of the principles of design and/or the attempted use of them subtracted from the work. The design choices made took away from the aesthetics of the piece.</p>	<p>The design does not demonstrate an understanding of the principles of design and/or the design choices severely lacked a sense of aesthetics.</p>
<p>Mechanics</p> <p>Spelling and Grammar</p>	<p>The design is free of spelling or grammatical errors. Clear attention to detail is present.</p>	<p>The design contains a few spelling or grammatical errors but those errors don't necessarily distract from the design. Adequate attention to detail is present.</p>	<p>The design contains a few spelling or grammatical errors and those errors distract from the design. Weak attention to detail is present.</p>	<p>The design contains many spelling or grammatical errors and those errors severely distract from the design. There is a severe lack of attention to detail.</p>
<p>Graphic Relevance</p> <p>Worth 10 points (raw score x2)</p> <p>The elements of design are line, shape, form, color, texture, space, and value.</p>	<p>The graphics effectively grab the attention of the audience, are effectively composed using the elements of design, and fit with the rest of the piece. All graphics submitted are created by you and you created at least 1 new graphic that wasn't already provided.</p>	<p>The graphics adequately grab the attention of the audience, are adequately composed using the elements of design, and/or mostly fit with the rest of the piece. All graphics submitted are created by you and you created at least 1 new graphic that wasn't already provided.</p>	<p>The graphics distract from the design, are weakly composed using the elements of design, and/or loosely fit with the rest of the piece. All graphics submitted are created by you and you created at least 1 new graphic that wasn't already provided.</p>	<p>The graphics severely distract from the design, are not composed using the elements of design, and/or do not fit with the rest of the piece.</p> <p>OR</p> <p>There are no new graphics or the graphics are not created by you.</p>
<p>Color choices</p> <p>Color principles include color wheel theory, complementary, analogous, fus, etc.</p>	<p>The design clearly and effectively demonstrates an exceptional understanding of color principles, a clear color scheme is present, and all of the colors add to the design.</p>	<p>The design adequately demonstrates an understanding of color principles, a color scheme is present, and/or most of the colors add to the design.</p>	<p>The design demonstrates a basic working understanding of color principles, it is difficult to distinguish a unified color scheme, and/or the colors distract from the design.</p>	<p>The design does not demonstrate an understanding of color principles, a color scheme is not present, and/or the colors severely distract from the design.</p>
<p>Layers</p> <p>On Adobe Photoshop, Adobe Illustrator, or GIMP</p>	<p>All of the layers are labeled and clearly and concisely express what is on the layer.</p>	<p>Most of the layers are labeled and/or the labels adequately express what is on the layer.</p>	<p>Many of the layers are not labeled and/or the labels make it hard to distinguish what is on each layer.</p>	<p>None of the layers are labeled, the labels do not relate what is on each layer, and/or the design does not contain separate layers for different elements.</p>
<p>Use of Illustrator, Photoshop, or GIMP and Final Submission</p> <p>Submission Formats -Adobe Photoshop: PSD -Adobe Illustrator: PDF -GIMP: XCF</p>	<p>The design demonstrates an effective use of at least two different tools and/or panels in the program. All of the typography effectively relates to the graphics of the piece. The design is submitted in the appropriate format and effectively completes the prompt.</p>	<p>The design demonstrates an adequate use of at least two different tools and panels in the program and/or all of the typography adequately relates to the graphics of the piece. The design is submitted in the appropriate format and adequately completes the prompt.</p>	<p>The design does not demonstrate an adequate use of at least two different tools and panels in the program and/or not all of the typography relates to the graphics of the piece. The design is submitted in the appropriate format and attempts to complete the prompt.</p>	<p>The designer only used one tool to compose the piece, none of the typography relates to the graphics of the piece, and/or the design is not submitted in the appropriate format and does not complete the prompt.</p>



professional development

AIGA Portfolio Assessment Evaluation Criteria Pilot Year 2023

Evaluation Criteria	AIGA PD	AIGA DL
Ability to define problem/purpose/goals	2 points	4 points
Clearly presented problem/purpose/goals	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Demonstrated critical thinking skills	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Demonstrated leadership skills		<input checked="" type="checkbox"/>
Demonstrated strategic thinking skills		<input checked="" type="checkbox"/>
Ability to justify Creative Choices	4 points	6 points
Explained main creative choices made	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Articulated choices with user/customer/ business needs		
Explained how tested/ validated choices made		
Demonstrated creative problem solving skills		
Demonstrated leadership skills		
Demonstrated risk taking in the design choices		
Ability to explain Design Process	3 points	
Explained process used (standardized; adaptation)		
Demonstrated curiosity		
Designed for accessibility		
Demonstrated leadership skills		

Showed initiative/risk taking		<input checked="" type="checkbox"/>
Ability to explain Research Insights	3 points	6 points
Shared insight gained while conducting research	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Explained methods used in the research	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Explained application of insight	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Demonstrated leadership skills		<input checked="" type="checkbox"/>
Demonstrated strategic thinking skills		<input checked="" type="checkbox"/>
Showed ability to assess and analyze information		<input checked="" type="checkbox"/>
Ability to communicate the value of Design	N/A	3 points
Articulated value brought to client or employer		<input checked="" type="checkbox"/>
Articulated impact brought to society more broadly		<input checked="" type="checkbox"/>
Demonstrated strategic thinking around outcomes		<input checked="" type="checkbox"/>
Ability to advocate for the team	1 point	2 points
Explained individual role and team roles	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Demonstrated collaboration skills		<input checked="" type="checkbox"/>
Ability to advocate for the discipline		2 points
Raised the profile of Design within organization/ client		<input checked="" type="checkbox"/>
Highlighted the value of the Design profession		<input checked="" type="checkbox"/>
Demonstrated professionalism ¹	- 4 points	- 4 points
Demonstrated professionalism with quality of design work	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Showed effective communication (oral/written) skills	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
MAX POINTS	13 points	28 points
PASSING POINTS	9 points	20 points

¹ Potential deduction of points if not fulfill criteria

Note: The designated rubric is a compilation of several authoritative assessment sources. Rebecca Davis Kelly using the Communications Design, School of Design, VPA, Syracuse University, Assessment Evaluation forms. <https://www.cabcallowayschool.org/wp-content/uploads/2018/07/GRAPHIC-DESIGN -RUBRIC-2019.pdf>
<https://edex.adobe.com/teaching-resources/visual-design-evaluation-rubric>
https://www.unlv.edu/sites/default/files/page_files/27/Provost-GDAssignment-SampleRubrics.pdf
<https://www.scribd.com/doc/32293225/Graphic-Design-Rubric>

http://www.cca.usu.edu
 https://www.aiga.org/sites/default/files/2022-11/AIGA%20Portfolio%20Assessment.pdf
 See Appendix B for full assessment rubric.

3.4.3 Working Rubric :

Based on the above research and analysis of common rubric types, below is the rubric that was used by the experts to assess the participants' visuals. This single-point rubric was selected to show the minimum proficiency level of basic graphic design competency. See Table 6. As a reminder, effort, progress and growth assessment categories have been eliminated from this rubric. To see the rubric in more detail, see *Appendix C*.

Table 6
Rubric designed for design expert evaluations.

TECH	CATEGORIES	CRITERIA	BELOW MINIMUM PROFICIENCY	MEETS MINIMUM PROFICIENCY	EXCEEDS MINIMUM PROFICIENCY
SKILLS	FORMAL: HOW IT LOOKS	Ability to use basic design Principles / Elements to visually communicate a message and give meaningful visual form to content.			
		Principles of Design: Symmetrical/asymmetrical or radial balance, movement and rhythm, pattern, harmony, emphasis (size, point), variety, unity, contrast and proportion (scale).			
		Elements of Design: Line, shape, form, color, value, texture, space.			
		Typographic Indication (proper selection and intention (legible)).			
		Color: is color theory evident.			
		Composition/Layout: All the separate elements come together to form a holistic and unified image. Type, color, image and design work together. Unity and continuity (clear hierarchy and path flow).			
	FORMAL:	Distinctly clear ability to form a			

EXPERT NAME:	DATE:	PARTICIPANT:	#:
INSTRUCTIONS: First, thank you everyone for your participation in this research. Your expert opinions on these basic evaluations are very important. Although this evaluation lacks context and is different from how you all operate daily in your professional work, the insights we will get from your assessment is important.			
The directions are straightforward. Please evaluate all work (one participant one piece per rubric provided here). There are six groups with roughly two-to-four pieces per group, so there would be a minimum of 12 sheets. "Please save as" with your initials and the participant letter and number (example RDKelly_A_3) Please put ONE X in one of the three categories, below, meets or exceeds, minimum proficiency. The minimum proficiency definitions are provided in the CRITERIA column and are based on the fundamental knowledge of graphic design skills. The three main categories are SKILLS (formal - how it looks, what it says, etc) DESIGN (more conceptual evaluation). All work is from professional designers so critical analysis and nuanced assessment would be appreciated. This goal is an overall proficiency assessment and not a numerical or detailed evaluation for improvement purposes.			
It is already understood that this is more of a formal evaluation with less conceptual context (if designers talked about their process or concept it will be provided), but do your best to judge all categories. If you have additional comments that support your findings please feel free to elaborate - your nuanced insight as professionals would be beneficial to the study.			
What IT SAYS	coherent written/verbal message		
	Typographic voice: varied type voices, specific to appropriate audiences (readability)		
FORMAL: LAYOUT FUNCTIONS	The design/user flow is realistic, obvious and thoughtful.		
DESIGN PROCESSES: Critical Design Thinking	Ability to analyze or critically assess and research a problem, use design thinking and clearly demonstrate problem-solving skills. Evident or not evident.		
Problem Solving	Ability to look at a problem from multiple perspectives, experiment, take risks and develop innovative visual solutions.		
Communication	Typographic application: Ability to communicate visually and verbally in the work.		
	Typographic application: Ability to communicate visually and verbally in the work.		
	Color: A viable color concept.		
Concept	Concept is evident		
Creative Skills	A holistically attractive, effective and memorable design: form, type, color, image, concept, layout etc.		
Clarity of Concepts	Clear ideas, lacking ambiguity.		
Original	The work is new, unusual and original. Innovative.		
PROCESS: LAYOUT	In their online presence, is there any written articulation about concept, user research, user flow or usability studies that inform decision making when creating the design.		
OVERALL ASSESSMENT	MEETS MINIMUM PROFICIENCY	EXCEEDS MINIMUM PROFICIENCY	BELOW MINIMUM PROFICIENCY

See below for the comments section.

Note: Source: Rebecca D Kelly's expert rubric. Due to the image-driven nature of online portfolio sites, a primary emphasis was placed on the visually-based principles and elements of design. These are the more

aesthetics-based evaluations potentially best suited for an online only evaluation (i.e. minimal conceptual development and/or process represented online.)

3.4.4 Defining Minimum Standard Qualifications

In a similar delineation of “Below, Meets and Exceeds” in most job assessment qualifications, the definitions of the above standards were shared with and agreed upon by the experts. Those same minimum standard attributes applied to this study, except that the tasks to be evaluated were design focused as seen in the rubric. On the rubric are some of the effective design skills as defined by NASAD and a typical graphic design program at the university level that most designers should demonstrate; knowledge of history of design, demonstration of color theory, principles and elements of design, concepts of typography and color theory, gestalt theory, creativity, conceptual development, clarity (readability and usability) and communications. These are demonstrated through design, clear communication—visually and verbally, and effective presentation skills. These are traditional basic requirements of graphic design foundations in many programs, and typical IHE design programs utilize the “introduce, repeat and master methods” through repetition and an advancing level of skills. These specific skills are considered by many design educators as the “Perceived 21st Century Graphic Design Skills, Content Knowledge and Tools” (Bridges, 2013).

The basic skills above were subjected to a ranking of “Below, Meets or Exceeds,” similar to that used in a standard job annual performance evaluation. Typically, these are different levels of assessment that indicate the success of a performance in relation to standard expectations. “Below,” in the context of this study, was determined to reflect an inconsistency in the work, possibly meeting established standards in terms of quality but failing to achieve a professional level of work with one or more of the most critical design standards not being met. “Meets,” as

determined here, confirms that minimum expectations have been met without any significant deficiencies or issues, i.e. working at a “baseline” level. The work is of a professional standard with one or more of the most critical design qualifications being met but not exceedingly so. “Exceeds” expectations often refers to going beyond minimal requirements, with consistently outstanding results. The work demonstrates exceptional skills and accomplishments in both concept and form and reaching a professional level most of the time, with the most critical design standards being met. These levels of employee models were adopted from Fekete and Rozenberg’s performance model, 2014.

3.5 Action Steps for Stage Two : Visual Comparisons and Analysis

As mentioned previously, Stage Two is the visual analysis part of this research designed to compare the online design output (the work) of both the trained designers (either formally (IHE) or informally (DIYD)). In order to accomplish this stage of the research, there are several steps that need to occur. Described and illustrated here are the concrete steps to achieve this new method of data collection (Stage Two) of the research design beyond the initial interviews (Stage One). The steps here are both simple and more complex in achievement. The more complex steps are listed in chart form for ease of implementation.

3.5.1 Yin’s “Prepare” case study Framework stage:

There are two components to the “Prepare-Case-Study” framework from Yin’s work that was added to thicken the data: IRB protection and permissions. For Stage Two data collection (visual analysis), it was necessary to confirm with the IRB office of research whether or not a visual analysis of publicly displayed work was considered human research and therefore needed

an amendment to the original IRB proposal, which it did not. The second step in preparing Stage Two involved obtaining permissions by gaining approval from the grant funders (researcher was awarded a Syracuse University, Visual and Performing Arts, Creative grant) to shift the funding for interview incentives in order to support the work of a research assistant (RA) to help blind the interviewee transcripts and gather and organize images in preparation for design experts to review their work without revealing personal information that may bias the analysis.

3.5.2 Compensation:

The experts were compensated in the form of an “honorarium” as a one-time payment of \$500 each to evaluate twelve individuals’ portfolio images.

The reviewers looked at design work and writings pulled from their Dribbble accounts, personal websites or other social media sites. Any assistance from the RA was compensated at \$15 per hour as designated appropriate by the university for an undergraduate assistant level.

3.5.3 Yin’s “Collection” case study Framework Phase:

Again, with the new Stage Two data collection steps there were additional structural framework components that were added to ensure the credibility of this research. Part of the case study collection section was to understand the principles of working with data, the strengths and weaknesses of evidence collection. In this section data was needed from multiple sources; Stage One included the primary and secondary data from interviews (*Set A & B*), and adding visual analysis of the work from experts (*Set C*) provided a different layer or perspective to the study. With the second stage came additional triangulation steps: blinding of the work by an RA

and collecting and organizing this blinded work for experts to assess using a rubric that helped protect the study from possible biases of both researcher and experts.

3.5.4 Yin's "Analysis" case study Framework Phase:

Specifically for the Stage Two visual analysis portion to further deepen the case study, the researcher and the RA took exhaustive steps to ensure validity to compensate for personal biases mentioned previously.

Before beginning Stage Two, the researcher (and RA) initially reviewed the first set of interviewees' transcripts to gain a high-level understanding of the participants for the second methods collection stage—visual analysis. As a reminder, after the initial review, coding began by looking for themes in order to create separate groups for the experts to review their work, the most logical being two categories: the DIYD designer and the IHE degreed designer. Further categories to create sub-groups were time in the industry, specific type of designer, and the type of agency they worked in either full time or freelance, etc. This was the most well-defined category in which to create a direct comparison for the visual analysis. In more specific detail than is illustrated in *Table 4 - Yin's Case Study Framework*, the specific action steps that the researcher and research assistant took for the data analysis, as presented in table form and in more detail in the bulleted list. See Table 7.

Table 7
Action Steps for Data Analysis, Stage One and Two.

Stage One: INTERVIEWS	STEP ONE:	STEP TWO:	STEP THREE:	STEP FOUR:	STEP FIVE:	TWO ROUNDS:
RESEARCHER & RESEARCH ASSISTANT INDIVIDUALLY (at FIRST)	Combining inductive & deductive approaches DETERMINE KEY CATEGORIES TO SEARCH FOR READ THROUGH DATA (OLD/NEW CATS)	APPLY CODES TO EXCERPTS	CONDUCT VARIOUS ROUNDS OF CODING USING MULTIPLE CODING METHODS: descriptive, in vivo & process coding	GROUP CODES ACCORDING TO THEMES compare notes	MAKE INTERPRETATIONS THAT LEAD TO ULTIMATE RESEARCH FINDINGS	<i>INITIAL ROUND:</i> TO SUMMARIZE or DESCRIBE EXCERPTS <i>SECOND ROUND:</i> ADDS OWN INTERPRETIVE LENS
Stage Two : VISUAL ANALYSIS	STEP ONE:	STEP TWO:	STEP THREE:	STEP FOUR:	STEP FIVE:	TWO ROUNDS:
RESEARCHER & RESEARCH ASSISTANT INDIVIDUALLY (at FIRST)	deductive approach DETERMINE KEY CATEGORIES TO GROUP DESIGNERS' WORK (i.e. DIYD/IHE, type of designer, etc.)	COMPARE GROUP IDEAS	RA TO PULL IMAGES INTO BLINDED AND ORGANIZED GDRIVE FILES FOR EXPERT REVIEWERS	EXPERT REVIEWERS CONDUCT VISUAL ANALYSIS USING RUBRIC	ANALYZE RUBRICS *compare notes	<i>*INITIAL ROUND:</i> TO SUMMARIZE or DESCRIBE FINDINGS <i>*SECOND ROUND:</i> TO SUMMARIZE or DESCRIBE FINDINGS

Note: Adapted from Robert Yin and COSMOS Corporation. (a. Relevant Situations for Different Research Methods.), Yin and COSMOS Corporation (2018), Yin, R. (2018). *case study Research and Applications, Design and Methods* (Sixth ed.). Los Angeles: Sage Publications, Inc., and Nicole M. Deterding, Mary C. Waters, (2021). Flexible Coding of In-depth Interviews: A Twenty-first-century Approach. *Sociological Methods & Research*. 2021, Vol. 50(2) 708-739, DOI: 10.1177/0049124118799377 and *The Essential Guide to Coding Qualitative Data* (n.d.). The Delve : Guide to Qualitative Coding. <https://delvetool.com/guide>

- Researcher and RA individually reviewed the initial 30 interviews in the primary source data set (*Set B*). In a similar fashion to the coding process for Stage One, both

searched for different groupings options by job title, type of education (DIYD, BFA), type of work, age, country, process, etc. until the most viable groupings became evident. There were two types of analysis; 1) general analysis and 2) topic specific images for a direct comparison analysis.

- Compared R findings with the RA findings for similar groupings of individuals. Collectively decided on both types of groupings 1) general and 2) topic specific.
- Pulled the most significant interviews by groups that represented at least two comparative groups.
- Gathered 12 (more initially in case selected interviewees did not have an online portfolio) of at least two groups, for example: degreed, self-taught, or illustrators, UX/UI, etc. Decided on final 12.
- RA scraped interviewees' social media and personal websites then collected and pulled a series of images and any additional context such as descriptive writings about the work represented on their pages. It was the goal to develop a mixture of visual analysis from design images of their work as well as written context. The RA then narrowed down the best images to send to the reviewers.
- Images and verbal content were downloaded and organized in individual folders with no PPI information available to the experts. Blinding and project coordination was handled by the RA.
- The documents were shared with the experts along with a rubric of evaluation for them to use in their assessment, along with a written response component.
- Experts then evaluated through a single-point rubric, which described the criteria for proficiency in categories determined to be vital to the assessment of the design. They were provided definitions and examples of these criteria are composition, use of the principles and elements of design, color theory, clarity, etc..
- These evaluations were analyzed and coded in the same process described above including multiple individual and group coding iterations. Information from their social media profiles was collected by the RA in order to further deepen the case study. For example, was there a noticeable number of posts, shots, followers, activities, job titles, experience, between the groups? Other information found in their social media

presence and activities - type of work, level of work, areas of specialties, skill sets, types of clients, learning activities, etc. were examined to develop a comprehensive profile of the designer along with their initial interviews of individual cases for a multi case study.

- Ultimately half of the study was from the DIYD and the other half was from the group that went the IHE route to search for tendencies and new categories in order to compare their profiles
- These findings were organized and collected in an online system detailing their information for future studies.

3.6 Expanded Research Design that includes an Analytic Framework

As it is traditionally found in *Chapter Three : Methodology*, these next few sections provide detail for this complex research design used in this study. This researcher also felt that an expanded Research Design section was necessary in the form of a “general analytic strategy” as recommended by Yin (2018) to add credibility to the often misunderstood case study due to its perceived lack of rigor, repeatability, relatively new history in academic study and lack of a scientific method structure (2018).

Generally, according to Yin, there are four typical general strategies that the researcher can utilize for analysis in case study research. The suggestion is that as one is developing a unique system of analysis using notes, arrays, memos or graphs, a system of cycling back and forth through these techniques leads the research to one of the four general strategies and often becomes a hybrid of one or more of these strategies. In this case study research there are elements of all general analytic strategies. See Table 8.

Table 8
Four General Analytical Strategies Use in this Study.

FOUR GENERAL ANALYTICAL STRATEGIES:	DESCRIPTION:	HOW STRATEGY COULD BE UTILIZED IN THIS ANALYTICAL DESIGN:	USED:
Relying on theoretical propositions and not a hypothesis.	Is a declarative statement that does not have to be true. The statement led to the study and is apparent in the research questions and literature review.	An increase of users of MOOCs learning design in alternative pathways other than IHE, will decrease enrollment and change the industry. Further related to this study, the reasons why someone chooses their education path is easily determined through data.	YES
Working data from the “ground up”	Contradicts the first strategy. Patterns found in data suggest concepts will emerge leading to discovery.	This study uses deductive and inductive ¹² thematic coding to allow findings or patterns to emerge from two different techniques.	YES
Developing a case description	Organize case study into a descriptive framework. The framework of ideas come from the initial motives for the study and is revealed via gaps in literature.		NO
Examining rival explanations	Define and test plausible rival explanations. Works with all three strategies above.	Investigator Bias	YES

Note: Adapted from Robert Yin and COSMOS Corporation. (a. Relevant Situations for Different Research Methods.), Yin and COSMOS Corporation (2018), Yin, R. (2018). *case study Research and Applications, Design and Methods* (Sixth ed.). Los Angeles: Sage Publications, Inc.

¹² Deductive coding is when the researcher approaches the coding process with predetermined themes and searches the data for excerpts that match those codes. Inductive coding is a bottom up approach when the researcher starts looking through the data with no codes in mind, allowing for unexpected results come from the data.

This expanded section of research design included an analytic framework that focuses more on defining analytic priorities, general strategies that include specific coding clarity, and techniques that support embedded methods that combine qualitative and quantitative data. As mentioned previously, this included statistics with descriptive interviewee details that dovetailed to add depth to the analysis portion of the study. These components are found in more detail in *4.4 Description of Interview Participants: Application to this Case Study* (Charmaz, 2015, Corbin and Strauss, 2015, Yin, 2018).

3.6.1 Stating the Research Analysis Priorities : What to Analyze and Why

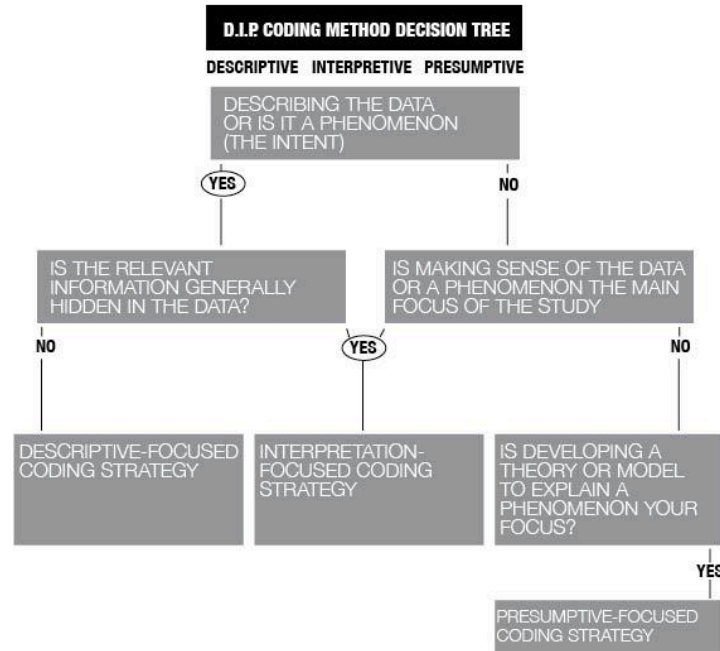
The first part of the “general analytic strategies” techniques discussed broadly above is the statement and discussion of the research analysis priorities for this study. The prioritizing process allowed the researcher to focus on the most relevant data with a focus on observing, listening, and questioning of the interviews, specifically looking at the rationale behind the ways in which Dribbble users chose to learn design and their general thoughts on learning processes, etc. This process allowed for patterns to emerge that were analyzed and discussed — once again, pertinent to the priorities of *what to analyze* and *why* that are directly linked to the research questions for both types of data. This process was set up to utilize the data in the most beneficial way to answer Yin’s recommended questions: *What do we want to know from the data? What does this research analyze and why?*

3.6.1.1 What Do We Want to Know from this Data.

In a similar vein, when setting up the researcher’s coding protocol discussed in *3.6.2 case studies General Analytic Strategies : Coding and Techniques*, the data being sought consisted of

information that would help identify topics that addressed the research questions directly. In order to sort out the relevant information from the data, there was a multi-step approach; the second part of the general analytical strategy looked back at the original purpose of the study. The overall purpose was to examine interviewees' rationale/reasons for choosing either traditional educational pathways in IHE or alternative routes like online studies, and to compare the work and relevant definitions from both types of designers as the results would provide insights for this study. After considering the purpose of the study, the second step was to look at the research questions for both data sets and to make notes, arrays and matrices of themes that would fall under the purpose of the study and directly tie into the research questions. The third step was to select which technique for information interpretation (the purpose of the data) was the most appropriate, whether description, interpretation or a presumptive method. See Figure 10 and Table 9 for definitions of description, interpretation or presumptive decisions and the rationale for choosing an interpretation-focused coding technique.

Figure 10
Significant Coding Techniques and Definitions. Selection Depends on Purpose.



Note: Adapted from Philip Apu (2019). *A Step-by-Step Guide to Qualitative Data Coding*. Oxford: Routledge.

Table 9
Significant Coding Techniques Detailed Definition

THREE SIGNIFICANT DATA CODING TECHNIQUES	PURPOSE
description-focused	Determine what the data is saying. Report the facts.
<i>interpretation-focused</i>	<i>Generate meaning from the data. Make sense of participants' information.</i>
presumption-focused	Draw conclusions from the data. Combine as evidence to a conclusion.

Note: Adapted from Philip Apu (2019). *A Step-by-Step Guide to Qualitative Data Coding*. Oxford: Routledge.

This approach was utilized to organize potential themes and codes used for analyzing the data. Specific coding methods are discussed in more detail under *3.6.2 Case Studies General Analytic Strategies : Coding and Techniques and a Hybrid Strategy*.

3.6.1.2 Why Do We Want to Know About this Data

Now that a general analytic strategy understanding has been presented (step two of three in the strategy), asking the “*why do we want to know about this data*” question had to be addressed. This last part happened before developing the actual thematic coding matrix in the next section. As a reminder, the general analytic plan used for the analysis chapter is a combination of three of the four techniques (Figure 10) using an interpretive-focused coding approach with the understanding that the study findings must be tied to the specific research topics in order to use the research questions to answer the question above.

Again, the study was designed to identify why some practicing designers chose their educational routes, either a traditional higher education path that resulted in a degree or other directions that led them to working in design. What were the drivers of those choices, what do they think about the choices they did not take, what are their thoughts surrounding the different types of education, etc.

Why is this data important? — not just the numerical statistics of the number of people who choose one path or another but the conceptual interpretation of their choices. The emerging patterns of thoughts and opinions have the potential to begin a dialog about the future of IHE in design, how design could be taught, why design should be taught one way or another, or beliefs

and varied perspectives on the field and education. These discoveries have the potential to apply to the profession as well, and could even be used for other areas of study that may be faced with similar alternative learning opportunities.

3.6.2 Case Studies General Analytic Strategies : Coding and Techniques and a Hybrid Strategy

The third part of the general analytic strategies identified as important to the analysis portion of this research was an understanding of the framework behind the coding systems and the techniques selected. As revealed in 3.5.4 Yin's "*Analysis*" Case Study Framework Phase: *Table 7: Analysis Steps for Coding*, there was a multi-level process of coding and interpretation designed to offset any investigator bias (or rival explanation). See *Appendix D and E* for coding process development. This table includes the Analysis Steps with researcher and research assistant coding process including deductive, inductive and PLE codes. These steps were performed individually and applied to the interviews to equally compare them in more detail below.

3.6.3 Amalgamation of the Analytic Strategy Framework : Bringing Results Together

After the careful and deliberate construction of the analytic framework to derive two perspectives of coding, the researcher used summary statistics, clustering, and pattern tracking on the key areas of coding and thematic organization to find patterns in the data from which to make contextual interpretations of the data.

The results, beginning with descriptions that were derived from the above analytical framework, was compiled from a combination of reflections upon alternative interpretations,

(addressed here with the use of a unbiased research assistant and their own interpretations), satisfactory presentations of the findings documentation, and this researcher's own understanding of connections between habits, logic and observational awareness, or empirical thinking (Dewey 1910, Yin, 2018).

3.7 Overall Analysis and Interpretation (both Stage One and Two)

For a holistic overview of both Stage One and Two, the goal was to analyze patterns and trends in education and industry through interviews and work produced by the different types of designers to discover new understandings of these subjects. By drawing inferences using the presented methods and applying those findings to the current design environment, this study will help to determine whether education can maintain current practices or make adjustments in order to remain relevant (Tashakkori & Creswell, 2007). All of the data sets collected in this project were analyzed through a variety of methods to avoid researcher bias and ensure fair analysis or critical reflexivity (Grbich, 2019). There is some debate about whether qualitative research is effective when collecting data through a theoretical lens. Grbich states that “the danger of theory direction is that an over focus on a chosen theoretical orientation may limit what the researcher can access or “see” in the data, but on the upside, this approach can also enable the generation of new theoretical aspects, as it is rare that findings will fall precisely within the implications of existing statements” (2019). Glaser and Strauss (1967) suggest “that in order to prevent undue influence on design and interpretation, the researcher should avoid reviewing the literature on a topic until after some data collection and analysis had been undertaken (Glaser & Strauss, 1967).

Those concerns regarding fairness were applied in the following ways: with the first and second set of data collection, no theoretical lens was applied when developing questions. As

mentioned previously, there were several theories that were considered when structuring the overarching research questions that informed the interview questions and then, upon analysis using grounded theory, those findings helped to evolve the research questions. When analyzing the data in all collection sets, the theoretical lens was considered. For this study, the broad-based theory of the principle of least effort was considered when assessing the interviews in regard to design education (IHE) and industry. A more complete look at how the design field was adapted as a result of online learning resources helped determine its scope, and whether it was part of the cyclical response to creative disruption (Perez, 2002, Grin, Rotmans, Schot, Geels & Loorback, 2010). In other words, does this first glimpse at change on sites like Dribbble indicate the beginning rumblings of a major shift towards the democratization of design, which will continue to spread and catalyze radical change in both industry and education or is it a small movement that affects the processes at a micro level only? Is this a shift that will be echoed in other industries? Further, once this was properly investigated, both inductive data analysis and coding were used to build common subject categories by looking for repeated word patterns and themes to find distinct and encompassing sets of concepts that benefited this study (Creswell, 2009, Wildemuth, 2009).

3.8 Data Analysis Framework

3.8.1 Coding and Theme Building Framework: Multi-Approach Step to Coding and Theme Organizing for Stage One and Descriptive Groupings for Stage Two.

The final piece of the framework to be understood before the analysis began was a coding and thematic organizing framework. These detailed processes provided the lens through which the coding was filtered prior to analysis. Introduced but not discussed in the *Table 7: Action*

Steps for Data Analysis, Stage One and Two in Chapter Three : 3.5.4 Yin's "Analysis" Case Study Framework Phase, were the concepts of deductive and inductive coding and in vivo, descriptive and process coding. The significant reasons for following this framework were to approach the data from different perspectives and from different researchers to minimize any plausible rival theory (Yin, 2018). Here, the alternative Investigator Bias Theory, was used to offset these biases and to see if through these different coding approaches, the results aligned or offered different insights than the PLE theory.

The approach for both the researcher and research assistant was the same in terms of the deductive and inductive approach to themes. Using an excel file prior to reading through the interviews in phase one, individually, the researcher and research assistant deductively produced lists of key terms that the team thought might appear in the interviews that supported these research questions. See Table 10 below for a multi-layered, multiple round coding process for the research and research assistant. This process included a "familiarization" phase that consisted of multiple rounds of reading the interviews and data sets prior to coding in order to become "intimately familiar" with the data prior to coding (Byrne, 2022).

comments from the interviewees' perspectives that added insights to the conversation without researcher influence. These terms are discussed below in addition to the final coding terminology used to develop relevant themes (discussed in 4.6.2 *Thematic Organization of Terms*), along with definitions of those terms. By focusing this time on the inductive coding, the goal was to allow the interviewees' potentially overlooked insight to emerge in the form of codes and themes. The goal was to enable new perspectives to come forward driven solely by the data and not the researchers. Additional documentation of the coding rounds done by the researcher and the research assistant can be found in the *Appendix D*.

3.8.1.1 *Researcher and Research Assistant Coding Processes*

As mentioned above, a multi-perspective, multi-examination was used to home in on the most relevant coding terminology for both a deductive and inductive method. Both rounds one and two were conducted, followed by discussions in which nuance of the words' scope and definitions was considered. This was done to ensure that the selected words expressed the most depth in order to create theming categories for the analysis phase of the study. These codes were then used to organize the interviewees' comments into similar sections that would then become larger groupings or themes that connect conceptually with the particulars of the research questions. In this study, the particulars were the *drivers* (why did the designers choose the educational path that they did and the details about those decisions) and *outcomes* the designers expected to achieve with those choices. Details can be found for the comprehensive view that combines all coding deductive and inductive words for round one and two for both the researcher and the research assistant's coding processes in the *Appendix E*.

3.8.1.2 Final Coding SO:RQ1 and RQ1.2

As mentioned above, both the researcher and research assistant independently coded ideas about the data that were expected to be found and what was actually found through the interviews. Finally, those coding contenders were brought together for a discussion on overlapping content and potential ideas that were worthy of bringing into the next round of assessment with the interview transcripts. See Table 11 for the final coding concepts used for the final transcript reviews. It is from this final round that larger analysis themes were developed.

Table 11
*Round Three : Combined Final Coding of Deductive/Inductive/PLE Perspectives
 Researcher and Research Assistant Combined for Stage One.*

FINAL CODING ORGANIZING Stage One - COMBINED CODING (R and RA)			
RESEARCH QUESTIONS	MULTI-CODING FOCUS APPROACH		
RQ1: Drivers and Outcomes	Deductive	Inductive	PLE
	Why, Choices, Job Advancement, Paid More Excitement, Money, Expenses, Flexibility, Easier, Thoughts on IHE, Hiring, Price	IHE Value, Freelance, Portfolios, Content, Projects, Degree isn't Nec, Relevance, Technology, Learning	Price, Time, Effort Cost Threshold of acceptability, minimum
RQ1.2: Drivers and Outcomes Impact (IHE)	Deductive	Inductive	PLE
	Degree to Work preparedness	Student Projects, Dated, Keeping up	Quick Study, Skills, fast, easy
	Learning, failure, research, definitions, choices	Enrollment, Deeper thinking about design	

Note: Original source: (R) Rebecca D. Kelly and (RA) Ciana V. Steller final coding sessions. Adapted from data from the study Hemsley, J., & Kelly, R. D. (2019). "Scratching a Niche: How Smaller Social Media Players Such as Dribbble Reflect the Viral Phenomenon." *Social Media + Society*, 5(4). <https://doi.org/10.1177/2056305119890051>

After the selection of the final coding words was completed, the researcher and research assistant individually tagged using #hashtags to demarcate the interviews by ideas, words and concepts used by the interviewees. These groupings were then organized into larger pools of ideas, words and concepts that eventually turned into themes by a series of techniques mentioned in 4.3.3 *Amalgamation of the Analytic Strategy Framework : Bringing Results Together*. Both researchers used summary statistics, clustering and pattern tracking on the key areas of coding to create the thematic organization that was used to make contextual interpretations of the data with empirical thinking recommended by Dewey (1910) and Yin (2018).

3.8.2 *Thematic Organizing of Interviews: Stage One and Stage Two*

According to Gibbs (2007), thematic coding takes place following two or more rounds of independent coding from different qualitative coding techniques by both the researcher and the research assistant. The goal was to identify passages of texts from the interviews linked by a common concept or hashtags (themes) using grounded theory to assist in the next step (Glaser and Strauss, 1967, Charmaz, 2014, Corbin and Strauss, 2015). This process allowed for the organization of text into major yet discrete categories tangential to the concept for easy retrieval (Gibbs, 2007, Charmaz, 2014).

3.8.3 *Thematic Organizing of Interviews: Stage One*

In the same fashion as the coding portion of the Stage One study presented above, the researcher and research assistant followed a similar process for the thematic organization to be able to reveal the major themes to bring forward for review. After assigning the coding (or

#hashtags) listed above, the researcher and research assistant independently used Delve.com¹³ to coordinate and organize digitally the linked themes by each participant. This program is an online coding software platform that groups all interview sections that are tagged together with the same hashtag then exports them as organized data.

Once those coded and grouped topics were exported, the researchers studied the groupings that eventually became the three major thematic categories to best answer the *driver* and *outcome* research questions. Before the analysis part of this study, the relevant definitions which added clarity were determined prior to organizing the final three major themes used to answer the research questions. The final combined thematic organization is presented below.

3.8.3.1 Final Thematic Ideas

In a similar coding manner discussed in the *3.8.1.1 Researcher and Research Assistant Coding Processes* the three major themes were developed in the same revisionist plan including the deductive, inductive and PLE approach by both researchers intentionally separately. After bringing those individual discoveries back together prior to becoming the final three major themes, all theme contenders were juxtaposed with the Stage One, RQ1 and RQ1.2 to determine which themes answered the research questions best, and were therefore most appropriate. See Table 12.

¹³ <https://delvetool.com>

Table 12

Three Major Themes to that Best Answer Study One, RQ 1 and RQ1.2.

THEMATIC ORGANIZING - FINAL RESEARCHER and RESEARCHER ASSISTANT	
BUILDING A MULTI-THEME FOCUSED APPROACH COMBINATION OF DEDUCTIVE, INDUCTIVE AND PLE THEME DEVELOPMENT	
<i>DRIVERS:</i>	RQ1: What are the drivers of choosing either an IHE or DIYD education? rationale for choosing either the IHE or diy path
	MAJOR THEME: QUESTIONING THE VALUE OF HIGHER EDU <i>SUB THEME: IHE Issues: Curriculum, Dated Assignments, Portfolios</i> <i>UNDER A PLE LENS: Price, Time, Effort</i>
<i>OUTCOMES:</i>	MAJOR THEME: A CAREER IN DESIGN IS POSSIBLE WITHOUT an IHE EDUCATION <i>SUB THEME: Learn in Alternative Ways and Can Still be a Designer</i> <i>WHERE AND HOW: MOOCs</i>
<i>OUTCOMES:</i>	RQ1.2: How do those reported outcomes impact the future of IHE/IND? (the expert review is the another outcome in Stage Two of this project)
	MAJOR THEME: WHAT ARE THOSE LEARNERS NOT LEARNING? <i>SUB THEME: 1) Failure (positive and negative) 2) Feedback (critique)</i> <i>3) Thinking of design in a wider sense is valuable</i> <i>ALTERNATIVE OUTCOMES: Chapter Five:</i> <i>Enrollment, Decline in Programs, Influence in IND</i>

Note: Original source: (R) Rebecca D Kelly thematic organization of the key themes developed from the interviews of the participants in this study. All thirty participants were included but the categories and participant numbers are blinded. Adapted from data from the study Hemsley, J., & Kelly, R. D. (2019). "Scratching a Niche: How Smaller Social Media Players Such as Dribbble Reflect the Viral Phenomenon." *Social Media + Society*, 5(4). <https://doi.org/10.1177/2056305119890051>

3.8.4 *Thematic Organizing of Types of Designers : Stage Two*

Similar to the thematic organization portion of the Stage One study presented in 3.8.3

Thematic Organizing of Interviews: Stage One, above, the researcher and research assistant followed a similar process for the grouping of categories. These final groups that best represented the pool of varied types of designers were represented in the visual analysis portion of the study to present the most accurate and fair representation of the participants' answers. For

clarity, Stage Two, the Visual Analysis portion answers RQ2: *How do portfolios created by the DIYD differ from portfolios from the IHE trained designers if at all?* RQ2.1: *What are the differences?* RQ2.2: *After the expert evaluations, compare those results with the transcript answer to provide their process and definitions of design. Is there a relationship with their interpretation of design, their own process and their evaluations?*

The researcher was originally a co-interviewer on the *Set B* data set and knew the participants by name and work association, so it was important to blind all of the participants' information prior to any of the research assistant participation. This was done to once again minimize researcher bias gained from years as both a professor of design in IHE and a professional designer. With these two levels of data integrity protection in place, discussions, debates and refinement were once again used to ensure appropriate and credible categories. Below is the final round of categories of designers considered for the visual analysis part of the study. For the comprehensive lists developed by the researcher and research assistant, see *Appendix F*.

The rationale behind the selected type of designer categories was as follows; each category represents different types of learning pathways to look for insight into who the designers were. Their different educational backgrounds and the types of design they practiced in terms of employment provided the insights necessary to answer the research questions. As the impetus for this study, in the *Set A* set of data, nearly 70% were designers who trained in design via the non-IHE route. See *Appendix G* for details. The varied combinations of learning pathways were carefully organized in an attempt to understand and/or explain this phenomenon of such a high number of non-formally trained designers working in the design industry. See Table 13 below for the combined semi-finalist lists.

Table 13
Thematic Organizing Matrix - of the Types of Designers for Visual Analysis (Combined)

THEMATIC ORGANIZING FOR TYPES OF DESIGNERS - Combined (R and RA)	
RESEARCH QUESTIONS	DIFFERENT GROUPINGS OF PARTICIPANTS
RQ2: VISUAL ASSESSMENTS OF TYPES OF PORTFOLIO (IHE AND SELF-TAUGHT)	EXPERIENCE (in years) AND DEGREE
	<i>EMPLOYMENT AND EDUCATIONAL PATHS</i>
RQ2.1: WHAT ARE THE DIFFERENCES	DESIGN TRAINING AND EDUCATIONAL STATUS
	TYPE OF JOB/AGE and DEGREE STATUS
RQ2.2: COMPARISONS OF ASSESSMENTS AND SELF DEFINITIONS OF DESIGN/PROCESS	FREELANCE AND DEGREE
	LOCATION AND TYPE OF LEARNING

Note: Original source: (R) Rebecca D Kelly and (RA) Ciana V. Steller thematic organization of the type of designers that the design experts used to evaluate to determine any strengths and weaknesses in their work. All thirty participants were included but the categories and participant numbers are blinded. Adapted from data from the study Hemsley, J., & Kelly, R. D. (2019). “Scratching a Niche: How Smaller Social Media Players Such as Dribbble Reflect the Viral Phenomenon.” *Social Media + Society*, 5(4).
<https://doi.org/10.1177/2056305119890051>

This list comprises the following potential scenarios that were considered: are younger designers turning away from IHE, (as a generational phenomenon)? Is it the type of work that influences the type of educational path or vice versa? Or is a lack of educational access and location a factor? Those potential combinations were explored by both the researcher and research assistant as the best possible categories that would address these queries through the expert analysis. See *Appendix F* for more information.

Ultimately, the researchers involved in this study agreed that the best representations to move forward to the visual analysis stage would be the group that was most directly related to the research questions RQ1 and RQ1.2, which is *Employment and Educational Paths*. Moving to

Stage Two of the study, see Table 14 below for an explanation of the selected segment of designers who will best answer the research questions RQ2, RQ2.1 and RQ2.2.

Table 14
Thematic Organizing Matrix - Types of Designers for Visual Analysis (Analytic Process)

THEMATIC ORGANIZING FOR TYPES OF DESIGNERS - Analytic Process for Vis. Analysis			
RESEARCH QUESTIONS	EMPLOYMENT AND EDUCATIONAL PATHS		
RQ2: VISUAL ASSESSMENTS OF TYPES OF PORTFOLIO (IHE AND SELF-TAUGHT)	THROUGH EXPERT DESIGNERS ASSESSMENTS OF DESIGNERS' WORK, REVEAL ANY DIFFERENCES FROM A FORMAL / CONCEPTUAL PERSPECTIVE BETWEEN DESIGNERS WHO ARE SELF-TRAINED AND THOSE WHO WENT TO IHE		
RQ2.1: WHAT ARE THE DIFFERENCES	CONCEPT	FORM	OTHER
RQ2.2: COMPARISONS OF ASSESSMENTS AND SELF DEFINITIONS OF DESIGN/PROCESS	ASSESSMENTS	DEFINITIONS OF DESIGN	DEFINITIONS OF PROCESS

Note: Original source: (R) Rebecca D Kelly and (RA) Ciana Steller combined thematic organization of the type of designers that the design experts will evaluate to determine any strengths and weaknesses in their work. This category is the closest to the research question. Adapted from data from the study Hemsley, J., & Kelly, R. D. (2019). "Scratching a Niche: How Smaller Social Media Players Such as Dribbble Reflect the Viral Phenomenon." *Social Media + Society*, 5(4). <https://doi.org/10.1177/2056305119890051>

This selected pool of designers was organized by different variations of groups of designers and their educational and employment backgrounds.

3.8.5 *Final Organization of the Type of Designers:*

For the final selection of the type of visual analysis of work to compare "*employment and education paths*," the researchers needed to create a set of six categories that encompassed a

range of pairings from which to pull work for the experts to analyze. The goal of the subtypes was to delineate potential differences in the type of work and different types of degrees to cover all bases and all of the categories of interviewees. This structure allowed for the experts to evaluate the same things in the same format for consistency. Table 15 shown here is used to explain the different combinations of types of designers. All identifying or leading information was blinded by the research assistant so that experts had no indication of the type of work they were assessing or any other leading information such as educational path, etc.

Table 15
*Thematic Organizing Matrix - Types of Designers for Visual Analysis:
 Groupings of Interviewees for the Expert Reviewers*

THEMATIC ORGANIZING FOR TYPES OF DESIGNERS - Groups of Interviewees	
RESEARCH QUESTIONS	EMPLOYMENT AND EDUCATIONAL PATHS
RQ2: VISUAL ASSESSMENTS OF TYPES OF PORTFOLIO (IHE AND SELF-TAUGHT)	1) Freelance with Design or Design Related Degree: Participant #: 1, 13, 15, 26, 27, 28
	2) Freelance with Non-Design Degree: Participant #: 5, 6, 8, 10, 16, 17, 23
RQ2.1: WHAT ARE THE DIFFERENCES	3) Freelance with No Degree: Participant #: 3, 4, 12, 21
	4) Company with Design or Design-Related Degree: Participant #: 2, 14, 18, 19, 20, 22, 25
RQ2.2: COMPARISONS OF ASSESSMENTS AND SELF DEFINITIONS OF DESIGN/PROCESS	5) Company with Non-Design Degree: Participant #: 7, 11, 240
	6) Company with No Degree: Participant #: 16, 21

Note: Original source: (R) Rebecca D Kelly and (RA) Ciana Steller combined thematic organization of the type of designers that the design experts will evaluate to determine any strengths and weaknesses in their work. All thirty participants are included but the categories and participant numbers are blinded. Adapted from data from the study Hemsley, J., & Kelly, R. D. (2019). “Scratching a Niche: How Smaller Social Media Players Such as Dribbble Reflect the Viral Phenomenon.”

3.9 Limitations

The original participants (qualified due to their use of Dribbble) may not fully represent the total body of practicing designers with all the variations in the field. Additionally, due to a low cold-calling response for participants, the research relied on snowballing recommendations, which may interfere with the reach and depth of participation in terms of social circles of practitioners with similar professional backgrounds. Finally, the researcher, or “expert,” has their own experiences, viewpoints, and path towards design education. Minimizing the biases associated with such qualifications was a priority, hence the staggering of triangulation and methods were utilized to offset the potential limitations beginning with enlisting a research assistant to compare coding, etc.

3.10 Summary

In this chapter, there is an outline of the research methods for conducting a qualitative case study of the self-taught designers who use social media platforms to learn and train to be design practitioners. In this study, interviewees were selected from a pool of users of a site specifically dedicated to design (Dribbble.com).

Throughout this section, the purpose was to demonstrate a well-designed methodological framework to support this study, rooted in experts who 1) proved this type of research is beneficial to find insights that add to the body of knowledge in this subject area such as Zuboff (1988) and 2) have established systems that add validation and trustworthiness to this type of social science research; Yin (2018). Again, this research design was developed to gain insights

from the new self-taught designers, and these insights can provide IHE and the design industry with data that may open new dialogue about the future of the design profession.

It is important to disclose the personal biases that the researcher may have in regard to the design practice and higher education, both of which this researcher participates in. This awareness allowed for the design research to follow protocols and precautions such as triangulation efforts to ensure the biases do not influence the data analysis.

Also discussed in this chapter is the importance of a research design plan and following a case study framework. For example, Yin's case study framework suggests the consideration of multiple methods. Here, the choice was between a case study and the flexibility of a grounded theory approach, each of which has attributes that benefit this study. Ultimately, a case study design was chosen for a variety of reasons that form the hallmarks of a social science case study project: it is a contemporary phenomenon, there is an inability to control the research environment, and the pool is smaller versus a larger, much more complex system.

The final step in ensuring a repeatable, reliable, valid and trustworthy case study was ensured by following a six-phase case study framework designed by Yin (2018). The phases that were employed were 1) a well-designed plan including the consideration of multiple different methodologies, 2) the design of the framework; answering *how and why* questions, 3) preparation: completing CITI and IRB requirements, 4) collection security: triangulation in several areas such as multi-study data collection 5) analysis: looking for recurring topics, thematic organization and coding and 6) sharing through publication in academic and gray literature and within the analysis Chapter Four in this study. All of these steps were closely followed in an effort to gain support for this work.

CHAPTER FOUR: Results of the Study

4.1 Introduction

In this chapter, different types of data were collected and analyzed to reveal results through a combination of various techniques such as statistical comparisons of both quantitative information and qualitative collections of data with interpretations and insights about design and design education. Thirty hour-long interviews were conducted with practitioners trained in traditional IHE programs as well as DIYD practitioners who learned through a variety of ways in order to provide this study with rich data to develop sets of narratives about the topics of design, education and industry. The responses from these conversations revealed important discussion points that have recently arisen within the design practice and industry. Some insights were not expected, but when considering the demographic background of respondents making particular comments, the story became more interesting. It is these findings that provided an opening for conversations in the industry and education and when combined, highlighted broader issues facing design as a whole. Because this research was focused on designers who presented and solicited work through Dribbble, it was imperative that they were currently practicing designers in the general fields typically found within the design industry, regardless of whether they had a degree or were DIYD.

The analysis strategies detailed in the previous section were designed around a case study methodology dedicated to revealing expected and unexpected findings that answer the research questions. Specifically, they were meant to identify who are the people that learned design skills in traditional and nontraditional ways, how are they learning, what are they learning and not learning. Finally, are there differences in the portfolios between those two types of learners and are those differences evident in their definitions of design and design processes?

As recommended by case study and qualitative research experts, it was important to define the research priorities in terms of what data was selected to analyze and why that data would be relevant to this study (Charmaz, 2015, Corbin & Strauss, 2015, Yin, 2018), with a focus on whether or not the data answered the research questions. To build upon the case study analysis recommendations, first there had to be a clear understanding of the framing of the research through the research questions in order to tie the findings together with a focused lens on what data was vital to analyze. Once the data that would best answer the research questions was determined, the coding, analysis and results were presented, followed by interpretations and implications. Restated below are the research questions along with a statement to help define the coding boundaries used in the analysis portion of the study.

4.2 Research Questions Used to Guide the Analytics

The research questions found below fell into two distinct groupings mentioned previously. Stage One of the data collection and analysis involved data gathered from interviews of Dribbble users working in the design industry. This data was strategically aligned to answer Stage One, Research Question 1 and 1.2 (RQ1 and RQ1.2). Stage Two data and analysis supported a thickening of the case study research by adding expert visual analysis assessments combined with a comparison of the expert analysis in order to determine if there was an alignment with expert assessments and participants' definitions of design and design processes (RQ2, RQ2.1 and RQ2.2).

Specifically stated, the research questions are: Stage One RQ1: *What are the drivers of choosing either an IHE or DIYD education?* RQ1.2 *How do those reported drivers/outcomes impact the future of IHE design education and industry?* For Stage Two: RQ2: *How do portfolios*

created by the DIYD differ from portfolios from the IHE trained designers if at all? RQ2.1: What are the differences? RQ2.2: After the expert evaluations, compare those results with the transcript answers to provide their process and definitions of design. Is there a relationship with their interpretation of design, their own process and their evaluations?

When developing the analytics for Stage One and Two, it was important to keep the research questions in mind in order to focus on keywords that directly related to the data to bind the two together. This focused and organized approach created fencing around the broad range of answers that derived from the interviews and analysis to more easily recognize patterns in the data and better create thematic coding. Without the guides discussed here, there was a potential scenario in the Stage One interview analysis in which patterns could emerge that would become too broad to see significant findings. It is important to note that frequency alone was not a consideration when moving from coding to thematic building towards a finding. In fact, there was a dual-researcher approach designed to engage in rich discussions and refinements to be more “collaborative and reflexive to achieve a richer interpretation” (Braun & Clarke, 2019) of meaning as opposed to a frequency-only approach. With this widening of potential findings, topics that were not related strongly enough could alter the trajectory of the findings and discussions; these competing topics would likely not have been the best choice for coding, and would lead the study in a different direction. For example, the topic of plagiarism emerged as an inductive coding pattern worthy of exploration, but the RQ1 or RQ1.2 questions did not indicate this discovery about DIYD as a group and how they learned and practiced design. Plagiarism was not a *driver* for the DIYD to choose alternative pathways into design. The goal of reflecting back again and again using grounded theory (Hancock, 2011) on the research questions while going through the analytics towards findings is similar to the revisionist-nature of crafting

research questions themselves. The goals for both were to act as guides for this research through clear and focused thinking, not too broad or narrow in scope and not too difficult to answer and find results that would contribute to the body of knowledge. As a reminder, there was a more detailed discussion on the coding structure found in the section above in 3.6 *Expanded Research Design that includes Analytic Framework* and 3.6.2 *case studies General Analytic Strategies : Coding and Techniques*.

4.3 Description of Interview Participants: Application to this case study

Understanding the participants of this study—the users of Dribbble as the interviewees—was an important aspect to consider when looking at their responses and the interpretation of those responses. Acknowledging the participants’ varying roles in design, level of expertise, and experiences regarding how they learned design and how they currently work as designers was a vital component of these next two chapters. These additional steps, along with the general analytic strategy mentioned above, provided insight by offering explanation-building techniques to the findings recommended by Yin (2018).

Laid out in this part of the case study research are two types of descriptions that emerged. The first articulates who the participants were and generalizes the participants as a larger organization of workers in the design field active on Dribbble to help better understand their interview responses that was tied directly to RQ1 and RQ2. The second set of descriptions focused on the selected interviewees for the Stage Two portion of the study (visual analysis by experts). These participants’ nuances were delineated in order to gain a perspective about them in a meticulous manner that added additional depth to the expert comparative analysis of their work. Both descriptions (Stage One: large overview and Stage Two: detailed) were important

steps to gain a holistic perspective that was useful in the findings and discussion chapters; for example, details helped interpret observed patterns in backgrounds and educational paths that were taken when comparing interviewees' answers. Stated here for clarity, these descriptive insights into the interviewees' history tied the research questions (RQ1: What are the drivers of choosing either an IHE or DIYD education? and RQ1.2 How do those reported *drivers/outcomes* impact the future of IHE design education and industry?) more directly to their backgrounds in order to further validate findings by identifying additional patterns and strengthening the general analytical strategy mentioned in the above section: *3.3 Research Design*. For example, before completing the analysis of a participant's answer prior to making an analytic determination to the question "*Did your educational background adequately prepare you for your work in design?*," the researcher must study the participants' educational background to interpret their answer of "*No.*" This response would make sense because this interviewer studied in an area other than one related to graphic design.

4.4 Overview of Participants for Both Stage One (Interviews and RQ1) and Stage Two (Visual analysis and RQ2)

As mentioned above, there were two types of interviewees' descriptions discussed here, the first being Stage One: overview and generalizations of the larger body of participants tied to RQ1 and RQ1.2. This overview involved a mixture of quantitative and qualitative data that when combined provided an "analytic rationale" to the study (Yin, 2018). This combination offered an examination that went beyond mere frequency analysis. Considering the context of the backgrounds of the participants along with their answers established a stronger grounded theory case study research (2018). Discussed first was Stage One (general overview) followed by detailed information about participants, and subsequently by Stage Two (interviewee specifics)

in the visual analysis portion that when combined captured the nuance that can benefit a case study method over other methods.

4.4.1 General Demographics for Both Stages

Examining the Dribbble users as interviewees from generalities to specifics leveled the basic understanding of the demographics that began to build a narrative for context necessary for an interpretative coding practice. Starting with quantitative data that was connected thematically to more qualitative and empirical-based data helped to thicken the understanding of interviewees as people. This lens of observation paired with industry experience facilitated the interpretive nature of these findings. This aspect of the findings was further interpreted in terms of nuance and impact in *Chapter 5: Discussion and Implications*. Below is a cursory overview of the demographics of the participants.

Although this was a U.S.-based study surrounding a U.S.-based social platform, participants were geographically located around the world as Dribbble can be accessed by users globally. The majority of the 30 interviewees were from the U.S. (19 locations from the inside U.S. and the remaining 11 based in Asia, Europe and the Middle East).

The length of time the informants had been using Dribbble averaged over two years but the range of time on Dribbble varied between one and nine years for the group. The longest possible user at the time the data was collected would have an 11-year span as the platform launched publicly in 2009.

The gender of interviewees was primarily male which does not align with the general demographics of the design industry per the AIGA 2019 Census at 61% female and 31% male with 8% unidentified. In this study, it was reversed with 7 (23%) being female and 23 (77%)

being male (Eye on Design, 2020). The mean age of the participants was 30 years old but the range for the entire group was from 21 to 42 years old.

The general descriptions of the type of work were classified in the following categories: the majority listed their work as full-time freelancers while the rest had full-time jobs at corporations, design agencies, universities, or hospitals and did freelance design work on the side. The type of work into which the interviewees were categorized was detailed below; see Table 16 for the final general descriptive categories overview for both Study One and Study Two (Round 2).

Table 16
Study One and Two General Descriptive Overview (Round 2, Final)

A	B	C	D	E	F	G	H	I	J	K
Part #	BFA	Location	Age	Deg in Design	Degree	Work	Type of Designer	Highest Degree	Sex	How Did Learn
1	N	A	30-39	N	Y	freelancer	BRANDING	U	M	
2	N	A	20-29	N	Y	company	VISUAL DESIGNER	G	M	
3	N	A	50-60	N	N	freelancer	DIG ILLUSTRATOR	training	M	on the job fiver
4	N	A	20-29	N	N	freelancer	BRANDING		M	self taught
5	N	A	20-39	N	Y	freelancer	UX/UI	U	M	
6	N	A	30-39	Y	Y	freelancer	BRANDING	U	M	
7	N	A	20-29	N	Y	company	WEB	U	M	
8	N	US	20-29	N	Y	freelancer	GRAPHIC DESIGNER	U	M	SELF TAUGHT
9	N	US	20-29	N	Y	freelancer	GRAPHIC DESIGNER	U	F	N
10	N	US	20-29	N	Y	freelancer	GRAPHIC DESIGNER	U	F	
11	N	US	20-29	N	Y	freelancer	ILLUSTRATOR	M	F	
12	N	US	20-29	N	N	freelancer	ILLUSTRATOR	U	F	
13	Y	US	20-29	Y	Y	Other	BRANDING	U	M	
14	N	US	30-50	N	Y	company	VISUAL DESIGNER	U	M	
15	N	US	20-29	Y	Y	freelancer	BRANDING	O	M	
16	N	US	30-40	N	N	COMPANY	VISUAL DESIGNER	O	M	
17	N	A	30-40	N	Y	COMPANY	UX/UI	U	M	
18	Y	US	30-40	N	Y	COMPANY	ILLUSTRATOR	U	M	
19	Y	US	20-29	Y	Y	COMPANY	GRAPHIC DESIGNER	U	F	
20	Y	US	30-40	Y	Y	freelancer	ILLUSTRATOR	U	M	
21	N	A	20-29	N	N	COMPANY	BRANDING	O	M	
22	N	US	40-49	Y	Y	COMPANY	ILLUSTRATOR	U	M	
23	N	A	20-29	N	Y	freelancer	UX/UI	U	M	
24	N	US	20-29	N	Y	COMPANY	UX/UI	U	F	
25	Y	US	20-29	Y	Y	COMPANY	BRANDING	U	M	
26	Y	US	30-39	Y	Y	freelancer	BRANDING	O	M	
27	Y	US	30-39	Y	Y	freelancer	BRANDING	M	F	
28	N	US	20-29	Y	Y	freelancer	ILLUSTRATOR	U		ALONG THE WAY
29	Y	US	30-40	Y	Y	freelancer	UX/UI	U	M	
30	N	A	20-29	N	Y	COMPANY	GRAPHIC DESIGNER	U	F	

Note: Original source: Second round of data demographic organization by (R) Rebecca D. Kelly. This is the one used for the descriptions and data collection as the framework has been refined. Adapted from data from

the study Hemsley, J., & Kelly, R. D. (2019). "Scratching a Niche: How Smaller Social Media Players Such as Dribbble Reflect the Viral Phenomenon." *Social Media + Society*, 5(4).
<https://doi.org/10.1177/2056305119890051>

4.4.2 *Deeper Understanding of the Demographics*

Stage One of this case study was carried out to examine Dribbble users' drivers and outcomes as related to their educational pathway and their careers in design regardless of how they learned. Here, instead of interviewee insights and nuance, a big picture description of the body of participants was built in terms of types of degrees (if any) and the specific type compared to the nature of their work. This information was important to this study for a variety of reasons. This overview of backgrounds allowed for a more accurate understanding when interpreting the participants' answers to add further clarity and context to the interviews. This detail also assured that the case study research questions were answered and the descriptions below supported those answers.

4.4.2.1 *Educational Descriptions*

Of the 30 participants, all but five held design degrees in higher education. However, of the 25 remaining who had degrees, only 11 were in design. Looking at those numbers another way, of the 30 participants, 19 either had no degrees or degrees not related to design. Of the 11 who had degrees in a design-related field (Bachelor of Arts), only eight earned the degree that the

field’s accreditation organization, NASAD,¹⁴ says the industry considers the minimum acceptable level of study: a Bachelor of Fine Arts.

This finding ties back to the research question/sub-question: *Did your degree prepare you for the work you do now? Do you feel like your degree prepared you?* This needed to be considered in the interpretation of that theme. As exemplified previously, if a designer was working in a field in which they did not receive their training, but they answered “*No, I do not feel that my degree prepared me for my current career,*” then their negative response would not receive the proper interpretation without the background context of them receiving a degree or training from a field different from what they were practicing.

4.4.2.2 Types of Employment to Degree/Non-Degree

As demonstrated above, there were a variety of degrees that may or may not have been directly tied to the work the participant was practicing in the design industry. Table 17 demonstrates the breakdown of the type of job by levels of degrees if any.

Table 17
Number of Degrees Under Each Category that Meet the Minimum NASAD Requirements.

	BRANDING 9 TOTAL	WEB DESIGN 1 TOTAL	VIS. DESIGN 3 TOTAL	ILLUST. 7 TOTAL	UX/UI 5 TOTAL	GRAPHIC DESIGN 5 TOTAL
DEGREE	7	1	2	5	5	5
IN DESIGN	6	1	2	3	1	1

¹⁴ According to the National Association of Schools of Art and Design (NASAD), the professional degree (BFA) focuses on intensive work in the visual arts supported by a program of general studies, whereas the liberal arts degree (BA) focuses on art and design in the context of a broad program of general studies. National Association of Schools of Art & Design, <https://nasad.arts-accredit.org/>

BFA	4			2	1	1
TOTAL BFA	4 of 9			2 of 7	1 of 5	1 of 5
PERCENTAGE of BFA in ea. area.	44%	0%	0%	29%	20%	20%

Note: Original source: (R) Rebecca D. Kelly. Statistical analysis of BFA degrees in each type of job category. Adapted from data from the study Hemsley, J., & Kelly, R. D. (2019). “Scratching a Niche: How Smaller Social Media Players Such as Dribbble Reflect the Viral Phenomenon.” *Social Media + Society*, 5(4). <https://doi.org/10.1177/2056305119890051>

This finding tied back to the research question: *Do the drivers/outcomes impact the future of IHE/Industry?* This area of inquiry was pertinent to the interpretation of insights from the interviews because if there was a significant correlation between degree/non-degree and a particular field, how did that specific area of study respond? These findings also impacted a few of the questions related to degree preparedness discussed above.

4.5 Final Thematic Findings for Interviews

There are several visual representations of the interview findings below. The purpose of these visualizations is to provide a larger picture overview in order to offer a digestible understanding of how interview findings answer the research questions. Going further, these interview findings are then dissected through the PLE lens (answers to the research questions through an interpretation based on cost, time, effort and finally, accessibility over quality). Finally, it is through these analytic processes that the findings were determined to be either a *driver* or an *outcome* of the participants' educational choices.

First there is a table displaying an overview with top findings. See Table 18. These results are then followed by a summary statement and a detailed report of the findings and sub-themes with supporting statements. See Table 19. This same formula of visual representations and summaries followed by detailed supporting statements is provided of the expert evaluations portion of the study. for the findings with research questions, driver or outcome assignment, PLE interpretative lens.

4.5.1 Overview of Interview Findings

Several significant findings resulted from the first phase of this research study, interviews with designers who are active on Dribbble.com coming from a variety of educational backgrounds. While some of the findings were expected, others were unexpected, for example, one would expect the DIYD to question the value of a degree in IHE, but the participants who had already obtained a degree also questioned the value of that degree. Ultimately, there were three key findings: answering RQ1: the value of a degree was in question, one can work as a practicing designer without obtaining a degree, and answering RQ 2: what DIYD are learning and not learning is critical to the industry. There were additional findings in each of those categories in a detailed discussion and breakdown section of the findings in *4.6 Discussion of the Narrative of the Findings : Stage One : Interviews*. See Table 18 below for overall key findings.

Table 18
Overall Findings: Participant Interviews: Phase One

RESEARCH FINDINGS: INTERVIEWS: RQ1/RQ1.2	DETAIL FINDINGS (THEMES)	(SUB-THEMES)
FINDING 1 : Questioning the <i>value of an IHE</i> education (<i>degree</i>)	1A: Questioning an IHE degree was doubted BY BOTH TYPES OF DESIGNERS (<i>Degreed & DIYD</i>) Due to: regret, the time, cost, ease of attending IHE	1B: Additional themes that lead to doubting the value of an IHE degree. HIGH COST OF A DEGREE DATED CURRICULUM STUDENTS SUPPLEMENTED THEIR OWN PROJECTS AS THEY HAD WEAK PORTFOLIOS
FINDING 2 : One can <i>still be a professional designer</i> without a degree in design	2A: There are ALTERNATIVE WAYS to learn graphic design, other than an IHE degree. <i>The design industry is also supporting these shifts towards skills driven design</i>	2B: Information seekers can find almost anything you need to know to pass as a base-line graphic designer online. This type of learning is either paid or unpaid and they learned enough to get into design on YouTube
FINDING 3 : What are DIYD <i>learning / not learning</i> becomes important to both IHE/INDUSTRY	3A: WHAT THE DIYD ARE NOT LEARNING the Importance of: failure in the classroom, critical feedback from clients and how to pivot and thinking about design in a wider sense (beyond tools/decoration). WHAT THE DIYD ARE LEARNING that knowing software is all you need to be a designer.	3B: <i>Who is teaching problem solving skills, ethics, usability, truthfulness, social responsibility? Are Algorithms responsible for content and context?</i>

Note: Original source: Rebecca D Kelly, Participant interviews, findings, themes and sub-themes.

The table above displays three main findings answering RQ1 and RQ1.2 followed by the details that support those key findings. Finding One: Participants stated that they questioned the value of obtaining an IHE degree in graphic design (*driver*) and these statements represent the rationale for the participants’ educational pathway: either the DIYD or the IHE route. The supporting thematic summary of Finding One highlights with detail that participants questioned the value of an IHE degree, and of note is that both types of designers — the DIYD and those who had already obtained their degree — questioned that value based on the cost, time and effort it takes to complete. These *drivers* align with the PLE theory that used to interpret the data. See the table below for more information.

Finding Two — one can still be a professional driver without a degree in design (another *driver* for choosing an educational direction) — demonstrates through this study that there are

several alternative, often easier, ways to learn design, at a much cheaper cost, if not free, than a four-year degree despite the lower quality of instruction. An additional significant finding that arose through these participant interviews under the second finding is that the industry also supports these alternative learning methods which shifts design to a skill (tools)-based focus (lower-level) rather than emphasizing higher-level thinking. Through the PLE lens, Finding Two (alternative ways) address the time, effort and accessibility factors used to interpret the data.

Finally, the data reveals one of the *outcomes* from these new ways of learning design and answers RQ1.2, which addresses the impacts of those *drivers* on industry and education. Finding Three reveals that what the DIYDs are learning and not learning can influence both the industry and education. Details and subthemes of this finding summarized above are themes such as an absence of the potentially positive value of failure and a lack of critical feedback which leads to iteration and revision improvement skills, as well as thinking of the design industry from a wider perspective (problem solver, futurist, strategist over a more decorative in nature). Without a more extensive commitment and effort put into design, regarding it in a more circumspect context, or engaging in conversations, critical thinking and feedback, these online platforms are leading DIYD and industry to believe that software makes one a designer versus higher-level thinking.

In the next table, there is a more detailed description of the findings portion of the study which provides a glimpse of the Phase One in totality. This includes the *driver/outcome* designation along with the research question with the specific PLE category (cost, time or effort or accessibility interpretation). See Table 19. In this table there are also detailed descriptions of the core findings (three in phase one) along with details on those findings identifying three themes and three sub-themes. In total, there are two research questions answered (RQ1 and 1.2), three core findings with two themes and six sub-themes. The findings, supporting themes and

subthemes in the narrative portion are discussed in more detail in 4.6 *Detailed Narrative of the Findings : Stage One : Interviews* section along with a visual diagram of the cause and effects of the PLE impact on the design industry and education.

Table 19

Detailed Overview Findings: Participant Interviews: RQ 1, RQ1.2, Drivers, PLE and Themes.

PHASE	RESEARCH QUESTION	PLE LENS	RESEARCH FINDINGS	DETAIL THEMES	SUB-THEMES
ONE: INTERVIEWS	DRIVER RQ1: What are the <i>drivers</i> of choosing either an IHE or DIYD education?	COST TIME EFFORT	FINDING 1 : Questioning the <i>value of an IHE</i> education (<i>degree</i>)	1A: BY BOTH TYPES OF DESIGNERS IHE AND DIYD: regret, cost, ease	1B: HIGH COST DATED CURRICULUM SUPP. PROJECTS WEAK PORTFOLIOS TIME COMMITMENT
		TIME EFFORT ACCESS- IBILITY	FINDING 2 : One can <i>still be a professional designer</i> without a degree in design	2A: Alternative ways to learn, IND is also supporting these shifts towards skills driven design	2B: can find almost anything online, paid or unpaid: learned enough to get into design on YouTube
	OUTCOME RQ1.2 : How do those reported <i>outcomes</i> impact the future of IHE/IND education?	EFFORT	FINDING 3 : What they are <i>learning / not learning</i> in DIYD becomes important to both IHE/IND	3A: <i>Not learning the importance of:</i> failure, feedback and design in a wider sense. <i>Learning:</i> software makes you a designer	3B: Who is teaching problem solving, ethics, usability, truthfulness, social responsibility?

Note: Original source: Rebecca D Kelly, Participant interviews, analysis and themes.

4.5.2 Overview Interview Summary

The three major emergent themes that were determined after the coding and the thematic organizing of the interviews are in chart forms for clarity above. The first theme was the role of a *driver* which the participant considered when deciding on an educational path to learn design, one of which being the questioning of the value of an IHE education (finding one).

The second major theme was another *driver*: that a career in design is possible without an IHE education (finding two), again answering RQ1. In other words, why does one need a degree

if one can still be a practicing designer without a degree (PLE considerations of: time, effort and accessibility over quality). Those themes led to the last major theme in phase one: interviews, which questions the impact of those *drivers* on design (what the DIYD are learning and not learning) as *outcomes* that will impact on IHE and the design industry. These themes and their accompanying sub-theme topics are discussed in detail below.

4.5.1 Detailed Narrative of Interview Sub-Themes

Before assessing the interview data, providing context about the relevance of those themes became important to understanding their potential impact. As mentioned above, there were three major themes that arose to help answer the research questions. Specifically stated, the research questions were: Stage One RQ1: *What are the drivers of choosing either an IHE or DIYD education?* RQ1.2 *How do those reported drivers/outcomes impact the future of IHE design education and industry?*

Answering the first question with the thematic category of *drivers* of education choices, the major emerging theme for interviewees was the rationale for choosing the DIYD path or to enroll at an IHE. Through the interview pattern matching and clustering, “*questioning the value of an IHE degree in design*” and the details of what that meant according to the interviewees began to develop. Leaving the definition of “value” up to the interview data, the sub-theme also emerged as “*IHE general issues*,” consisting of curriculum problems, outdated assignments, etc., which compounded the problem of increasing costs associated with acquiring a four-year degree. Following the logic of the first major theme and sub-themes of *value* versus *time*, *cost*, *commitment* and *price*, the interview data was now subjected to interpretation through a Principle of Least Effort (PLE) lens. This now became a consideration when analyzing the data.

Still answering the first research question, now focusing on the second part of the RQ1, the reasons the subjects made their educational choices was directly tied to the interviewees “*questioning the value of an IHE degree in design*” at the forefront of pattern matching, frequency, empirical thinking, etc. The second major theme arose as “*a career in design is possible without an IHE education in design*” with the relevant sub-themes of “*learning in alternative ways and can still become a professional designer.*” This led to the understanding that learning could take place in a variety of ways, the majority being on online social media sites such as MOOCs.

The third major theme shifted toward answering *RQ1.2 How do those reported drivers impact the future of IHE design education and industry?* Here, the study sought to discover potential influences or impacts on the future of the design industry and IHE through the responses of the case study interviews following the coding and theme framework of the last major theme, “*what are those designers learning/not learning*” from their own perspectives. The sub-theme to the third major theme focuses on topics under this category on the positive and negative opinions about *failure, feedback and the value of thinking about design in a wider sense.*

The major themes and sub-themes were important for a variety of reasons. It was important to reflect on *4.4.1 General Demographics for Both Stages and 4.4.2 Deeper Understanding of the Demographics*, to the details about the total body of practicing designers, freelance, full-time, degreed and non-degreed in this research. The people in this case study provided this work with a variety of opinions and experiences offering universal insight to these themes through a wide variety of perspectives. This recognition of who was providing these details had to be considered and was especially significant when patterns emerged among a wide, disparate demographic.

After the findings analysis presentation in this chapter below, more direct importance and implications about these findings is discussed in depth in *Chapter 5: Discussion and Implications*. Before moving towards the data analysis and findings part for Stage One, the next section completed the same demographic organization of the designers selected for the Stage Two: expert visual analysis, part of the study.

4.6 Discussion of the Narrative of the Findings : Stage One : Interviews

One of the benefits of qualitative research in building this case study was that the data had to be accompanied by the context provided above, followed by interpretative discussions found in *Chapter Five: Discussion and Recommendations*. Great care was given to this study's analytic approach repeated several times by both the researcher and research assistant to ensure reliability and trustworthiness. The researcher provided information on how the findings were produced with detailed explanations of how the coding and themes were derived. Next in this section, when appropriate, semi-quantified contributions are presented so that readers will have additional clarity when looking at the relationship between the data and the analysis (although this study is not a quantitative-based study). As an embedded-based study, qualitative and quantitative data supported the data findings from both perspectives.

As a reminder, this study centered the results on these emergent themes derived from the participants themselves: practicing designers using the social media site Dribbble to post their work. The study focused on the factors in their decision making rationale for their educational choices in order to learn graphic design, in other words, why they chose their particular educational route.

As revealed in Table 14, to answer RQ1: “*What are the drivers of choosing either an IHE or DIYD education?*” and RQ1.2 “*How do those reported outcomes impact the future of IHE/IND education?*” three main themes arose: RQ1: the questioning of the value of higher education, and a career in design is possible without an IHE education (*drivers*) and RQ1.2: results of those drivers: what the practitioners are learning or not learning and the impact on IHE and industry (*outcome*). The three main findings are discussed below in more detail along with the interview descriptions that support those topics with nuanced insights that interviews and case studies provided.

In the first section of data analysis, the results were broken down into two distinctive parts, under *drivers* and *outcomes*. Under *drivers*, the main topic that emerged questioned the *value* of IHE. Under this overarching *value* category, there were two sub-themes related to this *driver*: choices related to PLE (*cost, time and effort* to become a designer) and why designers did or did not choose the IHE trajectory, and secondly, general IHE issues that contributed to these decisions.

The study shifted to another *driver*, and in the second section of this data analysis, the main topic that emerged was that a career path in design is possible without an IHE education, along with its two sub-themes related to *outcomes*. The first sub-theme is that those learning in alternative ways can still be designers, and how, where and what they are learning and not learning.

Understanding the case study results through this qualitative lens was challenging especially when the researcher practices as both IHE educator and as a designer. The constant challenge in the *findings* sections was to be aware of both of those fields as the practitioner and as the interpreter of this data. Working with a research assistant through multiple iterations of

deductive and inductive perspectives along with rigorous discussion and debate of the data going beyond a mere frequency-counting of themes as the determining factor on categories alleviated as much of the potential bias as possible. Understanding the current literature (both academic and gray) and identifying the current nature of the industry and IHE became relevant and were used in this study to support these findings and put them into a contemporary context (more of this type of discussion is in *Chapter Five: Discussion and Recommendations*).

This was not a quantitative study but a blend of both qualitative and quantitative in an embedded design; these statistics were presented to support the findings for a deeper understanding and context. Nearly half of respondents (n=15) without a degree in design (BFA) and with the minimal degree courses in design as recommended by NASAD in a BA degree, indicated negative issues with the value of the IHE. This is an example of looking not just at the interviewee responses but also their demographics. Of the respondents in this coded category, ten did not have the NASAD accredited minimum degree (a Bachelor of Fine Arts with a specialization in a graphic design related area of concentration), while five held that degree. Three additional levels of details for consideration when evaluating those comments were: of the 15 total respondents who were questioning the value of design, five had degrees unrelated to design, nine had degrees related¹⁵ to design and of those, three had non-minimum requirements (Bachelor of Arts or Fine Art focused) and five had BFAs. Summarizing for context, of the 15 respondents questioning the value of IHE in design, *all 14 had degrees*, nine of the 15 (9 of 15) were related to design (six were degreed but not in design) and three had some level of formal education in design. The point of these statistical findings was that all respondents had degrees yet still questioned the value of their degree, and the majority of those 15 had degrees that were related to design (9 of 15). Of those nine - six had their minimal-accredited acceptable degree

¹⁵ “Related” could mean a Bachelor of Fine Arts but a focus is in painting or drawing versus graphic design.

(6-9), a Bachelor of Fine Art with a focus in graphic design and still questioned the value of their education. Keeping those data points in mind, the study moved to the *drivers* that led to questioning the value of an IHE education.

4.6.1 Detailed Narrative Findings : RQ1: Drivers: First Major Theme : Questioning The Value of Higher Education :

“Education has always been touted as the path to prosperity in America” (Banks-Santilli, 2014). The “American Dream¹⁶” in particular contained the idea that children were to do better, make more money and achieve more success than their parents. One of the expected trajectories to reach this goal for millions of Americans was to attend college. This achievement nearly guaranteed business success and therefore financial success. A college education almost guaranteed that perceived value. The benefits of a degree justified the cost. In other words a college education had value.

In the design industry, historically, the benefit of the degree with one’s name on it that is listed on the resume was a requirement to even be considered qualified. There was generally one way of gaining entry into the field and that entry was, a majority of the time, a degree which required a four-year time commitment, dedication and effort, and it had a cost. This was reflected by industry standards but based on current trajectories and changes in technology, the minimum requirements for entry are changing, which was supported by the data discussed below.

¹⁶ The American Dream is the idea that children can work hard and secure a better life than their parents by climbing the economic ladder (Friedman, 2020).

4.6.1.1 How Principle of Least Effort (Time, Cost and Effort) Affects the Questioning of the Value of an IHE Education

“I think the biggest threat to formal education is a combination of the price as well as information available online or seemingly available online because it’s not to say that you’re going to find people online that will teach you but you can find the art that you want to emulate online much more readily available than I was able to when I was younger.” P[18] (Bachelor of Fine Art Degree in Graphic Design).

Regarding the first major theme: *questioning the value of higher education specifically in design*, working from frequency coding words while comparing those words and comments to interviewee demographics led this analysis to the larger theme mentioned above. By working this way while constantly moving from interviews, demographics, checking results against the contemporary discussions, PLE theory, literature, notes and context, these similar topics came together to form the general big-picture findings (one) a driver is: *the questioning of the value of IHE through a time/cost/effort perspective*. The theme was not determined by how many interviewees mentioned inadequate assignments or weak portfolios but rather a larger category that encompassed a mixture of issues (time, cost, effort, weak portfolios and projects, etc. into a larger group) that came together to express more of a general concern about (two) : *the overall questioning of the role of IHE in the design field*. These rationales were in fact the drivers behind why designers chose alternative educational pathways when learning design.

The first sub-category described interviewees’ concerns about topics that fell within the principle of least effort theory. These categories were defined as the amount of *time* it would take to obtain a degree or the time it would take to obtain the necessary information to be considered a graphic designer, balanced with the *cost* necessary to obtain this minimal amount of knowledge, combined with the amount of *effort* needed to obtain the knowledge and skill. As a

reminder, these components of time/cost/effort are the underlying principles of the broad-based theory of the principle of least effort that is often used in information sciences (described in detail in *2.4 Framework : Applied Theory: The Principle of Least Effort*)

Reviewing the demographic numbers, the theme of *time/cost/effort* as presented through the PLE theory, was supported by comments questioning the value of IHE to the participants. One of the unexpected findings from this study revealed in the data was that both non-degreed and degreed participants questioned their decisions to attend IHE. Comments such as “After graduating I kind of regretted going to school and spending money on a design major” P[13] (*Bachelor of Fine Art Degree in Graphic Design*) supported the idea that value did not justify the time, cost and effort. Interviewees discussed the value of what they were getting in terms of the usefulness of what they learned in school while others talked about the actual cost, combined with “insane interest rates on loans,” and that college was “becoming an unattainable thing” P[20] due to rising costs, especially when considering the value of the information. Participant [19] supported this problem of content value versus cost by revealing, “I think a lot of things you can definitely find online. It’s getting easier and easier to find the same sorts of things online that you can get out of a degree program.” Participant [06] stated that the online courses have the added “support” of updated content that IHE don’t provide. “I don’t know what it’s like in the US but in the UK a university course is about \$7,000 to \$10,000 a year. In the US, I think it’s going to be even more than that. So an online course can be somewhere like \$5,000 for as long as you want, and there’s infinite updates for you to go back and use it. So it’s hugely cheaper.” In a similar vein as stated by participant [08], “To be completely honest, if I needed to search for motion graphics I could probably feel like I mastered it through YouTube for free” (*Participant with a degree in another field*).

The transcripts of the interviews were evaluated in categories similar to the foundation for the PLE theory, centering on ideas behind time commitment, cost/price, and least effort or ease. Participants continually spoke about these topics related to the ease of access and digestibility in terms of learning materials or videos as the “easiest way to learn.” One of the tenets of the PLE theory is that it is human nature to quit as soon as enough of the skill is gained to pass the minimum bar of achievement, which aligns with participants who admitted that they “learned enough to get into the [design] career,” P[24] with all the free information available online. Participants acknowledged how easy it was to learn design with MOOCs through comments such as, “...a lot of people don’t want to make the climb, they’re looking for the chairlift,” participant [9], meaning they don’t want to learn the hard way, just the quickest and easiest way available. Participants echoed the time commitment and unwillingness to give up years in order to learn to be a designer versus a few months. “I wasn’t at a point in my life where I really wanted to commit two, three, four years of my time [to learn design],” participant [24] stated.

Participant [14] summarized the ease and speed of learning design in the comment, “Now it’s like the programs are so accessible that a kid who didn’t go to college or chose not to go to college, they open it up, look at it on YouTube, watch a bunch of tutorials, go on like Instagram, look at their favorite artist and think okay *how* do I create that, like *how* do we make this?” The benefits of this on-demand self-paced way of learning design was often repeated in comments like “I don’t think necessarily you need design school to become a designer anymore. With social media it’s like having instructors at your fingertips at all times you know” and “Like on YouTube or whatever a lot quicker” P[13].

There were other ways in which interviewees expressed “value” concerns. Participants challenged the idea of value in terms of “worth it,” discussing other ways they had to learn

necessary skills to be successful on their own other than what school provided them. For example, learning to make a difference in design, self-driven to cover gaps in IHE and finding passion for themselves or pushing past dated design concepts. Participant [28]: “When it came down to using that in a transcending way of something that makes a difference in design, that had to come from my own doing” and “all my professors did was make the most of that and try to generalize it as much as they could, and for me I always knew what I wanted to do I just needed the focus, so I just kind of had to create that myself.”

Other designers said that the idea of value is challenged, not just by their own questioning, but the industry as well, as evidenced through hiring companies, job descriptions, art directors, etc. Participant [20] stated, “...they don’t care what school you went to... but like our generation we don’t care.”

Recapping the data analysis on this first main theme : questioning the value of IHE from a designer’s perspective as a *driver* in the decision making processes in terms of how they chose to learn design, either the IHE route or the DIY pathway, the following points were also discovered. Participants frequently commented that there were issues with how long it takes to earn the IHE degree combined with the increasingly high cost of gaining that degree. Participant [27] expressed this repeated sentiment: “I’m happy I went through the route that I’ve gone. But sometimes I’m like, gosh, would I have saved much more money if I had just [not gone].”

Frequently discussed was the ease of online learning and that the specificity of what those videos/courses/tutorials offer was a compelling alternative. The speed of this type of learning was very appealing versus the *time* it would take to dedicate to a four-year degree, including the additional *cost* and *effort* to achieve the degree itself. These comments were compounded when interviewees (and sometimes professionals) stated that the degrees weren’t even valued as much

as they used to be. Clients are also seeking the cheapest, fastest, easiest way to get design work accomplished. It is the work, the content of the portfolio, that enables one to access the jobs and not the degree anymore. The content is found easily and cheaply online. Following this line of findings, it was then logical to look into IHE deeper to examine the issues that participants discussed as relevant to questioning the value of IHE: the content.

4.6.1.2 IHE General Issues : Questioning the Value of an IHE Education

The second sub-theme under the *driver* category questioning the value of an IHE education fell under an *IHE Issues* grouping discussed below. In this section, the research revealed topics that the majority of interviewees deemed a factor in their thoughts about careers, education trajectories, etc. Topics included outdated curricula, an inability for IHE to adapt and stay current, and irrelevant assignments that led to weak portfolios that ultimately did not prepare them for a long-term career in the design profession. All of the above perspectives helped build the narrative as a factor or driver in today's designers questioning the value of a degree in IHE in this type of designer strata.

Portfolios and Assignments

“Well you don't need a degree I would say, I've always believed that. I believe if you have a good enough portfolio you can get a job anywhere, that's just talent you know.” P[28] (Bachelor of Art in Illustration)

Depending on one's perspective, the final output of a degree in design is the portfolio. The portfolio, whether digital, physical or a hybrid of both, is often a significant factor that a hiring manager utilizes to assess a designer's ability to perform at the level they are seeking. Quality projects make up the portfolio working together to represent the designer. The importance of the

portfolio in whatever today's form manifests, should not be underestimated, and the interviews supported the idea about portfolios and it is the assignments that become the contents of the book or portfolio.

The comments from the participants that made up the following section about the IHE portfolios and assignments stated that the work was behind the times, did not represent current technology, and seemed like student work not worthy of a final portfolio. Additionally, the majority of the comments on the books and assignments were from the BFA degree holders which in itself aligns in terms of logic. Those that studied for the BFA with a portfolio component had the majority of the comments that viewed the work in their books in a negative light. Not one of the respondents spoke positively of the assignments in their portfolios and, once again, they had to find ways to create additional pieces outside of schoolwork. They weren't current in terms of software applications, as one former student took the assignment independently and found ways to make them more relevant. As P[28] stated, "I'm not going to create a jumbo jet craft based [project] around four words that I picked from the teacher's schematic. I'm going to say well here's a business solution for a logo design and how does that translate to digital media, how does that translate to websites. I was thinking more like that. So I guess part of the program that I was in was a bit dated but also I don't know, I think it was just set towards a certain limitation that I felt like I was a little bit, I was wanting more of surpassing that." Similar discussions supported those findings about the work produced in school that did not engender a successful portfolio in terms of content/assignments. "A lot of the projects that we did at school weren't things that I [found] necessary, a few I did but like to put in a portfolio to apply for jobs so that was kind of a struggle." P[28] Several interviewees stated that projects were 10 years or so out of date and weren't keeping up with trends that much. Also, the ideas

that “projects were pretty basic” and limited in scope and depth were summed up plainly as “I just think the projects lacked, [and that] was the problem” P[13].

Since a large portion of the comments suggested that assignments were dated, the case study investigation focused on the importance of current assignments reflecting more contemporary projects that would best lay the groundwork for students’ success in the ever-evolving design industry—in other words, an IHE curriculum that adapts easily to train a prepared workforce regardless of contemporary practices or technologies.

Adaptability

“Design is a direction that you have to stay ahead of and I don’t think school can just be the one and all of doing that.” P[28] (Bachelor of Art in Illustration)

The idea of adaptation came up frequently with the participants from both sides of the educational spectrum, both formally and informally trained, which is a unique finding in and of itself. Not unlike other industries, technology plays a large role in the evolution of graphic design, as a field and from an educational standpoint. As laid out in *Chapter Two : Literature Review*, technology has almost consistently and almost simultaneously impacted both. This idea of adaptation in IHE is discussed more in *Chapter Five : Discussion and Recommendations*; however, it was important to build upon the idea of adaptation with respect to the future of design from these findings which were evident in the interview narratives.

Other interviewees also shared their thoughts on an adaptive IHE system; the view of outdated assignments reveals a lack of adaptation inherent in IHE. Assignments were 10 years out of style, not applicable in the real world, and not relevant anymore, therefore assignments showed a lack of adaptability to current market trends tied to new technological advances or

trends (such as social media graphics). In their own words, participants characterized a lack of adaptability on the part of IHE; as P[22] states: “We were doing some things with computers but nowhere near...[what’s necessary today], keeping up with technology after paying for college [was a challenge].” Others considered timeliness and relevance as a benefits to learning online, citing “infinite [free] updates,” on new topics versus the complete-a-degree-and-you-are-done-attitude of some IHE. The feeling was that IHE generally has difficulty “keeping up with trends.” Additional comments discussed the often territorial nature of IHE. Participant [19] was aware of the infighting and the impact on an inflexible curriculum. Stated here, “They [my university] were kind of in transition and they were also fighting with the interactive media department over like some territory so a lot of the projects were print-based, and I didn’t get as much like digital design experience and they didn’t really go into like UX strategy at all except to say that that’s a direction you could go in” but they didn’t teach it knowing they should. Others suggested that the field itself (IHE and industry) needed to be better at accepting and communicating, even planning for adaptation as part of the learning process of design. In other words, you were signing up for something that was constantly changing, you have to adapt, and “education has to keep up with it.” More discussion on the flexibility of the IHE curriculum is discussed in *Chapter Five : Discussion and Recommendations*.

Preparation for the Workforce

“Definitely not, yeah, definitely behind.” Participant [13] (BFA in design)

As the last *driver* when questioning the value of an IHE degree, this discussion seeks to answer: *Did IHE prepare you for the workforce?* since all but five of the thirty participants had a

degree from an IHE. Before this question was analyzed, this section warranted some statistical support for more insightful nuance when deciphering the responses.

Yes Responses : Preparation for the Workforce

Seventeen answers were coded “yes” and had degrees; 30 answers were coded “no.” Both “yes” and “no” responses were answered by 13/30 respondents. This same finding was reached by both researchers. To break these responses down further, of the 17 “yes” answers, there were 13 participants with two coded with multiple answers, bringing responses to 17. All respondents who answered “yes” had an IHE degree: five had Bachelor of Fine Arts (BFA) in Design, three had Bachelor of Arts (BA), who had taken a few courses in design and five had degrees not related to design but were practicing designers. Six of the respondents answered “yes” and “no” and, of those six, one had a BFA, two had BAs and three did not have a degree in design or experience.

No Responses : Preparation for the Workforce

There were thirty responses that were coded as “no,” IHE did not adequately prepare them for the workforce. Important to the next set of analysis, 13 were unique respondents with several (27) having multiple responses. Two “no” respondents had BFA, three had BA degrees and eight had no training in IHE in design but had degrees in other areas of studies. As stated above six of the respondents answered “yes” and “no” and of those six, one had a BFA, two had BAs and three did not have a degree in design or experience.

Understanding the Numbers : Preparation for the Workforce

Comparing some of those figures, in both categories (yes and no) it made sense that the BA responses by the numbers (three yes, three no and two yes and no). For a BA, according to NASAD requirements, there was a much smaller emphasis on the specialization courses in design and therefore it was a much more broad understanding of design compared to very focused and significantly more courses specific to graphic design¹⁷.

When looking at the responses (yes and no) the number of responses to degrees also followed the logic. Five of the yes BFA respondents said their degree had adequately prepared them for work in the field versus two BFA who replied no, they were not prepared and one BFA said yes and no. Depending on the perspective and intention, that meant that 80% said their BFA had prepared them and there was a connection to their degree. On the other hand, roughly 20% of BFA participants said their BFA had not prepared them for the industry. Regarding the pool of participants with degrees not related to design, roughly 38% said their unrelated degrees adequately prepared them for a career in design, which is interesting. On the flip side 62% of the same type of respondents said they were not adequately prepared for a field in design, which makes more sense. With these numbers, building a narrative that supports these findings was important to better understanding participants' responses. It is in those anomalies that this study takes interest: the five non-related degrees that prepared them for a job in design and the two BFAs that stated they were not prepared despite their focus in design.

¹⁷ Typically, a BFA Degree requires 72 credit hours in visual arts coursework and provides a more in-depth program of study in a chosen concentration while also creating the opportunity for interdisciplinary experimentation in other visual arts media. Students who intend to pursue graduate studies in art should consider choosing this degree. The BA degree requires 48 – 51 visual arts credits and lends more easily to the combination of multiple majors, minors and/or certificate programs and for the selection of coursework from the broad range of disciplines available in a liberal arts setting. National Association of Schools of Art & Design, <https://nasad.arts-accredit.org/>

Building the Narrative : Preparation for the Workforce

Looking specifically at the five non-degree designers with degrees in other disciplines who stated their degrees did prepare them for work in design, their degrees are in engineering, painting and sculpture, industrial design, English and resource communications. All five interviewees worked in digital design, website and specifically UX/UI-related design so the significance of these findings make some sense as UX/UI design as industrial design is very much about understanding the user as it applies to products, and these skills transfer to website design. The participants with degrees in English stated that this degree helped them communicate with people. The response from the painting and sculpture major related that his school taught him creativity and how to talk about his work, which also falls within the job responsibilities of a UX/UI designer in terms of problem solving and communication skills.

Regarding the two BFA participants who stated that no, their degree did not prepare them for working in the design industry, the first participant had an undergraduate degree in graphic design and their current work involved branding/advertising. To summarize their response, they regretted spending money on a degree and learned more on the job than in school due in part to a weaker program that did not focus on software, as well as outdated projects. The second participant also had an undergraduate degree in design and had UX/UI-focused responsibilities. This respondent also felt that they only learned the basics in design and that one doesn't need a design degree to be a designer as they knew several designers who learned along the DIY path. Additionally, this designer had a more illustrative tendency, so it aligned that a graphic design focus was not a complete match in terms of work experience/goals.

Aside from those outliers, the general concerns about IHE not preparing one for the workforce touch on similar topics, obtaining only a basic knowledge and having to learn on their own or on the job to close those gaps of knowledge. Once again, price and dated projects are recurring comments for the *did not prepare* categories. Respondents from the yes category talked about bigger picture programs while others talked about the importance of software-focused programs as a plus. Others saw learning the basics as a positive and others had internships while going through school, which prepared them holistically. Essentially, there were a lot of topics that recurred in the yes and no categories that were seen either as positives or negatives depending on their perspectives.

In the next section, there was a significant shift from *drivers* to *outcomes* in order to answer RQ1 before undertaking RQ1.2, remembering that RQ1 talks about drivers of choosing either a DIY path in design or an IHE goal of a degree when it comes to learning graphic design. In the above section, this study focused on drivers or rationale for the choices for either decision when it comes to learning design. Those drivers were the larger theme of questioning the value of an IHE education and there were three sub categories interviewees considered when making their decision: is it worth the time, cost or effort to achieve an IHE degree, what are some of the problematic issues with IHE (weak assignments and portfolios), and a lack of flexibility or adaptation in IHE versus the appeal of the constantly changing and updated content on a MOOC platform.

Answering the second half of RQ1, the study focused on the *outcomes* behind questioning the value of an IHE education. Based on the initial *drivers*—the questioning of IHE education in design, what were some of the potential *outcomes* (beliefs or the results) of questioning the IHE

degree from those who undertook it? What were their perceptions of *outcomes*? Simply stated as a major theme, a career in graphic design is still possible without an IHE degree.

4.6.2 Findings : RQ1: Outcomes : Second Major Theme : A Career in Design is Possible Without an IHE Education

This possibility of design without a degree was an interesting prospect that opened the discussion for additional sub-themes discussed in the following section. Adding to the *driver* of questioning the value of education was the idea of whether a degree prepared the participants for the workforce. The results were telling yet not surprising. The next logical consideration in this line of thinking was studying interviewees who supported the finding that a career in design without an IHE degree was an *outcome* of the above research. Following that major theme as an outcome of questioning the benefits of an IHE education, the analysis included the alternative ways to become a designer and where/what/how they were learning.

4.6.2.1 Learn alternative ways and can still be a designer

“I definitely think you don’t need that classic education. You can learn those [research] skills by yourself if you think you would need passion on the drive because again it’s a decent amount of work and especially to kind of learn that on your own you would need the passion, but it definitely is doable without the schooling.” P[29] (Bachelor of Fine Arts in Graphic Design - working in UX/UI)

“[A degree] doesn’t matter, at the end of the day it’s possible, just know that it’s possible and you need to understand the rules of how to get there.” P[28] (Bachelor of Arts in Visual Communications - working in Illustration)

“[Don’t need a degree] ...not really, you can do, you can teach yourself, I teach myself just in thoughts, I build my business just on that. Most of like design graduates they have to learn some other business skills from scratch if they enter the field. It’s better to do yourself that.” P[21] (degree in physics, economics, software development - working in Branding)

The three quotes that discussed the idea that being a designer was possible without an IHE degree represented all three types of educational trajectory: the highest qualifying BFA degree with a focus in graphic design, the BA degree in something other than design, and studies in economics, physics and software development. All three were working in design after three very different educational experiences and worked in three different types of design—illustration, UX/UI and branding. However, all three of them held the same sentiment—that a degree in graphic design was not necessary to work in the industry. Even people working in design with a design degree shared this sentiment: “you don’t need a degree, I’ve always believed that,” (respondent does have a degree in design, just not a BFA) P[28]. This *outcome* from questioning the value of a design degree is at the core of this study and is reiterated in different expressions in different categories of participants from different types of design education and work experiences. This sub-theme even pervades through the previous *drivers, coding and thematic* findings that become more evident when thematically threaded together.

There were subjects of responses grouped by distinct categories that represented the larger topic supporting the growing movement of working in design without having an IHE education. These topics were classified as the following: basic education is available online, the value of the degree is changing driven by designer and industry, the abundance and availability of online resources, and a growing number of the DIYD working in design (witnessed by both the IHE trained who recognized this growing population and those who developed along the DIY route).

Similar topics and comments mentioned above were listed sometimes as a negative against an IHE education and a positive in online learning. For example, from the tone of one negative comment, an IHE degree program that offered a “basic, classic or practical” training was seen as

a benefit to those who chose self-driven online learning, because a “basic” education found online meant that the topics were “easy to digest” online and a similar type of comment as expressed by an IHE degreed designer was seen as a negative. “I think a lot of things you can definitely find online. It’s getting easier and easier to find the same sorts of things online that you can get out of a degree program” P[19]. In short: there is enough content online to provide a foundation to become a designer.

Several respondents also noted that the way the design industry views, values and supports alternative learning methods enforced the idea that one can become a designer without a degree in IHE. Statements discussed the changing value of a degree itself, similar to the ways in which the designers in this study questioned the value. “Degrees don’t matter as much anymore” and “degrees aren’t valued as much as they used to” were voiced by designers, but they also said that the industry enforces these changes in their own requirements, again making it “possible” to work in the field without the previously required BFA degrees. These ideas were reiterated in the comment below.

“There’s somebody out there that’s being more flexible and like opening their job applications up to people without college degrees which is amazing and so like those careers are becoming more acceptable to people but don’t have like the necessary education.”
P[24] (Non-Graphic Design Related Degree)

One participant suggested the industry was also dictating not just what the value of the degree was, but what they wanted and who they would get to do those jobs. According to participant [22], “you have so many in the industry, businesses and whatever else because they’re pushing for more of the digital and that’s what you’re getting with a lot of the young people [learning online quickly].”

As mentioned in other analysis sections that are also relevant here are the discussion points about the abundance and availability of online resources. The offerings were “on-demand” and provided 24/7 “instructors at your fingertips” according to P[14]. This speed towards knowledge on how to be a designer quickly became evident and recognized by the large growing number of the DIYD existing in design. IHE-trained designers and non-trained designers mentioned this growing population of DIYD on social media sites. Designers remarked again and again on the large amount of the DIYD in the design community and that “young designers” already knew they didn’t have to go to a university to work in this field.

4.6.2.2 Where/What/How they are learning

“I think you can jump onto social media and sign up to a YouTube course or a video course that you can quickly learn and aspire from.” P[06] (Non-Graphic Design Related Degree)

Without a doubt from analysis of these interviews, social media was making an impact on design, the design industry and design education, in terms of the ways people were learning and working. These were some of the *outcomes* from questioning the value of an IHE education, learning how to be a designer without having to practice and learning design in the traditional ways. It was clear in most of these sections, that the alternatives were available at little to no cost or commitment and are on-demand. As discovered in this study, DIYD were plentiful in this particular stratum of the design ecosystem (here typically freelance). They were learning online, but what and from whom had to also be part of this analysis.

In addition to the most mentioned online sites like YouTube, Dribbble, Skillshare, Lynda and Instagram, Google, Podcasts, Hoodzpah, Behance and LinkedIn are the most utilized sources. However, a large number of participants made note of a shift even in the online learning

community with a new challenger that was specific to creative work, with more design-focused content called “The Futur.”

Run by Chris Do, The Futur was formerly a design firm that now offers free content (some content costs money but is significantly lower than a college education). The participants broke this organization’s services into business content, how to bill, estimating for clients, etc.

Participants also stated that the value of Do’s work is for people—“kids”—who don’t have access to design school content and videos to design more like “stuff you learn in school.”

Interviewees had also mentioned the lack of valuable content in IHE design programs that they would find more beneficial, ones with more business-focused information; for example, issues with starting a business, freelance, billing, and paying taxes, etc. According to the interviewees, these issues were gaps in IHE that led to the questioning of the degree and its devaluation, allowing resources like The Futur to fill that gap for many designers.

“C----- probably mentioned the Futur, they’re a huge agency that originally were a design agency and have now moved into the education system and now they’re selling courses at probably a fraction of the cost of university which young designers can sign up to and learn straightaway. C----- never went to university, he started from just himself so he’s a perfect example of the education system changing.” P[06] (non design related degree).

There were other ways mentioned by participants explaining that how and what they were learning was changing design practices and norms. This is discussed in greater detail in the last major theme below and in *Chapter Five : Discussion and Recommendations*. The last major theme in this research was designed to answer RQ1.2: how do those *drivers* and *outcomes* discussed above impact the future of industry and IHE?

4.6.3 Detailed Narrative Findings : RQ1.2 : Drivers/Outcomes : Third Major Theme : What Are They Not Learning

For the purpose of informing the readers of the progress of this research, a recap of this next analysis portion was oriented within the Stage One part of this study. Stage One focused on the analysis of RQ1: *What are the drivers of choosing either an IHE or DIYD education?* The above analysis revealed those answers in two parts: *drivers* (what are the reasons and rationale behind their choices) and what are the *outcomes* of those reasons/rationale. The answers that were formulated by the participants' responses for RQ1 were as follows: the *drivers* are the questioning of the value of IHE in design and led to a determination that a career in design was possible without an IHE education. Building on those results, the study then moved to the discussions surrounding RQ1.2: *How do those reported outcomes impact the future of IHE and Industry?* RQ2, 2.2 and 2.3 are part of the visual analysis portion in Stage Two with the expert reviews, representing one of the ultimate outcomes of this project discussed in 4.8 *Stage Two : Visual Analysis and Definition Comparisons*.

Answering the second half of RQ1, the study focused on the *outcomes* behind the questioning of the value (a *driver*) of an IHE education and that a career in design was possible without an IHE degree. Following those concepts, what were some of the potential *outcomes* of questioning the IHE degree from those who undertook it? What were their perceptions of those *outcomes*? Simply stated: as the third major theme, what were they not learning, where were the potential gaps as identified by the analysis of the interviewees' responses.

The *outcomes* of the choices that this stratum of designers have made were identified as the impact of failure in design, the role of feedback and the way in which design was considered and, by extension of the last discussion point of the "*how versus why*" impact on industry.

4.6.3.1 *The Value of Failure*

“I think that success is a ladder and failure is a rung on that ladder that you cannot skip. I don’t think it’s possible, it’s possible to avoid in terms of just the learning process, failure is a part of it.” P[18] (BFA in design)

“Afraid of it [failure] because it shows weakness.” P[28](Bachelor of Art in Illustration).

“I think seeing failure online, it’s just terrifying.” P[20] (BFA in design)

The three quotes above represent the general perception behind the illogical and chaotic nature of the responses from interviewees on the importance of learning failure in design that arose from the semi-structured interviews. First, the reader must understand the slight differences in the DIYD definition. There is some similarity in the terms; the IHE designer defined failure as more aligned with the ideas of a revision, part of the iteration process, not the failure of a final idea. The DIYD saw it in a slightly different manner based on their own words: more as a bad idea, sketch or logo. IHE understood this is part of the creative process, whereas the DIYD viewed failure in an online environment as a comment on their skills as a designer. Digging deeper into seeking to align those different descriptions, the definitions became more similar in a bigger-picture sense. Some participants saw failure as a good thing, something that most designers need to experience, while others avoided this moment at all costs.

The idea of failure within this group of interviewees produced a large amount of interest on the topic along with a very diverse array of opinions. Upon the first assessment on the topic, the most vocal responses about the idea of failure (the majority were positive with fewer negatives) were the trained IHE designers (12 out of 13 coded phrases were tied to IHE designers).

Undertaking a second round of interpretation, there were more equal responses now that the slightly different definitions were fully understood.

The numerous responses around failure can be organized into the following larger categories: failure as viewed from an IHE perspective, online-centered perspectives that tended to represent more of the DIYD view, the financial impact of failure, and the blending of the two ideas of failure and critique.

Some of the participants articulated that the idea of failure in design could be very positive and facing it should almost be a “required skill to master.” IHE formally-trained P[18], who works at a well-known global entertainment company, articulated how one improves the idea/sketch/product/ etc., from learning from failure as a skill set one should acquire, and several other interviewees agreed. P[18] expresses the importance of failure “I’m lucky enough to have bosses that understand that failure is a part of the process as long as it doesn’t come from you not giving a shit there’s more room for it and I think the more room that we can make for failure and even re-contextualizing it as a part of the pathway to success, the better equipped we’re going to make our designers.” Learning to “adapt” from a failed project to improve work is a positive thing as “failure” will happen eventually, and “practicing” failure responses makes one a better designer. Similarly, they admit it isn’t easy to pivot from it, but the importance of practice is valued in dealing with it in “front of clients” P[16]. Dealing with failure was determined to mean how to respond when a client doesn’t like the work. More BFA holding designers than not mentioned that school helped “prep” them to learn from failure in many ways that are valuable today—“speaking in front of clients,” helping designers gain “thick-skin” when it comes to “giving the project another try” or not giving up. Other members of this study noted that school helped “safeguard against failure” in front of clients by “bouncing ideas” off students to fail

earlier in the design process. Some articulated the benefit of failure repeatedly and expressed concern for DIYDs' ability to cope without this skill as, "I think the more you can train the students to roll with the punches you can't get that from stuff online" P[18].

Interviewees discussed the consequences of not mastering failure scenarios such as "fear paralysis," which impedes the creativity and output vital to a designer. Also noted was that not working through failure with intention "impacts the work of designers" and limits the ability to "move past" the experience and subsequently "trying again."

One trained designer P[20] spoke in detail about the value of failure in a way that mirrored the other IHE designers, and also expressed that DIYD might miss out on the experience of learning failure values by suggesting that the younger DIYD "age range are more emotionally driven" [and]... failure hurts them so they avoid it." In that very same point in the transcript, they stated that "seeing failure online is just terrifying," and they attempt to sidestep it at all costs. This IHE trained designers' idea of younger designers seeing failure as a bad thing paralleled how the DIYD themselves felt about failure.

As discussed by the DIYD, failure was primarily connected to their online perspectives. Showing early rough work or presenting work in progress represented failure and this sentiment was fairly clear. As mentioned previously, the DIYDs' idea of failure or showing prototypical, iterative or experimental work or trying something innovative that may be pushing the expected beyond what's already been done was "terrifying," and seen as showing a sign of "weakness." Designers are "unsure" about how that benefits them in terms of ratings or "algorithm" rankings that prioritize their online presence. The general interpretation of showing failure online "on a public stage" was to be avoided at all costs, and to further demonstrate this level of avoidance, another DIYD stated that it is the sign of "not a good designer if [you] fail in your design"

online. Failure to the DIYD was associated with an unspoken comment about their competence and not something to learn from.

A point supporting the IHE trained designers' view of failure can be found in education theorist expert John Dewey's *Art as Experience*: failure can be a significant catalyst in helping students "cultivate creative thought and action (Stoller 2013)." In fact, small failures represent rare and valuable teaching moments that provide the "opportunity for learning and reflection" as part of the growth process and not taking advantage of it would be an even greater failure (Stoller 2013).

4.6.3.2 *The Importance of Feedback*

"I am self-taught and somebody that has more experience, I am always hoping to get some feedback in order to improve" P[07] (Different degree non-related to design).

Continuing the discussion above, the second significant category surrounding the topic of failure was the financial impact of failure versus the IHE designers who saw it as a learning moment, something more mental than a physical artifact that was not successful in terms of form. A majority of the DIYD saw failure as a negative or with a more literal interpretation, a failed design job: a file not printing correctly was a financial failure. For example, P[16] stated that failure "is a really tough thing to like really talk about what it feels like to be working with a client who's threatening to sue you because you design something that a label company messed up and now she's threatening to sue you because the labels that they made that you recommended this company because you worked with them before they didn't do a good job and now she's out \$1,500, like you owe me \$1,500." Discussions about the benefits/disadvantages of failure are discussed in more detail in *Chapter Five: Discussion and Recommendations*.

The topic above acts as a good segue to the second of three sections —failure, *feedback* and thinking of design in a wider sense—for this next analysis discussion. This second topic, feedback, follows the line of inquiry in the *what are they not being taught* sub-theme of the *outcomes* part of RQ1.2.

Similar to the failure concepts presented above, some of the interviewees saw feedback (sometimes also considered a critique) as a form of failure. In a similar way, there was some delineation between the IHE category and the DIYD about what the value, definitions and outcome or purpose of feedback represents. In several respondents' initial thoughts on bringing up the topic of failure, they immediately began equating failure with critique or feedback, and the intention here was to discuss them separately with an understanding of the connection. It is important to reflect on some of the analysis of failure through a feedback (critique) lens because when someone has learned in DIYD experience without the mental preparedness provided by failure/feedback that IHE designers expressed as valuable, it is understandable to see the hesitation represented in their statements. Below, the category of feedback/critique was divided into the importance of feedback in both learning environments and designers' concerns when the feedback is negative.

One category that became apparent from the IHE perspective and less so on the DIYD side included discussions of the value/role/importance of feedback. Participant [16] suggested to remind other DIYD that feedback is good, but also noted that quality feedback is “more impossible to simulate” in online learning environments.

This grouping fell into three discussion categories on the value of feedback. The first category represents those who understand the importance of it and how it prepares one for

success in the final work, the second category describes feedback as helping one to grow as a successful designer and in the third, feedback prepares one to handle client reactions.

“I think part of the critique process is just like [the]learning process” P[25] (BFA degree in graphic design)

Generally, those who made positive statements about the value of feedback were mostly IHE trained designers like the one above, but not all. The comment above positions the value of feedback as a critical aspect within the design process, as something that is learned and mastered. Some DIYD who didn't necessarily learn the expectations of the daily critique found in IHE classes in design still understood the positive benefits of feedback. Participant [22] without a BFA degree stated that you just can't replicate the value of feedback online, considering the insights, explanations, peer responses and presenting. According to the majority of the responses, feedback is “invaluable” and “helps in big ways” to improve work. Summarizing their thoughts, feedback was a significant part of a designer's career, something inescapable and invaluable.

Since the value and importance of feedback was demonstrated by designers in the IHE environment, it is significant to understand whether it held the same value by looking at responses about feedback from designers who learned and practiced on Dribbble. The study was seeking to answer RQ1.2. What were the *outcomes* of selecting an IHE or DIYD path to answer what they were not learning by taking this route? Here the study looked at how the respondents felt about the DIYD getting feedback and how the site was providing it to the users.

For the most part, all of the IHE designers and some of the DIYD were positive about feedback. There were a few IHE designers who expressed concern for the DIYD who weren't getting valuable feedback and who, if they didn't learn how to process failure, would be in a

weaker position because “they were not used to it,” or know what to do with it. The majority of participants from Dribbble acknowledged that getting helpful, thoughtful feedback on the site happened very infrequently despite the fact that “Dribbble was intended to be a site where designers could post work and receive useful comments to improve. Designers (both IHE and the DIYD) reported wanting more than a “thumbs up” symbol or “cool color” as a response.

Worse than the lack of critical responses meant to improve the self-taught designers’ work, participants reported “aggressive” and “mean” responses and if they tried to offer feedback beyond a “thumbs up,” designers receiving the critiques were often “unresponsive” to the comments or seemed “offended.”

“I found that on most social media sites you get a lot of like thumbs up and like positive feedback, but as far as like if you post two logos and you’re like which one is working better, like maybe a couple of people will chime in, but you really don’t get good critique on those sorts of sites.” P[19] (BFA degree in graphic design)

Summarizing the second of the three impacts on the section on what are they not learning as an *outcome* used to answer RQ1.2, the majority of respondents did find the value of feedback as something vital to becoming well-rounded designers and offered them more opportunities to learn and grow in both the IHE and DIYD pathways long-term. It became apparent that sites offering these learning alternatives (Dribbble in this case) weren’t meeting the level of engagement that designers sought either by design or by the users themselves.

4.6.3.3 *Thinking of Design in a Wider Sense*

“There’s a lot of value in putting creators in leadership roles because of their unique way of thinking.” P[10] (degree in a non-design related area)

“I think what these videos and courses online lack is maybe developing those central, what would that be, critical thinking skills because everything I’m doing is problem solving. Illustrating, logo design, website design it’s problem solving.” P[28] (degree in a non-design related area)

“You [IHE] should be thinking about design in a wider sense.” P[25] (BFA in graphic design)

Leadership, critical thinking, problem solving, and thinking about design in a wider sense (past work that looks good) are not the traditional descriptors generally when talking about graphic design. Yet these were exactly the things that our IHE degreed and the DIYD were talking about when it came to graphic design. What the top five graphic design schools¹⁸ list in their communications about what students will learn encompasses words such as tools (software), coding, typography, writing, making images, film, books, packaging, print and screen, visual and technical skills, publication, etc. None of the descriptors deemed important to the industry by both DIYD and IHE trained designers are listed in these materials.

In this last section of discovery seeking to answer RQ1.2 (What are the outcomes stemming from a designer’s rationale for considering this alternative learning path), the study sought to uncover questions of consequences of these actions on IHE/industry, specifically determining what they are not learning. The first sections discussed the value of failure and feedback and, in this last section, researchers themselves offered ideas around thinking about design in a wider sense. These items encompassed a variety of important topics that had the potential to be

¹⁸ According to U.S. News and World Report, the top five design schools are; RISD, Yale, Art Center College of Design, California College of the Arts and Maryland Institute College of Art. All school websites were scanned for their top recruitment words describing their program. <https://www.usnews.com/best-graduate-schools/top-fine-arts-schools/graphic-design-rankings>

minimized with regard to online learning. These findings were supported by a cursory review of popular online learning platform searches that did not offer courses (paid or unpaid).¹⁹

Explored in this section are the ideas offered by the participants regarding the *how* versus the *why* when thinking of design in a wider sense, as these themes had been appearing throughout the analysis phase in various forms discussed below.

4.6.3.4 *How versus Why Outcome Impact*

“So do you think like we had joked about an 11 year old doing the popular the channel thing in Photoshop?” P[19] (BFA in graphic design)

“...[T]he programs are so accessible that a kid who didn’t go to college or chose not to go to college, they open it up, look at it on YouTube, watch a bunch of tutorials, go on like Instagram, look at their favorite artist and think okay, *how* do I create that, like *how* do we make this, and that’s on illustrator and then all of a sudden you can make it.” [P14]

The widely available online platforms are promoting the ideas of *how* to design, versus *why* it should be done, as evidenced in these participant interviews. Repeatedly, the interviewees revealed that online sources were great for learning the hows: how to align type on a path, how to apply a Photoshop filter on two merged images using a mask, etc. Learning online is the quickest, cheapest, easiest way to obtain these basic skills with the least amount of commitment, which aligns with the PLE psychology in which online learning fills.

The *how to make it* expression turns up throughout the interviews, indicating that learning to create something is fundamentally important to these designers. Participant [14] (degree, not

¹⁹ Udemy cursory search for critical thinking, ethics and professionalism in design.
<https://www.udemy.com/courses/search/?src=ukw&q=ethics+in+graphic+design>

in design) claimed that even in their college educational experience, most of the lectures were software based, learning how to create effects on the computer, but also acknowledged that while college taught them how to “take a review,” it did not teach “how to do that more higher level thinking stuff that they don’t teach you.” Participant [15] (degree in design) also noted the ease of looking up techniques to understand “how someone achieved that,” and “there are a ton of ... (how) tutorials on YouTube.” Participant [20] (degree in design) revealed that when they started learning design they “would look at work and be like I don’t understand how they did this (technique)” to figure out how to recreate that look (or the aesthetic), and P[01] (degree, not in design) made a similar statement: “whenever I see great visuals ... like I’m trying to understand ... how the designer made it and represented it and then maybe I can use that same aspect or like same way,” and “how do I do that, they look it up and they actually learn online and Skill Share is one great way,” adding, “these platforms like Skill Share they are only showing you how to do a certain thing.” Participant [28] (degree, related to design) summarized the many comments confirming that platforms prioritize and emphasize software techniques over higher level thinking skills (like critical thinking) by stating “how do you use these tools... not how do you create very good design,” reinforcing that the sites prioritize tools over thinking or even good design.

Nearly all the interviewees mention the importance of software skills and how to learn them, agreeing that online is the best, fastest, cheapest and easiest venue to find these techniques. Nearly all emphasize the appearance of the work, the finished and polished product marking the end of a design project versus the process or thinking behind the work. These manual skills are considered by the majority of participants to be most important in order to be a practicing

designer. Only a few (the degreed either in design or related to design) make reference to the importance of higher-level thinking skills.

Next, as Stage One set up the framework for the analysis of the interview data, here the framework for Stage Two: expert visual analysis organization of the type of designers chosen for the second part of the study, was examined. First, the thematic protocol for organization was implemented, then the final group of twelve was selected for comparison of their work along with the rationale for their selection (the six final categories of one-to-one expert analysis). It was important to understand these groupings—who was included in the groups and why this would be important to the study. The study examined the combined organization categories that the researcher and the research assistant selected in order to increase trustworthiness and minimize bias.

4.7 Stage Two : Visual Analysis and Definition Comparisons

With the two different data gathering steps coming together, a case study was built with a strong foundation of discovery supported in numerous ways. Stage One involves interviews that were built to discover the *drivers* and *outcomes* of different education pathways in graphic design, and Stage Two provides a *comparison* of the different types of educational trajectories. Stage Two is the ultimate gauge, examining actual work and processes in order to determine if there is a positive or negative *outcome* of learning in new ways for IHE programs and/or the industry. When the data is viewed holistically the information tells a story that can be looked at

almost as a prediction that offers leaders and designers the necessary information to make decisions or at least to begin discussions about the future of design.

Here the research looked at the expert evaluations on the selected participants' work followed by identifying a direct relationship between their evaluations and definitions of design and their design processes. This step was done to determine if the *outcomes* found in Stage Two tied to the perceived *outcomes* in RQ1.2 *How do those reported outcomes impact the future of IHE and Industry?*

4.7.1 General Understandings and Verification

Before the study began to analyze the expert assessments there were two additional points to understand: in particular, who the experts were and how the reviews were conducted. This is followed by additional statistical chi-square tests that were run on four category groupings to further support the data used in this research.

4.7.1.1 Flowchart explaining the evaluation process and relevant definitions.

As evident in the complex research design for this study found in *Chapter 3: Methodology*, the evaluation or assessment aspects were also complicated, and to better exemplify the system used for the expert assessment, a written description was supported by a visual depiction. Following the flowchart of how the data from the experts was obtained that provide clarity to the nature of the various participants providing information for this work.

A description of the protocol of assessment is as follows (some of this information was included in methods but for convenience, is repeated here): there were four design experts who

volunteered to evaluate the study participants' design work. These experts all had significant experience in the industry (anywhere from seven to twenty-six years) in a variety of roles, design strata and areas of focus. The designers here held degrees in design and represented a wide array of specialities that included design business entrepreneurs, owners, creative directors, educators and lead creatives who are all well-respected in the industry.

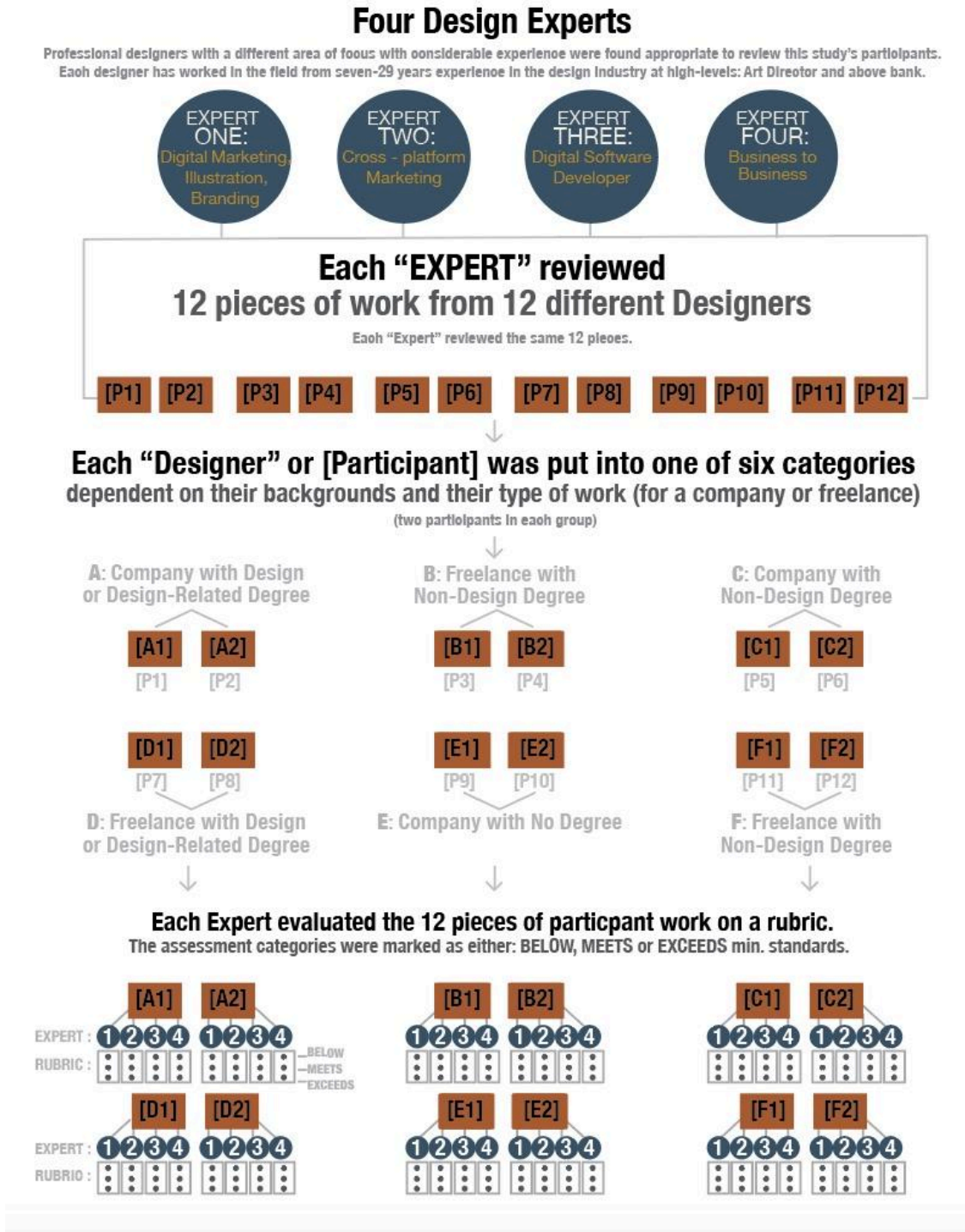
There were twelve design participants for the Stage Two: visual analysis portion of the study, pulled from the participants who engaged in the interviews discussed later in this section. The twelve randomly selected designers fell into the categories of either freelance work or employees of a company or agency. They also landed in several categories of education necessary for this study; they either had a degree in the field, a non-design degree, or none at all. If they were designated as none, this meant that they had no degree in any IHE in any area of study. Following is an explanation of how the assessment of the participants' piece of design/design related work was handled throughout the evaluation process.

Experts reviewed each of the 12 participants' work (one piece each), in other words, they all reviewed and assessed the same pieces of work. Each expert filled out an individual rubric in which they made their evaluations with a mark of *Below*, *Meets*, or *Exceeds* the minimum standard of design fluency based on 20 basic categories in order to reach an overall assessment for each participant. Below is a visual representation to add clarity of the process prior to the analysis. See Figure 11.

The data was analyzed in a variety of ways; first, bar graphs were used to compare data among different categories. Here all experts' scores of the different categories were taken from their rubrics for comparisons to gain a general consensus of the group scores and the participants' overall standing. Next, a pie chart was used to visually illustrate the percentage or

proportional data of all experts' combined scores in each category — the pie chart used here shows the combined expert scores in all categories to determine the dominant scoring of each participant. This type of visualization allowed the analysis to expose potential considerations of scores and therefore interpretations. For example, if a participant's highest scoring was in the Below category (45%), upon first glance, it would be understandable to rank that work as being below minimum standards. However, if the second highest score is Exceeds at 42%, those scores are very close, and this analysis warrants a deeper analysis and potentially additional findings.

Figure 11
 Stage Two : Visual Analysis Process



Note: Original source: (R) Rebecca D Kelly flowchart demonstrating how the visual analysis assessment process was implemented. Adapted from data from the study Hemsley, J., & Kelly, R. D. (2019). "Scratching a

4.8 Experts Visual Analysis Findings

There were six different groups with two participants in each group that experts used in their comparison assessment. As a reminder, they were (in the randomized order) designer with design or design-related degree who works with a company, freelancer with non-design degree, company with non-design degree, freelancer with design or design related degree, company with no degree, freelancer with no degree. Below is the analysis of the data from the expert evaluators and also the comparisons of the participants’ definitions followed by a discussion of those outcomes in the RQ1 section, tying the research questions together for the larger research umbrella question: do MOOCs have the ability to impact IHE and the design industry. See Table for the visual representation found in *Chapter 3: Methods*.

4.8.1 RQ 2 : Expert Assessment via Rubric, Definition Comparisons to the Expert Scores

As detailed above, there were six categories (two participants each) in which design experts with a wide range of experience in terms of education and employment provided this study with unique perspectives on design. Below is the detailed analysis of each of the six categories and under each category are the two anonymous participants who were blinded for the researcher and the experts. The researcher and the research assistant captured the key takeaways and compared them in order to provide this study with the most impartial summaries and significant findings

and how these assessments either confirmed or contradicted any significant alignments of the *driver/outcomes* discovered in the interview portion of this case study.

Three charts are presented here for clarity prior to introducing the detailed and complex findings below (4.8.3 *Expert Assessment Analysis of the Six Categories*). The charts provide summaries of the significant discoveries made through this research as an overview to keep in mind when examining the expert analysis manifested through the *Scoring and Comments* sections on the rubric discussed in Chapter 3: Methodology. The first summary chart presents the key significant findings overview (*outcomes*) from the expert analysis that impact this study by answering *RQ2, How are the portfolios different and RQ2.1 What are those differences if any and RQ2.2 Are there relationships between scores/comments and the participants' interpretations and definitions of design and design process*. See Table 20.

The second summary chart is the more holistic glimpse with details supporting those key findings. Information is provided that shows the phase of the data collection, whether the results are drivers or outcomes, the PLE lens for the interpretation of the data, and the key findings along with themes and subthemes. See Table 21.

The third summary chart visually represents the key categories that the experts evaluated when assessing the participants' work. This chart uses statistical analysis to support the finding resulting from the expert analysis. See Table 22.

The fourth table is a representation that demonstrates the minimal differences between the two types of designers' portfolios, and in addition, this analysis revealed if the participants' scores aligned with their definitions of design and their explanation of their own design processes. See Table 23. Following these visual summaries are the findings and discussions of individual design experts' scores and comments along with the individual participants' holistic

assessments found below in 4.8.3 Expert Assessment Analysis of the Six Categories: Overall Evaluation/Discussion.

Table 20
Significant Findings-Overview from Stage Two: Visual Analysis

RESEARCH FINDINGS: VIS ANAL: RQ2/RQ2.1/RQ2.2	DETAIL FINDINGS (THEMES)	(SUB-THEMES) outcomes
FINDING 4 : <i>Minimal</i> differences between the two types of designers (degreed and the DIYD)	4A: IHE designers had SLIGHTLY better CONCEPTUAL / CLARITY skills than the DIYD.	4B: Designers are producing work that IS NOT CLEAR or USABLE in the real world, but it looks good. This indicates a shift in focus for DESIGNERS TO AN AESTHETIC DRIVEN FOCUS IN DESIGN over FUNCTION or CLARITY .
FINDING 5 : YES: there is a relationship with participants interpretation of design, process and their evaluations.	5A: HIGH SCORING ASSESSMENTS = had well thought out and articulate understanding of a design definitions & processes for their design work. LOW SCORES = had more ambiguous understanding of a design definitions & little understanding of design processes.	5B: UNDERSTANDING DESIGNS PURPOSE through accurate <i>definitons of design</i> and the <i>design processes</i> is important and is REFLECTED IN THE WORK

Note: Original source: Rebecca D Kelly visual representation highlighting phase two, expert analysis findings. Summary of Assessment. All Participants. These results answer RQ2: How are the portfolios different? These are outcomes of the type of design education participants chose.

This first table represents the findings for RQ2, 2.1 and 2.2 in the visual analysis phase of this study. Finding Four answers the question RQ2: Are there differences between the two different types of designers. The expert visual analysis (scoring and comments) highlight that there are *minimal* differences between the two types of designers and the two different ways in which they learned design. In other words, the designers who learned on their own through online means (MOOCs) had little differences in their portfolios than those who had degrees in design or attended IHE in either related or unrelated fields. The detailed information supporting this significant finding is that the IHE trained designers had slightly better conceptual and clarity scores than the DIYD. One would expect the IHE designers would have notably higher scores.

Finding Five in this final phase of the expert visual analysis answers RQ2.2 about the relationship between the participants' evaluations and definitions of design and their design processes. The results indicate that there is a direct relationship between the scores and the definitions, whether the participants scored well (higher) or not as well (lower). The significance of this relationship is that the lower the score the more ambiguous and unclear their work was and this is reflected in the participants' work and definitions of design (what is the purpose of design: decorator or thinker, a career or service, conceptual designer or software master, i.e. more of a production artist than a leader) and their own design process (research, market analysis, empathy analysis, competition discovery, user centered process, sketching, iteration, innovation, etc.) Conversely, the higher the participants scored, the more articulate they appeared, more clearly demonstrating an understanding of the definitions of design with a more thorough use of a defined design process.

Table 21
Significant Findings-Detail from Stage Two: Visual Analysis

PHASE	RESEARCH QUESTION	PLE LENS	RESEARCH FINDINGS	DETAIL THEMES	SUB-THEMES
TWO: VISUAL ANALYSIS	OUTCOME RQ2 : Are there differences between the IHE/DIYD portfolios? 2.1 : What are the differences?	ACCESS- IBILITY over QUALITY	FINDING 4 : Minimal differences between the two types of designers	4A: IHE designers have slightly better conceptual / clarity skills.	4B: Designers are producing work that isn't clear or usable in the real world, but it looks good. Aesthetic driven focus in design.
	OUTCOME RQ2.2 . after expert evaluations Is there a relationship between scores & definitions?	ACCESS- IBILITY over QUALITY	FINDING 5 : YES: there is a relationship with their interpretation of design, process and their evaluations.	5A: High scores = well thought out definitions & processes. low scores = ambiguous definitions	5B: Definitons of design and the design processes are important and are reflected in the work

Note: Original source: Rebecca D Kelly visual representation highlighting phase two, expert analysis findings. Summary of Assessment. All Participants. These results answer RQ2: How are the portfolios different? These are outcomes of the type of design education participants chose.

This table above provides a holistic overview of the findings (Four and Five) in addition to the determination that these findings are *outcomes* of how the participants chose to learn graphic design. Those *outcomes* are reflected in their work and portfolios (through expert analysis) and these scores align with their definitions. Additionally, this table provides the PLE insight that accessibility over quality was also apparent in the work. The next table supports the finding four (the differences between the portfolios) with the statistical analysis supporting those results.

Table 22

Significant Findings-Detail from Stage Two: Visual Analysis : Statistical Support

SOFTWARE SKILLS <small>TECHNICAL SKILLS OR AESTHETICS</small>	FORMAL DESIGN / FOUNDATIONAL DESIGN <small>PRINCIPLES & ELEMENTS</small>	CONCEPT DEVELOPMENT	USABILITY	CLARITY
LOWER-LEVEL THINKING	LOWER-LEVEL THINKING	HIGHER-LEVEL THINKING	HIGH-LEVEL THINKING	HIGH-LEVEL THINKING
92% (11 OUT OF 12) RECEIVED HIGH (POSITIVE) REVIEWS <small>ABOUT PARTICIPANTS</small> TECHNICAL SOFTWARE SKILLS with a FOCUS on AESTHETICS	75% (9 OUT OF 12) RECEIVED HIGH (POSITIVE) REVIEWS <small>ABOUT PARTICIPANTS</small> FORMAL DESIGN SKILLS	66% (8 OUT OF 12) RECEIVED LOW (NEGATIVE) REVIEWS <small>ABOUT PARTICIPANTS</small> CONCEPTUAL DEVELOPMENT	66% (8 OUT OF 12) RECEIVED LOW (NEGATIVE) REVIEWS <small>ABOUT PARTICIPANTS</small> USABILITY of the work in the REAL WORLD	58% (7 OUT OF 12) RECEIVED LOW (NEGATIVE) REVIEWS <small>ABOUT PARTICIPANTS</small> CLARITY in COMMUNICATION
1 - [no mention Degree Related to Design]	3 - [DIYD Degree Not in Design Degree Related to Design]	2 +/- [DIYD Degree Not in Design 2 + [DIYD Degree in Design]	4+ [1 DIYD 1 Degree Not in Design 1 Degree in Design 1 Degree Related to Design]	4+ [1 DIYD 2 Degree Not in Design 1 Degree in Design]

Note: Original source: Rebecca D Kelly visual representation highlighting phase two, expert analysis findings. Summary of Assessment. All Participants. These results answer RQ2.1 : What are the differences? These are outcomes of the type of design education participants chose. These results indicate that this stratum of designers is moving towards technical skills away from higher-level thinking.

This table is used as a support to demonstrate the expert evaluations in a numerical manner to visually illustrate the analysis findings. Software skills and the formal basic design foundational skills (lower level thinking) scored higher overall from all the participants. Conversely, the higher-level thinking skills (concept development, usability — the work is usable or practical in the real world, and clarity) scored lower from among the participants. As mentioned previously, a shift in priorities in design (lower-level thinking skills) is becoming

evident from this study. Choosing the educational path of learning graphic design online seems to reflect in this study that skill sets that are moving in terms of strengths/successes toward lower-level thinking and in turn are bringing this shift into the industry. The success rate declines in the higher-level design skills as demonstrated in the following chart outlining the total participants' comprehensive scoring results from the expert visual analysis.

Table 23
Significant Findings Detail from Stage Two: Visual Analysis: Total Overview

		low-level thinking/skills				high-level thinking/skills			
	EDU	EMP EMPLOYMENT C or FL	SOFTWARE SKILLS TECHNICAL / AESTHETICS	FORMAL FOUNDATIONAL DESIGN SKILLS	CONCEPT DEVELOP.	COMMUNICATIONS CLARITY	USABILITY IN THE REAL WORLD	DEFINITIONS/ COMMENTS DO THEY ALIGN	+/-
DEGREE IN DESIGN or DESIGN RELATED	D BFA	branding	✓ TECHNICAL	✓	✓	✓		✓	-
	D BA	FL branding	✓ TECHNICAL	X -	✓	X	X	✓	- UNCLEAR
DEGREE in OTHER AREA	DR Degree/ Related	UX/UI C	✓ looks	X	X	X		✓	-
	DR Degree/ Related	UX/UI		✓	X	X	X	✓	-
DEGREE in OTHER AREA	DO Other Degree Not Related	UX/UI	✓	✓	X -	✓	X	✓	-
	DO Other Degree Not Related	FL UX/UI	✓ VAPID	✓	X -	X	X	✓	- UNCLEAR
DEGREE in OTHER AREA	DO Other Degree Not Related	web design C	✓ pretty	✓	X - not unique	✓	X	✓	- school = theory
	DO Other Degree Not Related	UX/UI illustration	✓ TECHNICAL	X -	X	X		✓	- UNCLEAR
No Degree	ND No Degree	web design UX/UI	✓	✓ - questionable	✓	✓	X	✓	-
	ND No Degree	C illustration	✓ TECHNICAL	✓ - no nuance	X - stock	X	X	✓	- design = looks
	ND No Degree	illustration FL	✓ TECHNICAL	X	X	X	X	✓	- design = money
	ND No Degree	illustration FL	✓ TECHNICAL	✓	X -	✓		✓	- art= design

+ or -
Indicates if
the definitions
were clear,
accurate,
or close to a
general
definition (+)
or if the
definitions
were
innaccurate or
unclear (-)

C = Company
or
FL = Freelance

✓ = demonstrates competency
✓ - = demonstrates competency with negative comments
X = demonstrates lack of competency
X - = low competency skills with additional negative comments

✓ = participants' expert evaluations
align with their definitions
of design whether the definitions
were accurate.
(low scores/comments = unclear definition)
(high scores/comments = clear definitions)

Note: Original source: Rebecca D Kelly visual representation highlighting phase two, expert analysis findings. Summary of Assessment. All Participants. These results answer RQ2.2 : Are there relationships between scores/comments and the participants' interpretations and definitions of design and the design process. These are

outcomes of the type of design education participants chose. These results indicate that this stratum of designers is moving towards technical skills away from higher-level thinking.

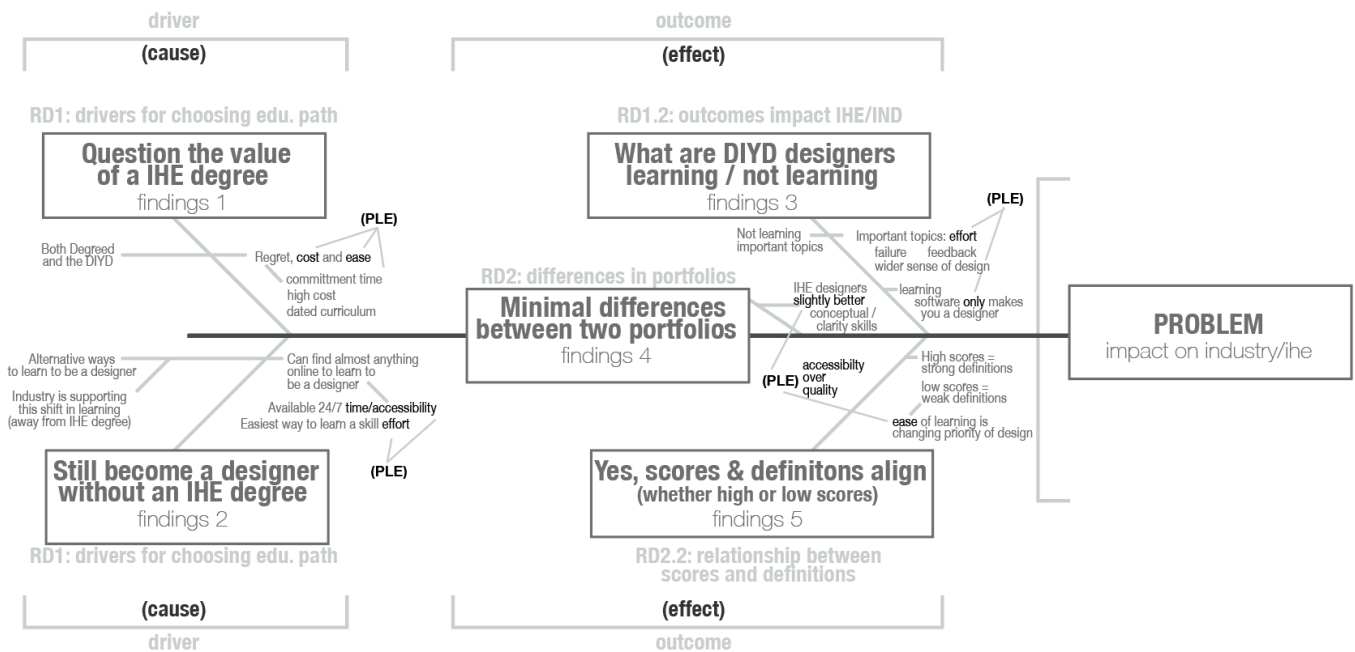
The table above is a visual representation of the results of all twelve participants in an integrated manner in order to identify trends and insights, identifying the type of education the designers obtained (degreed to no degree). Moving left to right are expert evaluations showing the success or failure of various critical aspects valued in graphic design work (either positive, negative or null response). Starting from the left, nearly all participants scored successfully in the demonstration of software skills (from the degreed to the non-degreed). Additional comments provided by the experts give more clarity and insight to the analysis. For example, under the software skills, “technical skills,” “looks good” or “vapid (pretty but not deep)” were added if the experts commented on the type of skills they observed. Reading left to right, the skills move from lower level to high level thinking skills. Following the lower level skills — software skills and formal foundational basic design skills — the categories move to higher-level skills such as concept development, clarity in communication (honest), and usability. That last two categories exhibit the results for the last RQ2.2 Is there a relationship between scores and definition, and finally if the definitions were clear or unclear, accurate or inaccurate, positive or negative.

With this table several insights become clear. The scores decrease in success from the degreed designers to the non-degreed, indicating that the degreed designers scored slightly higher or more successfully than the others, but only slightly. Another important result is that the lower-level thinking skills (software and formal foundational skills) ranked as more successful or higher and the scores decline (less successful) in the higher-level skills (concept development skills, clarity and usability) no matter the educational path the participants chose. The results of these findings will be discussed below and in more detail in the discussion chapter.

4.8.2 Summary Comparisons of Findings Stage One and Two: PLE Cause and Effect

As demonstrated above in the Stage One and Stage Two findings are the ultimate results or *outcomes* answered *RQ1.2: What are the outcomes on industry and education of choosing to learn design through the DIYD pathway (of this stratum of designers found on Dribbble)?* There are cause and effect *outcomes* as the results of how one chooses to learn graphic design as demonstrated below. See Figure 12.

Figure 12
Cause and Effects (Drivers and Outcomes) on Learning Design Online

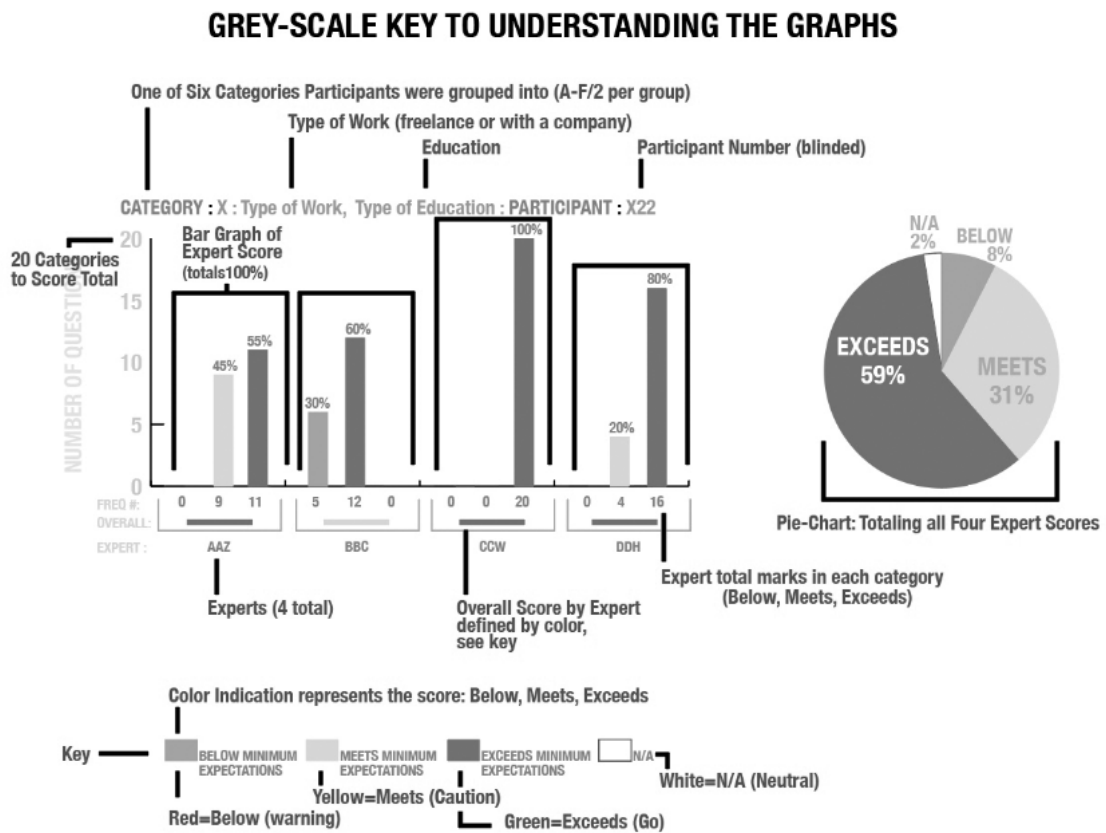


Note: Original source: Rebecca D Kelly visual representation highlighting the cause and effect impacts of learning how to be a designer online.

4.8.3 Understanding the Graphs: the details/narrative behind the expert reviews

Before the study began to uncover the results of the visual analysis, it was important to have the viewer understand with clarity what the graphs were providing: the statistical data stemming from the expert assessment rubrics. See Figure 13.

Figure 13
Key for understanding the participant scores from the experts' assessments.



Note: Source: Rebecca D Kelly's data visual analysis explanatory figure that represents the expert assessments. Presented here is a bar graph with all experts' assessments as individual percentages presented side-by-side for comparison and a pie-chart with all four experts' total scoring combined together to see the overall combined scores in the rubric: Below, Meets and Exceeds categories.

4.8.4 *Expert Assessment Analysis of the Six Categories: the details/narrative behind the expert reviews*

In this section, an analysis of the expert assessments of the 12 participants includes an accompanying graph that illustrates the quantitative numerical data of the statistical significance in two forms: a bar graph and a pie chart followed by an analysis of the scores in relation to the participants' definitions of design and process that allowed a comparison and interpretation of the findings in order to answer the research questions about potential differences and similarities of their scores, their definitions and their portfolios. This multi-layered analysis provided the resources to answer whether there was a relationship between the three components of the umbrella research questions: the relationship between educational pathway, evaluations, definitions and portfolios. These results, regardless of the ultimate findings, had the potential to impact IHE futures and the design industry that will be discussed in *Chapter 5: Discussions and Recommendations*.

Below are the six categories that the experts reviewed, with each group and graph followed by analysis and interpretations. The groups were as follows, A: 4) *Company with a Design or Design-Related Degree* ([PA1] and [PA2]), B: 2) *Freelance with Non-Design Degree* ([PB1] and [PB2]), C: 5) *Company with Non-Design Degree* ([PC1] and [PC2]), D: 1) *Freelance with Design or Design-Related Degree* ([PD1] and [PD2]), E: 6) *Company with No Degree* ([PE1] and [PE2]), F: 3) *Freelance with Non-Design Degree* ([PF1] and [PF2]). For ease of reference, a table (originally found in 3.8.5 *Final Organization of the Types of Designers, Table 15*) is placed below with the randomized order that the categories were given to the experts. See Table 24.

Table 24

Thematic Organizing Matrix - Types of Designers for Visual Analysis: Groupings of Interviewees for the Expert Reviewers (Randomized Order)

THEMATIC ORGANIZING FOR TYPES OF DESIGNERS - Groups of Interviewees	
RESEARCH QUESTIONS	EMPLOYMENT AND EDUCATIONAL PATHS
RQ2: VISUAL ASSESSMENTS OF TYPES OF PORTFOLIOS (IHE AND SELF-TAUGHT)	A: 4) Company with Design or Design-Related Degree (A1-A2)
	B: 2) Freelance with Non-Design Degree (B1-B2)
RQ2.1: WHAT ARE THE DIFFERENCES	C: 5) Company with Non-Design Degree (C1-C2)
	D: 1) Freelance with Design or Design-Related Degree (D1-D2)
RQ2.2: COMPARISONS OF ASSESSMENTS AND SELF DEFINITIONS OF DESIGN/PROCESS	E: 6) Company with No Degree (E1-E2)
	F: 3) Freelance with Non-Design Degree (F1-F2)

Note: Original source: (R) Rebecca D Kelly and (RA) Ciana Steller combined thematic organization of the type of designers that the design experts evaluated to determine any strengths and weaknesses in their work. All thirty participants were included but the categories and participant numbers were blinded. Adapted from data from the study Hemsley, J., & Kelly, R. D. (2019). “Scratching a Niche: How Smaller Social Media Players Such as Dribbble Reflect the Viral Phenomenon.” *Social Media + Society*, 5(4). <https://doi.org/10.1177/2056305119890051>

Each category with the two participants was evaluated on the overall assessment or the majority score from all expert reviewers, then the comments were discussed followed by a few significant points vital to this study to tie the data to the research questions. With the evaluation coming first, the second component was to address if there were differences between the two types of designers’ work (their portfolios) followed by an attempt to identify those differences based on the experts’ comments. Thirdly, this research sought to compare those results with the participants’ own processes and definitions of design. The goal was to determine if there was a

relationship—either a gap or alignment—between scores and definitions that could pinpoint a strength or weakness in either educational pathway. These were the steps that were used to answer the research questions, RQ1: *what are the drivers of choosing either an IHE or DIYD education?* RQ2: *are there differences in portfolios between those with a degree in design or design-related designer/non-degreed designer/degreed in a non-design field if any, (RQ2.1), what those differences are and (RQ2.2) is there a relationship between scores, degree and definitions.*

*4) Company employee with Design or Design-Related Degree: **Participant A1 and A2***

The first category in the Stage Two: visual analysis portion of the study began with experts evaluating two designers who work for a company (vs. freelance) as having a design or design-related degree. See Figure 14. To review, under *4.4.1 General Demographics*, there is detailed information about the qualifications of what a design (BFA) or design-related degree (BA) entails.

Overall Evaluation/Discussion: 4) A1:

RQ2: Portfolio Summary

This designer had a design-related degree and worked in the UX/UI industry. The overall ranking scored primarily in the Below category with 64% (see Figure 14), and when reviewing the assessments, all four experts were fairly consistent in their remarks and scoring. Experts repeatedly commented on the lack of obvious concepts (higher-level thinking), basic principles and elements of design, lack of clarity and communication and originality while noting “nice rendering” (technical skills). Overall, there was a consistent positive correlation between

Participant A1's majority score of Below proficiency and the expert comments which largely revolved around similar particular themes.

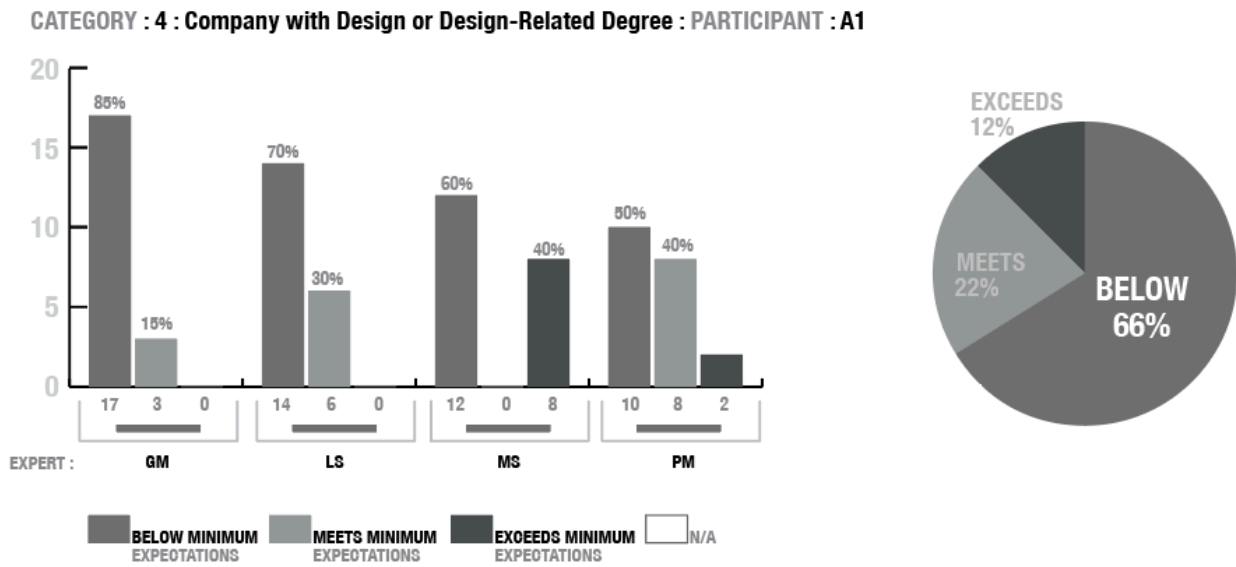
As noted by the experts, this work lacked a clear concept, purpose and context but met or exceeded the technical aspects of visual communication. In particular, the feedback indicated a strong use of color and color theory, as well as Meeting or Exceeding basic design elements and design principles. However, all of the experts commented on a need for more information to be given surrounding the intention behind the design as well as its purpose and UX/UI placement. Experts suggested that the participant had acceptable technical skills as an outcome, which supported a technically successful piece of work, yet the assessment from a UX/UI viewpoint (easy to navigate, understand and process, the follow a logical flow) was Below in scoring. These comments tied directly to this participant's direct area of study which was contrary to what one would expect.

With respect to RQ1, as a driver for why or why not choose an IHE education, the participant stated that a higher education was not necessary but their Master's degree helped (although in their own words, "didn't help too much"). This introduced a contradiction as their education lacked specific ties to graphic design yet that was the area in which they worked. This aligned with their own questioning of the value of higher education, specifically in the time, cost and effort areas (PLE) and that a career in design was still possible despite not having an undergraduate degree in design.

This participant understood the value of research as stated in their process (RQ 2.2) definition, but there was a lack of research evident in their work. Regarding the actual communication related to the intent of the piece, it was interesting that this designer's undergraduate work was in the field of communication, while this was the category in which the

participant scored the lowest. Also, they stated that it was possible to have a career in design without a degree, but they spent time, effort and money getting a graduate-level degree in the UX/UI field, while scoring lowest by our experts who specialized in UX/UI.

Figure 14
Overview of the four expert evaluations in bar graph and pie chart form for 4) Company with a Design or Design-Related Degree for [A1].



Note: Source: Rebecca D Kelly’s data visual analysis based on expert assessments of category number 4) *Company with a Design or Design-Related Degree*, participant A1. Presented here is a bar graph with all experts’ assessments as individual percentages presented side-by-side for comparison and a pie-chart with all four experts’ total scoring combined together to see the overall combined scores in the rubric: Below, Meets and Exceeds categories.

RQ2.2 Regarding the scores and definitions:

The overall score was considered Below despite having a higher-education degree specific to this participant’s current position as a UX/UI designer. The low scores were given on basic graphic design tasks, principles and elements of design, clarity, communication and concept.

This participant’s definition of process reflected a lack of clarity and detail which aligned with the scores; their definition of design was specific to research, which was high-level and reflective of a Masters’ degree. So, this participant’s score of Below reflected the definitions they provided. In this case, there seemed to be a connection between degree, score and definitions. See Table 25 for an overview of the assessment relationship between scores and research questions. For discussion on this group’s findings, see *Chapter Five: Discussion and Recommendations*.

Table 25

A1: Summary of Participant in Relationship to the Research Questions.

Participant: A1/Degreed	General	Detail
Overall Assessment:	4 Below	Below 64% Meets 24% Exceeds 12%
RQ1: Driver/Outcome	Driver: Was IHE degree worth it while supporting undergrad degree.	Driver: Questioning the IHE value (found in interviews) Mentions that one doesn’t need it.
RQ2, 2.1: Possible Differences in portfolios	Outcome: Yes. Technically proficient, skill focus UX/UI negative	Outcome: Lack of clarity, communication and concept found in the work.
RQ2.2: Relationship between score and participant’s definitions	Yes	Values research, sees importance, (MFA influence) Vague Process definition

Note: Source: Rebecca D Kelly’s data visualization summarizing the participant details and degree, how their assessment was reflected as a positive or negative in terms of their educational trajectory (degreed or non-degreed), an indication of a difference in portfolios in comparison to their degree if any and a relationship between their scores and their definitions. These answers in this matrices begin to address this study’s research questions specifically, RQ1, RQ2.1 and RQ2.2.

Overall Evaluation/Discussion: 4) A2:

This was a visual designer who participated in a variety of graphic design-related activities working full-time at a company. This participant had a design-related degree at the undergraduate level but not directly tied to graphic design; however, it was appropriate to consider this as studying similar topics in a typical graduate UX/UI IHE program. For the overview of this participant's scores, see Figure 15.

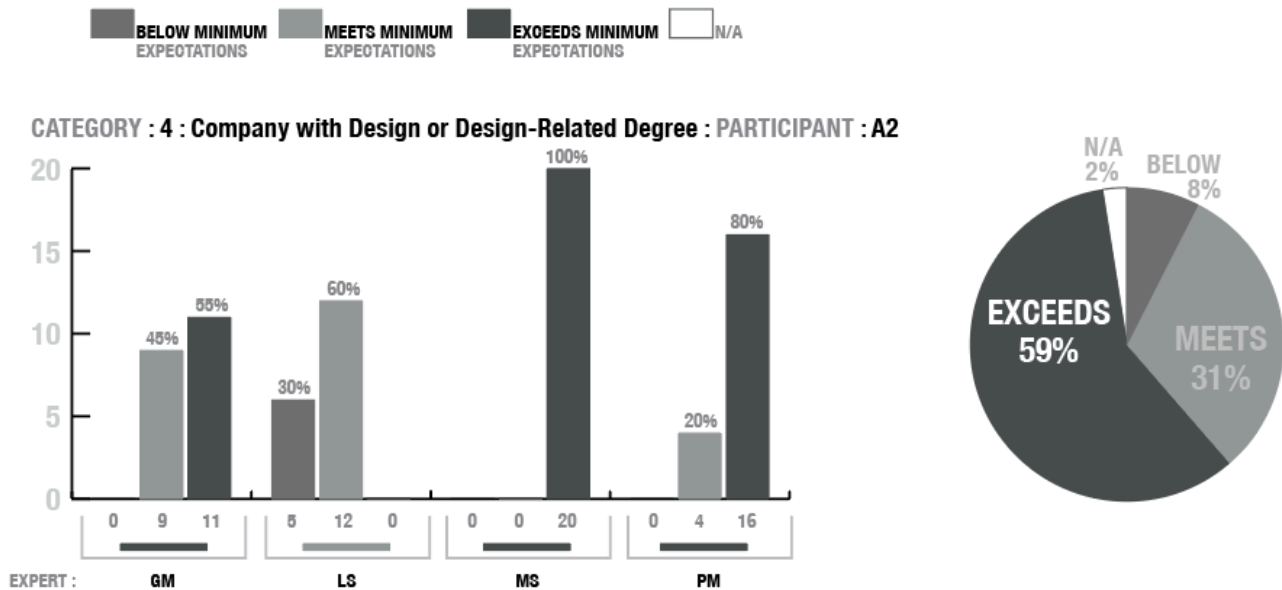
RQ2: Portfolio Summary

While the majority of this designer's scores were in the Exceeds column, the experts often made similar comments to the A1 portfolio piece above and offered a smaller number of conflicting scores versus comments. Experts saw this work as clean and sufficient in many of the graphic design principles and element basics. Several saw the work as displaying an appropriate use of visual elements and noted positive stylistic or aesthetic qualities. Others scored them positively in a dynamic and interesting way. Despite the higher scores, there were a few problematic issues that some of the experts brought up. One noted that the imagery suggested something other than its intended message, that the color was unique but not necessarily appropriate for the subject. Another expert, while noting the communication aspects and positive user flow, noted that the color and typography would create issues regarding visual accessibility, which is vital for an online company's presence. There were also conflicting scores in concept and memorability (the higher-level aspects of design), but was scored in the Meets column for basic design principles and elements such as composition and typography (lower-level graphic design skills).

Overall, there was a fairly consistent correlation between Participant A2’s majority score of Exceeds proficiency and the expert comments which largely revolved around similar particular themes such as clarity, visual connectedness of the work.

With respect to RQ1: as a driver for why or why not choose an IHE education, the participant who had a degree in IHE in a non-related area to design, summarized that the degree was more in the fine arts (such as sculpture and printmaking) which turned into more of a digital format than traditional materials-based fine arts that many consider related to design. The idea of “making” was the appeal for a degree that led this artist to becoming a more traditional type of designer working digitally in coding, web development and eventually into UX/UI after taking a graphic design class post-graduation.

Figure 15
Overview of the four expert evaluations in bar graph and pie chart form for 4) Company with a Design or Design-Related Degree for [A2].



Note: Source: Rebecca D Kelly's data visual analysis based on expert assessments of category number 4) Company with a Design or Design-Related Degree, participant A2.

RQ2.2 Regarding the scores and definitions:

This participant talked somewhat accurately in their definition of design as a combination of storytelling and “creative problem solving” in terms of what design entails. However, there were no details of their own process in terms of research, iteration, etc. This participant's definition of design reflected a UX/UI interpretation of storytelling, which can be an appropriate comment as they work in this area. This person stated that clients would come to them because they thought about design in a certain way, which also aligned to this designer's UX/UI Master's level of education. The contrast to note here, was that the work they posted was more of a two-dimensional traditional design project versus a UX/UI project, so it did not represent their experience well.

Ultimately, however, the participant demonstrated a lack of a clear detail in the definition of design in the interviews (nothing about user-centered design a UX/UI baseline), which could explain the low scores in accessibility issues (readability). Having a clear definition of design is important for UX/UI designers that create work for specific audiences with special needs, such as the visually impaired. In this participant's description of their work there was a clear explanation of the brand mark, which while it might be disputed executionally by the experts, the communication created the ability to have an understanding about the work. Experts disagreed with one another regarding the participant's color usage in the brand mark, one noting that while green is used in the client' industry in relation to money and therefore should have been considered for an investment firm while another expert considered the work cliché and expected,

scoring the participant low on color theory and realism. Another noted that the brand mark’s expression did not read as appropriate for a financial theme, although it was dynamic and interesting. It could be argued that a discussion around the legitimacies of the concept still proved a concept as evident, therefore supporting RQ2.2, *is there a relationship with their interpretation of design, their own process and their evaluations*: that there is a relationship between the negative comments about the chaotic work and the participant’s confusing definitions. See Table 26 for an overview of the overall assessment relationship between scores and research questions. For further discussion on this groups’ findings, see *Chapter Five: Discussion and Recommendations*.

Table 26
A2: Summary of Participant in Relationship to the Research Questions.

Participant: A2/Degreed in Design	General	Detail
Overall Assessment:	3 Exceeds / 1 Meets	Exceeds 59% Meets 31% Below 8% n/a 2%
RQ1: Driver/Outcome	Driver: Degreed but major issues with intention and accessibility	Outcome: Lack of detail/knowledge in accessibility issues and
RQ2, 2.1: Possible Differences in portfolios	Outcome: No real definition of process	Outcome: Discussed storytelling
RQ2.2: Relationship between score and participant’s definitions	Yes	Outcome: Major issues with intention and accessibility. Lack of detail/knowledge in accessibility issues

Note: Source: Rebecca D Kelly’s data visualization summarizing the participant details and degree, how their assessment was reflected as a positive or negative in terms of their educational trajectory (degreed or non-degreed), an indication of a difference in portfolios in comparison to their degree if any and a relationship between their scores and their definitions. These answers in this matrices begin to address this study’s research questions specifically, RQ1, RQ2.1 and RQ2.2.

2) Freelance with Non-Design Degree : Participant B1 and B2

The second category in this Stage Two: visual analysis portion of the study began with experts evaluating two designers who work as freelancers and they do not have a design or a design-related degree but do have a degree in another field. Under *4.4.1 General Demographics*, there is detailed information about the qualifications of what a design or related degree and what other degrees entails.

Overall Evaluation/Discussion: 2) B1:

Unlike the category above these participants do not have a degree in design or a Master's degree in UX/UI like one of the participants above, but they also worked in the UX/UI area. This participant previously worked full-time at a company as well as a freelancer primarily on the side. See Figure 16 for scoring overview. This designer scored in the Exceed category (43%) and the Below (32%) with both UX/UI experts scoring this participant nearly equal scores in polar opposite categories. UX/UI expert one scored 20 out of 20 in the Exceeds, UX/UI expert two scored 19 out of 20 in the Below category. The other two experts (general design/advertising and branding as their specialty) split their overall score nearly equally in the Meets/Exceeds area.

RQ2: Portfolio Summary

This participant's work received feedback for competency and UX/UI knowledge and scored in polar opposite categories with nearly matching scores (20 Exceeds/19 Below) from

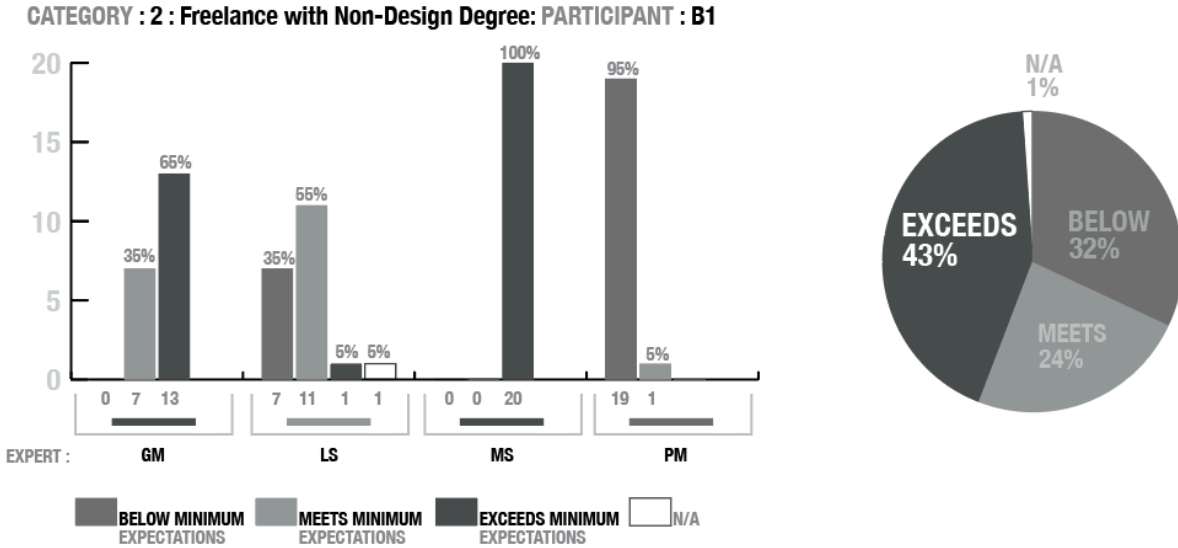
both UX/UI experts. The experts who worked primarily in other areas made note of competency in design basics with most of the positive comments surrounding a strong sense of hierarchy and path flow. Beyond the positive notes on the design basics there were negative comments about usability that are pointed at the type being cut off and too many fonts, while another notes problems with accessibility as mentioned above with the last participant. These scores/comments about usability/accessibility again are not great indicators of competency for a UX/UI designer.

Overall, there was a consistent correlation between UX/UI expert one's score of being Below proficiency in the UX/UI categories and the other UX/UI expert two's score in the Exceeds category, in terms of their corresponding comments. Expert one (Below) questioned if this design was functional on smaller screens (phones and tablets) which is vital to website design today. Expert two (Exceeds) comments stated the site was well-designed and used general graphic design principles effectively.

Although expert three scored a majority of this participant's UX/UI work in the Meets minimum standards category, the accompanying comments questioned expert one's strong endorsement about the work's usability and functionality of the work, suggesting essential type would get cut off and the color accessibility issues that would impair usability.

With respect to RQ1: as a *driver* for why or why not choose an IHE education, the participant studied and received a degree in another industry and wanted a degree in graphic design but was unable to obtain one. Regardless, this practicing designer began working in UX/UI until they began freelancing full-time in design.

Figure 16
 Overview of the four expert evaluations in bar graph and pie chart form for 2) Freelance with Non-Design Degree for [B1].



Note: Source: Rebecca D Kelly’s data visual analysis based on expert assessments of category number 2) Freelance with Non-Design Degree : participant B1.

RQ2.2 Regarding the scores and definitions:

Overall, the work was seen as clear in its messaging and capable in its general usability by the experts. When detail was provided, however, there were a few comments questioning the actual usability of the work in the real world, with several experts mentioning problems with people posting “pretty, but not usable” work.

The participant’s definition of design was one that was “delightful” to visually experience and design should not be “forgettable,” while also being functional. This definition although not very deep but it made sense considering the work as a UX/UI designer where usability is the

priority over pretty. The majority of the experts made similar notes on the participant's work as having a clear execution through a proper grid system, effective type hierarchy and innate navigation that emphasized various levels of information. These items would then align with *RQ2.2: is there a relationship with their interpretation of design, their own process and their evaluations: that there is a not a disjointed relationship between the overall comments about the work and participants' definitions*. The experts' comments aligned with the participant's ideas of design and support what the participant learned about design through work experience (remember they learned design at work and this participant doesn't have a design-related degree). The importance this participant ostensibly placed on *experience* and learning solely by going through the process of work versus formal education was belied by the low scores the work received for experience/usability.

Although two of the experts marked primarily in the Exceeds category (one a UX/UI expert), the outlier expert reviewer scored more Meets rather than Exceeds in the unique concepts category as they had seen similar ideas before. The other UX/UI expert as mentioned before scored them in the *Below* category. Another expert who noted that usability was not intuitive or practical noted scroll height errors such as "600px will have the text get cut off for the user unless they scrolled." The same expert mentioned disruptions to the layout through too many fonts and color combinations (such as yellow on gray) that would not be visually accessible to those with disabilities. This a slight divergence from what the participant remarked as their definitions of design, focusing on practicality and memorability, would/would not support RQ2.2. In actuality these things were not apparent in this work according to the experts. See Table 27 for an overview of the overall assessment relationship between scores and research questions.

Table 27

B1: Summary of Participant in Relationship to the Research Questions.

Participant: B1/ Degree:Y not in design	General	Detail
Overall Assessment:	3 Exceeds/1 Below	Exceeds 43% Meets 24% Below 32% <i>n/a 1%</i>
RQ1: Driver/Outcome	Driver: Don't need a degree to be a designer. Learned on YouTube	Driver: Everything is available online Outcome: Scores and comments don't align.
RQ2, 2.1: Possible Differences in portfolios	Outcome: Degreed in another field did well in assessment	Outcome: basic elements are competent but not usable.
RQ2.2: Relationship between score and participant's definitions	Yes/No	There seems to be a relationship between two of the reviewers' comments and definitions - in terms of functionality vs. aesthetics

Note: Source: Rebecca D Kelly's data visualization summarizing the participant details and degree, how their assessment was reflected as a positive or negative in terms of their educational trajectory (degreed or non-degreed), an indication of a difference in portfolios in comparison to their degree if any and a relationship between their scores and their definitions. These answers in this matrices begin to address this study's research questions specifically, RQ1, RQ2.1 and RQ2.2.

Overall Evaluation/Discussion: 2) B2:

Similar to the B1 designer, this participant, B2, did not have a degree in design but they worked in that industry as a freelance UX/UI designer. The detail they provided in the interviews showed that this person considered their work more in the User Interface area than User Experience, meaning the screen design or visual presentation (how it looks) was valued over

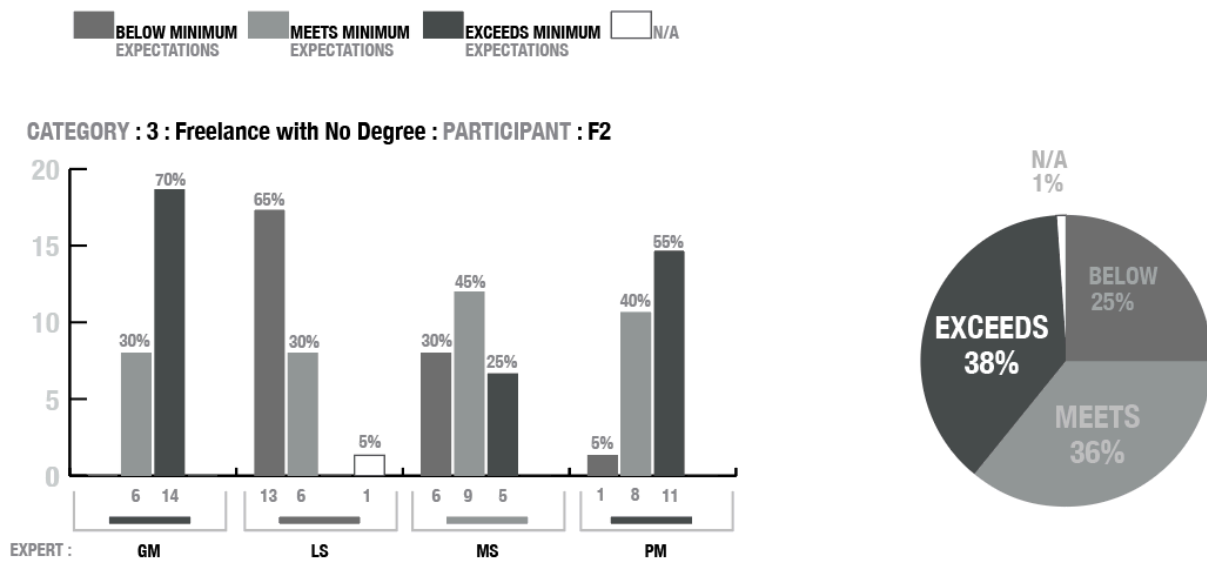
how the user experienced the navigation through the site. This participant worked full-time at a company while working as a freelancer primarily on the side and had a degree in an unrelated field. See Figure 17 below for their overall scores.

RQ2: Portfolio Summary

This designer scored strong in the Exceed category (46%) with two of the four experts giving them an overall score in that category and two other experts splitting their vote between an overall score of Below (23%) and Meets (29%) which are close assessments. Overall the scores were mixed; although the scores landed primarily in the Exceeds category, there was some discrepancy between scores and comments in three of the four expert categories. Those discrepancies are highlighted in the comments and align more with the expert that scored overall in the Below category. Detailed analysis is discussed below.

Figure 17

Overview of the four expert evaluations in bar graph and pie chart form for 2) Freelance with Non-Design Degree for [B2].



Note: Source: Rebecca D Kelly’s data visual analysis based on expert assessments of category number 2) Freelance with Non-Design Degree : participant B2.

RQ2.2 Regarding the scores and definitions:

The details on the Exceeds category seemed somewhat consistent and positive, such as color theory, balanced layout, UX, and, within the design basics, form, line, and grid. These types of comments were found in nearly all the experts.

However as mentioned above, the scoring and comments were mismatched upon closer examination. Although scores in the overall category from two experts indicated this work Exceeds in minimum standards (50% of the experts), their comments suggested that several significant topics were worthy of closer examination. This misalignment of comments often did not reflect the score that was given. Some of the comments did align; for example, nearly all experts scored low in concept which was reflected in the comments. Another labeled it a “good attempt, but fail in terms of communication and are too chaotic for the user” (which is critical to successful UX/UI design). This comment reappeared in different forms from all evaluations and indicated that the work was not realistic, equating it with a prototype and not usable in a real application. One expert stated that this is the type of work one would expect on a site like Dribbble, pretty but not necessarily usable or clear, suggesting that it might be a placeholder piece due to the lack of certain considerations. Another expert made note of the lack of clarity of the intention of the piece stating that it was a “showoff” piece — dramatic but not real. Although this expert scored the participant in the Exceeds column more times than not, they commented that initially “in a passing glance— the design is bold, colorful and confident...it’s quickly clear that this is a “vapid style exercise with no content or information.” Comments like these

suggested once again that the pieces were aesthetically pleasing but may not function well in practice and lacked conceptual development.

Considering the scores along with the participants' definition of design and their own process, it was interesting to compare the experts' statements discussing the lack of clarity of the purpose of the work and describing it as unrealistic and stylistically vapid. This participants' definition of design failed to align with their work, according to the experts. "I think design is *art that works*, so there is this creative part and there is something that works for other people. So we have users, we use creativity in order to solve their problems." This definition described art that works to serve the end user — in other words, creative and functional in a practical way for the user. The fact that their degree was in another field could account for the disparity between their idea of successful design and their ability to apply it in their own work.

With regard to RQ2, there seemed to be a disconnect in the relationship between the scores given and the participant's definitions of design and their own process (which was only determined by reviewing the final work as the participant did not give a description of their process) but there was a strong alignment with definitions and comments. So yes, there is an alignment with a lack of detail in both definitions and experts' negative comments. The comments (not the scores) centered around a lack of clarity in terms of layout, the point of the work and the communication of the pieces, and described a chaotic nature that confused the user and affected their ability to understand the purpose of the piece, similar to the definition. There was a gap between the participant's definition of what design should be and do and the actual practicality and accessibility of the work itself. See Table 28 for an overview of the overall assessment relationship between scores and research questions.

Table 28

B2: Summary of Participant in Relationship to the Research Questions.

Participant: B2/ Degree:Y not in design/ Freelance	General	Detail
Overall Assessment:	2 Exceeds/1 Below/ 1 Meets	Exceeds 46% Meets 29% Below 23% <i>n/a 2%</i>
RQ1: Driver/Outcome	Driver: Don't need a degree to be a designer. Learned on YouTube	Driver: Everything is available online
RQ2, 2.1: Possible Differences in portfolios	Outcome: Presentation was unclear if it was a prototype or if the designer was unsure of the functionality of the work in the real world. 0	Outcome: Design remarks were mixed and did not seem to match the overall score of exceed as many comments suggested negative leaning points.
RQ2.2: Relationship between score and participant's definitions	Yes	Comments state chaotic and unclear nature of the work that confuses the user - disconnect between the two.

Note: Source: Rebecca D Kelly's data visualization summarizing the participant details and degree, how their assessment was reflected as a positive or negative in terms of their educational trajectory (degreed or non-degreed), an indication of a difference in portfolios in comparison to their degree if any and a relationship between their scores and their definitions. These answers in this matrices begin to address this study's research questions specifically, RQ1, RQ2.1 and RQ2.2.

5) Company with Non-Design Degree : C1 and C2

The third category in the Stage Two: visual analysis portion of the study began with experts evaluating two designers who worked full-time at a company and did not have design or related degrees but did have IHE degrees in another field. Under *4.4.1 General Demographics*, there is detailed information about the qualifications of what a design or design-related degree and other degrees entail.

Overall Evaluation/Discussion: 5) C1:

Participant C1 held a degree not related to design and worked full-time for a company. Specifically, this designer primarily built websites for businesses including blogs, case studies and e-commerce and this also included some UX/UI design. They have worked for two years doing packaging and identity systems. According to the experts' results, this self-taught designer did well, scoring three out of the four overall categories in the Exceeds column. See Figure 18. The comments analysis below reveals some of the rationale behind the general uniformity in the scoring. While overall, this participant scored a majority in the Exceeds category, one expert scores were more uniformly distributed in all of the Exceeds, Meets and Below categories, compared to the other three who scored a sweeping majority in the Exceeds category.

RQ2: Portfolio Summary

The outlier in this assessment almost canceled the high scores of the other three experts and brought the score lower overall. Despite the inconsistency in these expert scores, all experts commented a majority of the time about good clarity, foundational design evident in the work, typographic and color usage, and an understanding of brand application in terms of developing a cohesive brand using color and logo as the beginning of the brand-building process.

Some of the more concerning comments came from discussions addressing bigger picture issues (high-level thinking) that go beyond the basic use of principles and elements of design which are more aesthetically focused (overall look, pleasing colors, nice topography, etc.). The outlier here mentioned that the work showed a solid concept, which, however, appeared to not be unique conceptually, as they had seen the idea in several forms before. In design, the unique,

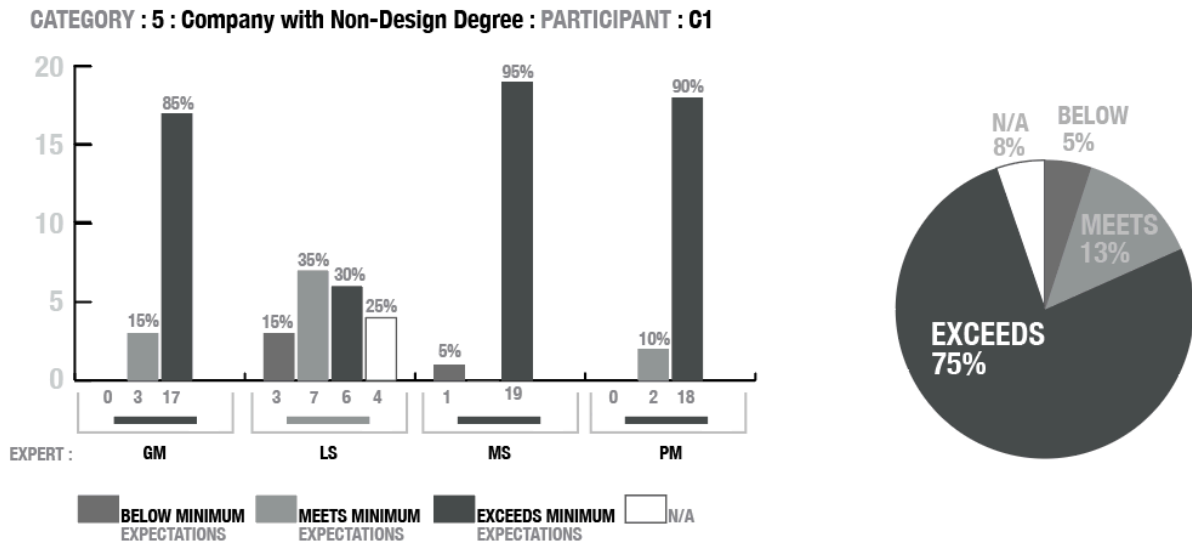
innovative solutions are a keystone of a profession in which repetition of an idea begins to approach plagiarism which has extremely negative implications. This expert also discussed the target audience of the work—in this case, children—and the importance of studying accessibility and appropriateness was even more vital than normal and this work may not have met that standard. Other experts praised the uniqueness of the color system but failed to address accessibility concerns. The outlier again appeared to agree on the more minor visually appealing categories in the foundational design area as successful, but spotlighted the higher-level design practices that are important to today’s designer, as the work was readily available to a wider audience due to globalization of design via the internet.

Overall, there was a consistency between the experts’ scores and comments for this particular portfolio assessment for a web designer not formally trained in design, who held a degree in another discipline.

With respect to RQ1: as a driver for why or why not choose an IHE education, the participant stated that design doesn’t come from reading books, it is about learning from other designers who didn’t go to school. They stated that books are about theory and platforms are “like a real way to prove your own and try out your knowledge.”

Figure 18

Overview of the four expert evaluations in bar graph and pie chart form for 5) Company with Non-Design Degree for [C1].



Note: Source: Rebecca D Kelly's data visual analysis based on expert assessments of category number 5) Company with Non-Design Degree, participant C1.

RQ2.2 Regarding the scores and definitions:

Across all experts, the participant received high scores in the majority of the marks, and the written comments revealed the key positive and negative concerns to draft a more custom assessment. Branding was a strong aspect of this designer's work as it was early on in their career, and their comments emphasized the importance of learning on the job and practice as well as understanding the audience (which is a higher-level process in design). Experts commented that this was made obvious with the designer's thinking behind a shift from the primary colors typically associated with design for children to a more unusual palette. Again, the expert who scored lower noted this same attempt at uniqueness but lowered the score citing inappropriate

colors due to visual accessibility issues especially important to the target of this project. The same expert noted the use of a mission statement as part of the communication aspect (providing it was a plus for this designer in terms of communication). They noted that the goal was to support early childhood education and, being largely inaccessible in terms of color, the designer created a contradiction since they should have “aim[ed] to be as inclusive as possible” and this work was disconnected from the client’s goal.

Given the background of this participant’s degree in another field (undisclosed due to privacy), the definitions this participant provided aligned very much with their education in IHE. This participant understood the importance of the user and human behavior when interacting with design. As an example of this participant’s line of thought, they responded, “...knowing about the people that [designers] are trying to attract is quite useful in order to learn about [the audience’s] behaviors and how they think and what are their fears and their likes and everything in order to design a better product,” which describes building a strong audience profile based on psychological patterns. This quote was evident in the expert comments as well as reflected in their scores, supporting the relationship between their interpretation of design’s purpose and the process, tying this directly to answering RQ2.2. What was unique about this participant was that they learned to apply the core lessons from their education (although not directly related to design) to the process of design. Therefore, the relationship between expert scores/comments and the participants’ descriptions/definitions of design was in alignment, particularly with respect to the human behavioral aspects considered in their work. See Table 29 for an overview of the overall assessment relationship between scores and research questions.

Table 29

C1: Summary of Participant in Relationship to the Research Questions.

Participant: C1/ Degree:Y not in design/Company	General	Detail
Overall Assessment:	3 Exceeds / 1 Meets	Exceeds 75% Meets 13% Below 5% <i>n/a 7%</i>
RQ1: Driver/Outcome	Driver: Learned on a YouTube course on logos	Outcome: After the analysis, the results suggest that this participants educational pathway was a successful segue to their current work.
RQ2, 2.1: Possible Differences in portfolios	Outcome: There seems to be no perceived negative outcome in this designer's work by choosing the DIY Path	Outcome: Great on foundational issues in design and has the potential to extend to higher-level design thinking based on past education.
RQ2.2: Relationship between score and participant's definitions	Yes	They practiced design prior to the work (similar to the old apprentice model) which aligns with their definition and scores.

Note: Source: Rebecca D Kelly's data visualization summarizing the participant details and degree, how their assessment was reflected as a positive or negative in terms of their educational trajectory (degreed or non-degreed), an indication of a difference in portfolios in comparison to their degree if any and a relationship between their scores and their definitions. These answers in this matrices begin to address this study's research questions specifically, RQ1, RQ2.1 and RQ2.2.

Overall Evaluation/Discussion: 2) C2:

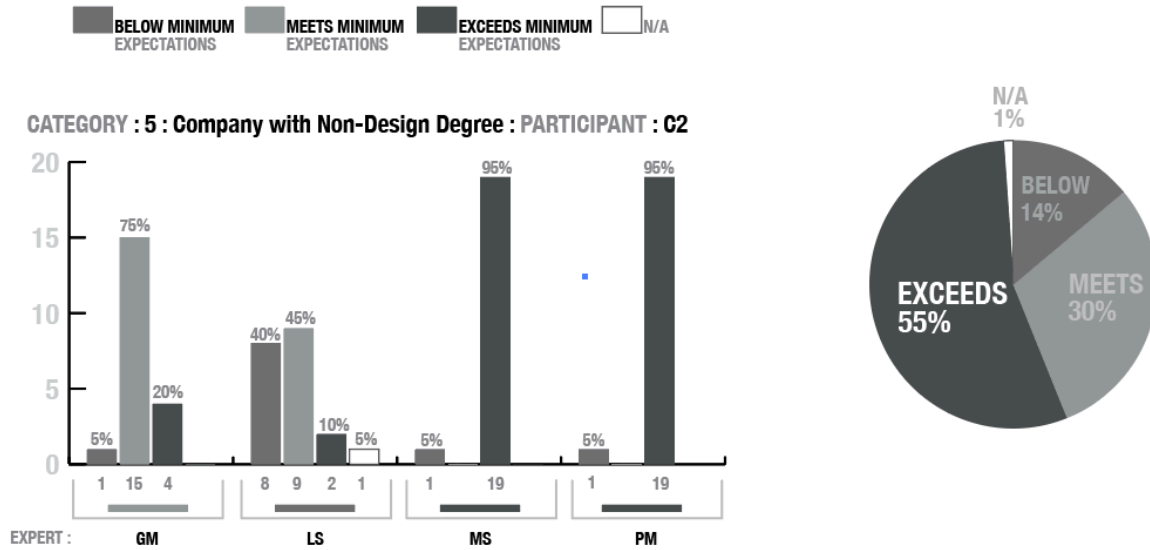
This participant held a Master's degree in a field related but not specific to design, and stated that the degree was not closely related to their current work. They also stated that they learned design not in school but through jobs and internships. This person worked at their

full-time job as a designer/illustrator primarily in web and social media doing more projects based in illustration than traditional design.

RQ2: Portfolio Summary

This participant scored the majority of marks in the Exceeds category at 55% (see Figure 19) with the next highest category being Meets at 30% and Below minimum standards at 14%. Expert comments generally showed appreciation for the “voice” of the designer’s work, which is heavily influenced by illustration and illustrated typography and tied to this designer’s work background (not their education). Most notably, the experts discussed the strong color system and ability for this project to expand into a larger system. There were a few experts who noted a lack of clarity, asking things like: do the colors represent a change of flavors, etc. These comments suggest that the reviewers were seeking more information on the logic of the system, or what the rationale was behind the designer’s choices. This was repeated in other comments such as: the pattern of illustrations seems overused, random and could be placed more strategically and be more subtle, by implying a focal point, which is a basic foundational design skill. Others supported the idea that there was a lack of clarity and readability. The overarching statements support positive assessments of this work for its fun, colorful, playful nature but there was still an inconsistency in the comments with details about the work’s lack of structure, rationale and communication.

Figure 19
Overview of the four expert evaluations in bar graph and pie chart form for 5) Company with Non-Design Degree for [C2].



Note: Source: Rebecca D Kelly’s data visual analysis based on expert assessments of category number 5) Company with Non-Design Degree, participant C2.

RQ2.2 Regarding the scores and definitions:

In a similar situation with participant C1 (*RQ2.2 Regarding the scores and definitions*), this participant had a degree in an unrelated field. They also talked about the outcome of that education, which in this case was research and an understanding of people. This participant learned design while working on the job and internships and also applied their IHE experience to their current work. Once again, the experts made note of the success of the basic principles and elements in various forms, including color, typography and style. However, there were a few comments that discussed the nuance, lack of a color structure system to indicate flavors (the purpose of color shifts), clarity or descriptions in communications (which are higher-level aspects of design) and a lack of context. Experts routinely sought clarity of communication in

this work while supporting the strong visual direction. See Table 30 for an overview of the overall assessment relationship between scores and research questions.

Regarding the alignment of the participant’s definition of design and their process with the expert’s comments (RQ2.2), it seemed that their statements very much aligned with the comments more than the scores. This person’s definition of design stated that “it’s pretty broad I mean just pretty much any kind of visual application,” which clearly focused only on the aesthetics rather than the content and communication aspects of design. This mirrors comments of the experts such as it “successfully captures the visual cues of a food product in a minimal way but lacks much ingenuity beyond that.” The participant’s definition of process also revealed that “I feel like I have learned new things like styles or ways to apply something” and “I look at it and wow I’ve never thought to do it that way before but that’s really cool because it is more polished and less like the process.” These comments were centered on questioning *how* to do something as a priority over *why*—the higher-level thinking that goes into design. This stance is reflected in the expert comments so for RQ2.2 both the scores and comments are aligned. See Table 30 below.

Table 30
C2: Summary of Participant in Relationship to the Research Questions.

Participant: C2/ Degree:Y not in design	General	Detail
Overall Assessment:	2 Exceeds/ 2 Meets	Exceeds 55% Meets 30% Below 14% <i>n/a</i> 1%
RQ1: Driver/Outcome	Driver: Went to college for a degree in another field	Driver: Projects dated in school, taught themselves,

		learned on the job
RQ2, 2.1: Possible Differences in portfolios	Outcome: Pretty vs. functional	Outcome: Comments talk about its fun, colors, type and illustration - lack of clarity and readability.
RQ2.2: Relationship between score and participant's definitions	Yes	Outcome: There is a relationship between comments/scores and the participant definitions. Def of Design: visual application (pretty) Process: learn new styles How vs. why - pretty Cool and more polished with less process

Note: Source: Rebecca D Kelly's data visualization summarizing the participant details and degree, how their assessment was reflected as a positive or negative in terms of their educational trajectory (degreed or non-degreed), an indication of a difference in portfolios in comparison to their degree if any and a relationship between their scores and their definitions. These answers in this matrices begin to address this study's research questions specifically, RQ1, RQ2.1 and RQ2.2.

1) Freelance with Design or Design-Related Degree : D1 and D2

The fourth category in the Stage Two: visual analysis portion of the study began with experts evaluating two designers who were full-time freelancers and had a degree in design directly or a design-related degree such as a Bachelor of Arts in which the area of focus ranged from painting to stage production. Under *4.4.1 General Demographics*, there is detailed information about the qualifications of what a design or design-related degree and what other degrees entail.

Overall Evaluation/Discussion: 1) D1:

This participant worked primarily as a branding freelancer, which typically means the work involves building identity systems, packaging, illustration, typography and creative strategy for clients. Despite holding a degree directly tied to graphic design, they stated that they did not go to a traditional university, but a year-long experiential program with a focus on creative painting/image making using traditional design platforms like Adobe Creative Suite (Illustrator, InDesign and Photoshop primarily). The school focused on software technique versus conceptual development, strategic planning or art direction.

RQ2: Portfolio Summary

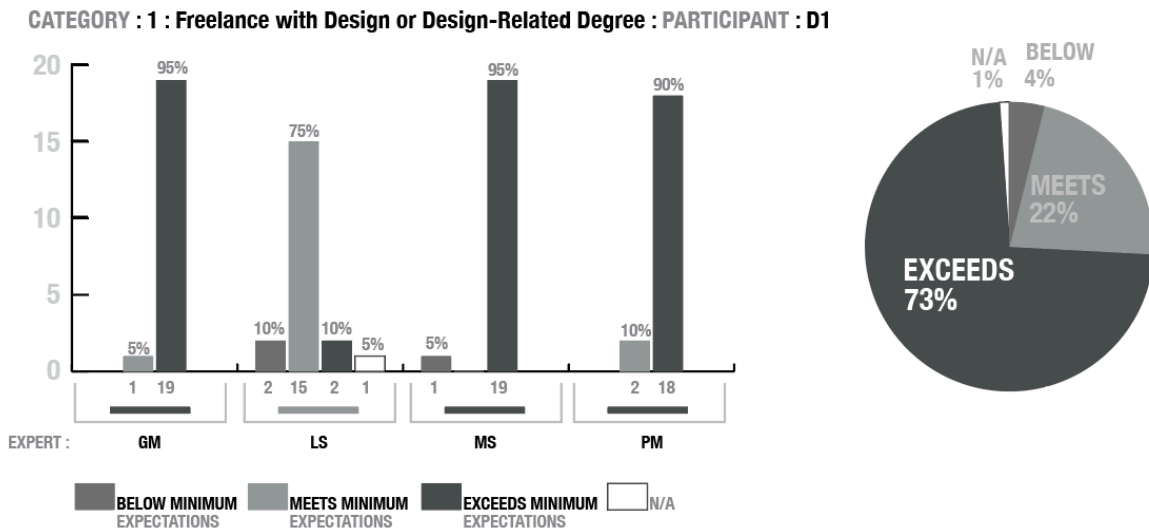
This participant scored highest in the Exceeds category with 73%, which would align with the participant's educational training in a traditional design program. The last expert scored the participant highest in the Meets category at 22% (see Figure 20) with the second highest giving a score in the Below category at 4%. Those scores are fairly expected from someone who was formally trained with a degree in graphic design.

Since nearly all experts scored similarly in the Exceeds category, it became vital to look for consistencies or inconsistencies in their comments to gauge if their insights revealed important information about this trained designer's work. Overall, the comments aligned in terms of clarity of the idea, evidence of a higher-level understanding of design in terms of concept, appropriateness and even an homage to historical accuracy from past design movements. Experts commented on eye-grabbing design and work that felt very "on-brand." The experts dove deeper into conversations about clear evidence of design competencies, but color became expected and the ideas, although "on-brand," would quickly become trendy over timeless work and that the

work looked like it was drafted “by committee.” In other words, they over-complicated by trying to communicate all product benefits instead of focusing on the most relevant.

With respect to RQ1: as a driver for why or why not choose an IHE education, the participant went to non-traditional, year-round school, and felt that the school they went to focused on technical skills and platforms. This participant also felt that they pushed themselves to become more creative in branding, for example, and the school did not focus on those types of design activities.

Figure 20
Overview of the four expert evaluations in bar graph and pie chart form for 1) Freelance with Design or Design-Related Degree for [D1].



Note: Source: Rebecca D Kelly’s data visual analysis based on expert assessments of category number 1) Freelance with Design or Design-Related Degree, participant D1.

RQ2.2 Regarding the scores and definitions:

As mentioned above, the score and evaluation comments aligned not only with each other but with the expert designers as well. Three experts scored highest in the Exceeds category with comments that supported those marks. The comments were elevated in language past formal principles and elements i.e., “how it looks” to higher-level thinking points that noted the design solutions from this participants’ work were “clear and concise” in terms of concept with respect to the brand’s target demographic. This was the first evidence of a high-level understanding of design so far in this study. One expert credited historical association to the work on two different occasions, as it demonstrated a more elevated knowledge of design history on the designer’s part. Another expert commented on the well-selected “type pairing” (mixing of two different classifications of type, which is not an easy skill to master), while another expert acknowledged “an excellent understanding of hierarchy and legibility for retail packaging.”

These positive comments about refined design nuance and this participant’s definition of design and the design process aligned somewhat, which confirmed a relationship between their scores and their definition answering *RQ2.2 Regarding the scores and definitions alignments*. Specifically, this participant’s definition of process was terse but underscored the importance of the design process as time-consuming but necessary. Further illustrating that significance, the informant underscored the relationship between process and good design work. Their definition of design was multidimensional and referenced storytelling with a foundation in a fully-developed idea that reflects a company’s “ethos and purpose” to build brands that represent their true nature. Finally, this designer understood, as evidenced through their definition of design, that the work was more than “mechanical production” or technological skills. These thoughts brought forward by the interviewing process reflected a higher-level understanding of

design that the experts highlighted in their comments as evident in the work. So, answering *RQ2.2*, there are alignments between the two (process/definitions and work) that are found to be reflective in the work itself and the reviews of the work. See Table 31 for an overview of the assessment relationship between scores and research questions.

Table 31

D1: Summary of Participant in Relationship to the Research Questions.

Participant: D1/ Degree:Y Related in design	General	Detail
Overall Assessment:	3 Exceeds/1 Meets / 1 Below	Exceeds 73% Meets 22% Below 4% n/a 1%
RQ1: Driver/Outcome	Driver: Degree, Degree in Design Specifically	Driver: Alternative year round school, background in creative painting
RQ2, 2.1: Possible Differences in portfolios	Outcome: Doesn't focus on form initially. Concept then form.	Outcome: Deeper comments beyond decorating, clarity, concept
RQ2.2: Relationship between score and participant's definitions	Yes	There is a relationship between a well articulated definition of design and process and this articulation is found in the work and recognized by the reviewers.

Note: Source: Rebecca D Kelly's data visualization summarizing the participant details and degree, how their assessment was reflected as a positive or negative in terms of their educational trajectory (degreed or non-degreed), an indication of a difference in portfolios in comparison to their degree if any and a relationship between their scores and their definitions. These answers in this matrices begin to address this study's research questions specifically, RQ1, RQ2.1 and RQ2.2.

Overall Evaluation/Discussion: 1) D2:

This participant did have a degree in a field related to design (graphic design and visual communications) but not in the form of a four-year degree typically associated with a BFA program. Despite this participant having a two-year degree, they were included in this category since it was directly tied to graphic design with an emphasis in visual communication. These additional studies qualified this participant as a freelancer who specialized in branding. These special qualifications were considered when analyzing the data and expert responses.

This designer categorized themselves as a branding-focused designer who worked on developing logos and company merchandise.

RQ2: Portfolio Summary

This designer's expert reviews scored them nearly equally between the Exceeds and Below categories (7% difference between the two highest categories, with Meets in the third position at a 23% score). See Figure 21. As in previous expert analysis sections, it was beneficial to understand the meaning behind the close scores in completely polar categories in terms of portfolio success. With an overall assessment of Exceeds, how could this portfolio also score almost equally in the Below category? Seeking to explain this duality in scores, this analysis was performed by focusing on the expert comments compared to the participant's own definitions of their design process and their interpretation of the definition of design. The steps were taken to determine trends, strengths and weaknesses in the participant's work as a way of explaining the divergent scores.

Two experts who specialized in UX/UI scored this participant who was a branding expert the highest in Exceeds category (40%) while the other experts (advertising, branding and strategy) scored this participant highest in Below (33%) and Meets (26%) categories.

Reviewer one, who scored Meets minimum standards the highest category on their evaluation, suggested that while the work was legible, it was also erratic and felt like clip art and stock art. This reviewer spent time trying to understand the client and purpose of the work. None of these comments was favorable to a designer, particularly one who was formally trained.

Reviewer two (scoring highest in the Exceeds category) suggested a background in historical design movements was evident in this work. This expert suggested that the typographical exploration was positive but also offered several criticisms of the designer's technique and choices, such as outlining type and the placement on a colored background, making it hard to read. They also suggested that this designer needed to explore more direction, and that the solution presented was not quite conceptually or formally finalized. Reviewer four (who scored this work similarly) contradicted some of the scoring with comments such as "unclear in its presentation, purpose and communication," while complementing the technical software skills and techniques on modern digital applications such as Adobe Illustrator or Savage Procreate for iPads.

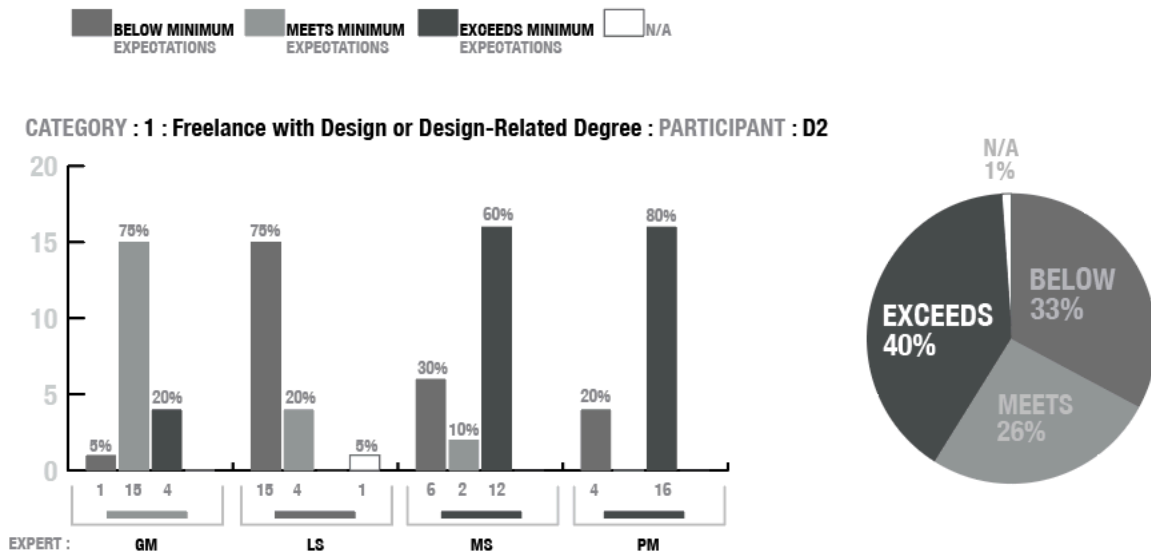
Expert four, who scored this designer in the Below category, simply stated a complete lack of understanding and purpose of this work was shown, not "understanding the 'why' or the problem this work is trying to solve."

With respect to RQ1: as a *driver* for why or why not choose an IHE education, the participant revealed that it was "definitely possible" to learn design without attending school

because there was a “lot of educational content on platforms from people that have gone to school. Those people are sharing good content.”

Figure 21

Overview of the four expert evaluations in bar graph and pie chart form for 1) Freelance with Design or Design-Related Degree for [D2].



Note: Source: Rebecca D Kelly’s data visual analysis based on expert assessments of category number 1) Freelance with Design or Design-Related Degree, participant D2.

RQ2.2 Regarding the scores and definitions:

As discussed above, the scoring variance between the experts and their comments was determined to be important. It was critical to view all components individually and as a whole system when looking at their work and their assessments, comments and definitions of design and their own processes. The goal was to see if there was a connection between all three holistically.

In this participant's work, the experts' scores and comments were slightly aligned and at the same time inconsistent, unlike the more unified section above, keeping in mind that both participants in this category were degreed in design via a formal education (a two-year versus a four-year degree) and full-time freelancers specializing in branding. The comments (detailed above) mentioned the communication, purpose, clarity and legal issues as part of the complicated scores and comments comparison.

Next, with the overall sometimes conflicting feedback, it was important to interpret the trio together when answering RQ2.1 and RQ2.2 in terms of the relationships among the portfolio scores, reviews and definitions to draw accurate conclusions.

In this participant's definition of the design process, they interpreted the question "can you discuss your design process," as addressing the more formal process of project launch, problem identification, interpretation, research, iteration development, revisions, prototyping, and revising as a way to begin solving problems and creating effective design. Although this is the most detailed version of a design process, according to the expert comments, the problem-defining phase was unclear as several experts made note of not understanding the purpose of this project and what problem the design solution attempted to solve.

In the next step in the analysis, it was necessary to determine whether there was a connection between scores, comments and definition. The participant described the definition of design as "a mix of things—in terms of art, the way something looks and how it functions, does it work." This is inconsistent with the experts' comments but consistent with the scores. It looked better than it functioned in terms of aesthetics, however, readability, legibility and purpose were unclear according to nearly all expert comments, so it is the alignment of the unclarity that unites

the definitions and scores. See Table 32 for an overview of the assessment of the relationship between scores and research questions.

Table 32

D2: Summary of Participant in Relationship to the Research Questions.

Participant: D2/ Degree:Y design related	General	Detail
Overall Assessment:	2 Exceeds/1 Below/ 1 Meets	Exceeds 40% Below 33% Meets 26% <i>n/a 1%</i>
RQ1: Driver/Outcome	Driver: General education, basics. Technology focused (web and video).	Driver: Most of the learning, learned on their own (experience, self-taught).
RQ2, 2.1: Possible Differences in portfolios	Outcome: Confusing scoring, vs. comments	Outcome: Technically proficient (looks good) but erratic, clip art, trademark issues, lack of knowledge regarding trademarks,
RQ2.2: Relationship between score and participant's definitions	Yes/No	Outcome: This designer states they are more on the side of visuals - making art - something that looks good as the primary goal of the project.

Note: Source: Rebecca D Kelly's data visualization summarizing the participant details and degree, how their assessment was reflected as a positive or negative in terms of their educational trajectory (degreed or non-degreed), an indication of a difference in portfolios in comparison to their degree if any and a relationship between their scores and their definitions. These answers in this matrices begin to address this study's research questions specifically, RQ1, RQ2.1 and RQ2.2.

E: 6) Company with No Degree : E1 and E2

The fifth category in the Stage Two: visual analysis portion of the study began with experts evaluating two designers who were working full-time with a company versus freelance

designers. In this category, the designers working full-time at their respective agencies did not have degrees in IHE in design or any other field, so they were entirely self-taught designers. Under *4.4.1 General Demographics*, there is detailed information about the qualifications of what a design or design-related degree and what other degrees entail.

Overall Evaluation/Discussion: 6) E1:

This full-time designer had no formal education in design and no degree in any other field, and while they did attend college, they never graduated. This participant worked as the creative director at an in-house agency (meaning all creative work happens internally versus hiring an external agency for their design needs). This person controlled and directed all creative activity from website design and rebranding of existing products to social media and photography. It was through their photography work that they began working at this small company and they had been working in the design industry for roughly ten years at the time of this interview.

RQ2: Portfolio Summary

Three out of the four design evaluation experts scored this person's work overwhelmingly positively in the Exceeds category at 64%. The remaining expert's majority score fell within the Meets minimum qualifications category at 20%, followed closely by a combined score of Below minimum standards at 15%. Even if one combined the two lower categories together, Meets/Below (35%), the score was still significantly lower than the Exceeds category, and remained the leader at nearly 30% higher. See Figure 22 for more detail.

Three expert reviewers scored this work very highly; however, none of the three gave sweeping Exceeds scores (nearly 20 out of the 20 possible points) that we have seen previously.

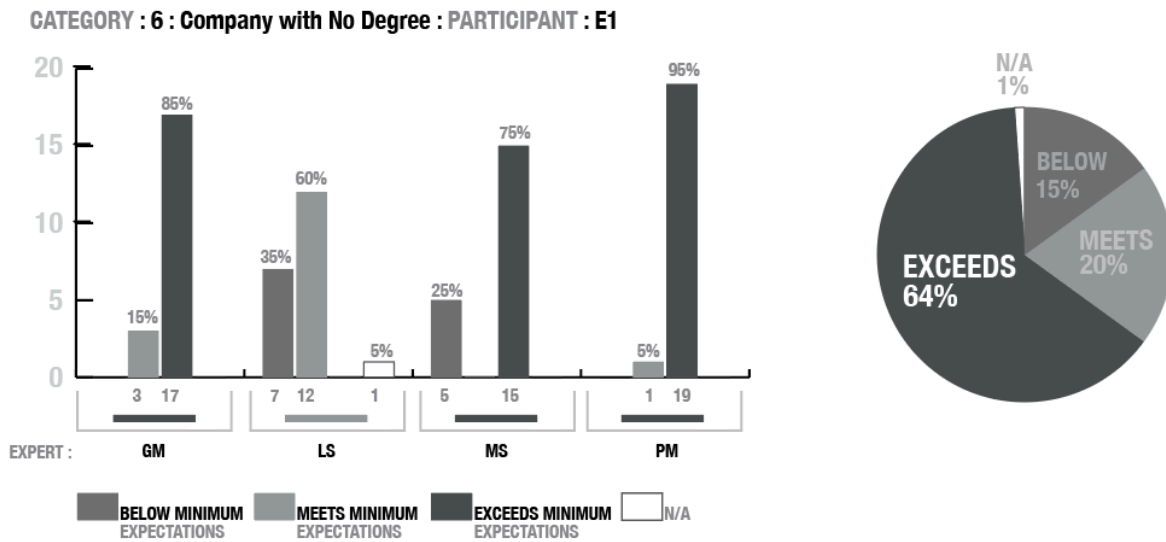
Expert one's second score fell in the Meets category, Expert two's second scores were in the Below category and Expert three's also had marks in the Meets category. The comments from these expert groupings indicated that the work was well thought out, however, the logo would not reduce well since it was more illustrative in nature versus a reductionist/abstraction which works better for adaptive logos, but it did demonstrate "some depth in thinking." Other comments stated that overall the work was "nice and tidy," and had indicated an idea beyond decoration but needed more exploration of the form itself, mirroring the reduction issues from the first reviewer. They further indicated usability issues with the internet application when used on smaller devices, indicating that this work would not be functional in a real-world application. The third reviewer issued a similar statement that the form was weak, but acknowledged that the phrasing diminished the work and was not appropriate or valuable to the presentation of the work, but it demonstrated some design knowledge.

Expert four, who scored in both in the Meets and Below category, remarked that there was a concept evident, but that the work needed nuanced refinement in the way the mark (logo) was presented, as the works appeared a bit naive in execution.

Overall, there was a consistency in the comments and scores from the reviewers in this participant's work, indicating that the same issues of concept, knowledge and refinement were noted by all the reviewers.

With respect to RQ1: as a *driver* for why or why not choose an IHE education, the participant's friend saw this participant sketching and told them they should be a designer, not to pursue what they were in school to study (not related to design), so they dropped out of school and began designing.

Figure 22
 Overview of the four expert evaluations in bar graph and pie chart form for 6) Company with No Degree for [E1].



Note: Source: Rebecca D Kelly's data visual analysis based on expert assessments of category number 6) Company with No Degree, participant E1.

RQ2.2 Regarding the scores and definitions:

As done previously, the research sought to determine if there was a relationship among the work, the expert scores and comments, and the designers' own definitions of design and their articulation of their own design process. Described previously, the design process establishes how the designer seeks to problem solve. Typically, they use a basic combination of the phases of design thinking: research, review of competition and intended environment,

identifying/understanding target audience, statement of the problem, identifying and iterating solutions, then move on to thumbnails, sketches, and comps until the goals are met.

In this instance, the designer did not make note of their own processes for working towards a design solution, but indicated that for them, the design process happened after the solution had been implemented. They remarked about the data analytics (how did viewers respond, click, etc.) and return on investment (ROI) numbers. They did make note that design ultimately breaks down to data after the fact. The expert scores and comments related to some level of success in an aesthetic sense which aligned with this participant’s process happening after the fact, enforcing that how it looks takes precedence over the thought process that occurs prior to implementation.

In their statement, the participant’s made the primary point that art is different from design, stating that art is created without boundaries in a way that has meaning for them. Design may not always be pretty but needs to solve a functional problem. These statements, when compared, did not align with comments in terms of function (weak form, would not reduce well), the work could be considered a failure, but according to the scores, experts felt overall that the work was somewhat successful in function, while the visual solutions needed work. See Table 33 for an overview of the relationship between scores and research questions.

Table 33
E1: Summary of Participant in Relationship to the Research Questions.

Participant: E1/ Degree: No	General	Detail
Overall Assessment:	2 Exceeds/1 Meets / 1	Exceeds 64%

	Below	Meets 20% Below 15% <i>n/a 1%</i>
RQ1: Driver/Outcome		
RQ2, 2.1: Possible Differences in portfolios	Outcome: Nice work, evidence of a concept, deeper thinking	Outcome: Lack of refinement and appropriateness of detail in the work. Usability may be a problem.
RQ2.2: Relationship between score and participant's definitions	Yes	There is a relationship between comments and definitions and scores.

Note: Source: Rebecca D Kelly's data visualization summarizing the participant details and degree, how their assessment was reflected as a positive or negative in terms of their educational trajectory (degreed or non-degreed), an indication of a difference in portfolios in comparison to their degree if any and a relationship between their scores and their definitions. These answers in this matrices begin to address this study's research questions specifically, RQ1, RQ2.1 and RQ2.2.

Overall Evaluation/Discussion: 6) E2:

Similar to participant E1 above, this designer worked full-time at a company as a designer but did not have a IHE degree in design or any other field or discipline and they learned all aspects of design through experience or self-directed learning. This designer had a high school diploma with a focus in economics, physics and software development and had been working in the field for roughly five years as a branding designer. They primarily learned software techniques on Skillshare and YouTube.

RQ2: Portfolio Summary

Although this participant had the same qualifications in this category as the previous one (worked for a company with no formal degree), overall this expert assessment was lower in the

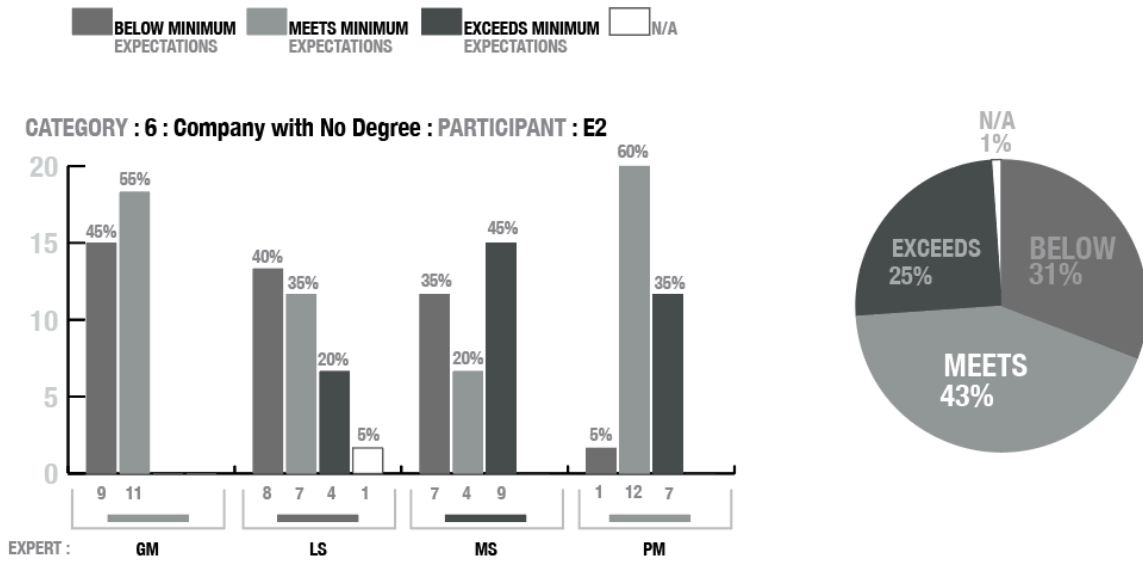
Exceed category and higher in Meets and Below minimum qualifications. See Figure 23 for more detail.

Three of the four experts scored this work in the Meets (43%)/Below (31%) category. The last expert, while giving the most points in the Exceeds category, the total was barely higher than that of the Below category, with only 2 points in difference (Exceeds: 9/Below: 7).

The comments were very much aligned and accurately reflected the scoring listed above. Deeper investigation into the individual experts' comments revealed essentially the same issues that have occurred previously: a lack of clarity, uncertainty of the concept, basic lack of design nuance, disjointed relationships between the design elements. Specifically, the evaluators repeated several of the same comments: the lack of a basic sense of design finesse, *see and say* (meaning "I know it is a farm logo because the word farm in the logo"), and it looked like stock art more than an originally drawn illustration. Another expert questioned how the two elements were related and they could not decipher whether the image was a tree, stalk of wheat or a shrub. Additionally, they stated that they "don't get a farm vibe" despite the word appearing near the mark. The same expert noted there was a lack of professional polish based on the stacking of the type and suggested that the mark design must be adjusted if it is to be used in print form or for the internet, indicating a lack of real-world usability. The third expert did not understand the concept because of the clues provided: "on the surface I see this as 'farm' but the description of 'newsletter,' which says this is not a strong concept." The last expert stated that there were good design principles but the rendering was "lacking originality" and the type was chosen for "cuteness" but did not add clarity to the work. Finally, the same expert noted that a lack of cohesive context undermined the work with unclear context, intent and clarity of its purpose.

With respect to RQ1: as a *driver* for why or why not choose an IHE education, the participant did not earn a degree but studied in a field far removed from design. This participant mentioned drawing cartoons as a child but did not get the opportunity to study design.

Figure 23
Overview of the four expert evaluations in bar graph and pie chart form for 6) Company with No Degree for [E2].



Note: Source: Rebecca D Kelly’s data visual analysis based on expert assessments of category number 6) Company with No Degree, participant E2.

RQ2.2 Regarding the scores and definitions:

With this fifth category of designers, it was most important to this study to understand all three areas of assessment to gain the most complete understanding of the total designer for the most accurate picture of their work in the industry. As a reminder, the two designers in this category were employed full-time with a company, self-trained designers with no formal IHE

education in design or any other area. The three areas of assessment considered for a fair evaluation of the work and to answer research questions RQ2.1 (*difference between portfolios between the varied types of education*) and RQ2.2 (*relationships if any between expert scores and the designers' definition of design and their processes to create effective design*), were expert scoring, expert comments and the definitions compared with those scores/comments.

Regarding this designer's definition of design, they stated generally that design was mainly about the translation of messages into graphic form or "visually." This aligned with the scores and comments because both focus on the physical look of the work and while the participant mentioned the message, experts commented repeatedly about the lack of clarity, context and concept. None of these ideas were found in the participant's own definition which suggested a lack of these ideas as a priority in their work.

Shifting to the participant's definition of the design process, they acknowledged that "stealing" others' work isn't a great idea, but "you can learn to do [...someone else's look]," essentially practicing by "copying" and then figuring out how to "create your own style." Again, this designer's focus was on visuals and form and less on the conceptual development, which was missing from both definitions. This aligned very well with the expert scores and comments that mentioned a lack of concept and purpose of the work, in other words; the work was about style/form (aesthetics) over higher-level thinking. See Table 34 for an overview of the overall assessment relationship between scores and research questions.

Table 34

E2: Summary of Participant in Relationship to the Research Questions.

Participant: E2/ Degree: No	General	Detail
Overall Assessment:	2 Meets/1 Below/ 1 Meets	Meets 43% Below 31% Exceed 25% <i>n/a 1%</i>
RQ1: Driver/Outcome	Driver: Self taught	Driver: Learned via MOOCs, mainly YouTube and Skillshare, whereas Dribbble helped to learn to emulate a technique.
RQ2, 2.1: Possible Differences in portfolios	Outcome: Lack of clarity and intention. Attention to detail and rationale is lacking.	Outcome: Lots of design refinement is missing, rationale and concept is unclear, legible but not clear, which suggests a preference for aesthetic design over higher-level thinking.
RQ2.2: Relationship between score and participant's definitions	Yes	Yes. Definitions align and reflect with both the score and comments with the work presented.

Note: Source: Rebecca D Kelly's data visualization summarizing the participant details and degree, how their assessment was reflected as a positive or negative in terms of their educational trajectory (degreed or non-degreed), an indication of a difference in portfolios in comparison to their degree if any and a relationship between their scores and their definitions. These answers in this matrices begin to address this study's research questions specifically, RQ1, RQ2.1 and RQ2.2.

F: 3) Freelance with Non-Design Degree : F1 and F2

The sixth and final category in the Stage Two: visual analysis portion of the study began with experts evaluating two designers who were working as freelancers. The designers in this category did not have degrees in IHE in design or any other field so they were entirely

self-taught designers. Under *4.4.1 General Demographics*, there is detailed information about the qualifications of what a design or design-related degree and what other degrees entail.

Overall Evaluation/Discussion: 3) F1:

This participant worked as a freelance graphic designer with a focus as an illustrator. They obtained formal training primarily as an instructor teaching fine arts (such as ceramics, drawing and painting) but did not receive training formally or informally as a graphic designer. This participant moved on from teaching to working as a freelance digital illustrator, meaning only on the computer and not traditional media like charcoal or pencil/paint illustration. At the time of the interview, this designer had worked in the industry for two to three years.

RQ2: Portfolio Summary

This designer scored in the Below category equally with three of the four experts making up 54% of the votes in that category. The fourth expert scored this person in the Exceeds minimum qualifications reaching 11%. The three experts' next highest score fell in the Meets category with no Exceeds scores. See Figure 24 for more detail and a holistic view of the expert scoring.

The three experts supported each other with similar scoring overall which suggest a consensus in scores with the outlier being the fourth expert. Analyzing the comments was the next logical step to discover if the comments provided by the experts supported or negated the scores. Those three expert comments were then compared with the fourth expert to check for consistency or inconsistency.

Again, three of the four experts ranked this designer in the Below category. Looking at their comments for thematic threads has added a level of authentication as they commented along similar lines of thinking.

Expert one, with 15 out of the 20 scores available in the Below category, stated that the work should be communicating something for someone, but it was not clear of the purpose, for whom it was meant, why it existed, or the intention of the work. The final comment from the first expert was that it looks like AI generated art which, for a life-long illustrator, was not a complimentary comment. Illustrators develop their own style over the years whether trained or not, and for an expert to not be able to detect a discernable style enforced this expert's Below score.

Expert two stated simply that there was a complete lack of understanding of the purpose or intent of the work. They did not get anything about the work, including the "why," much less the "how" in terms of an effective illustration technique. This expert ranked 12 of the 20 scores in the Below category.

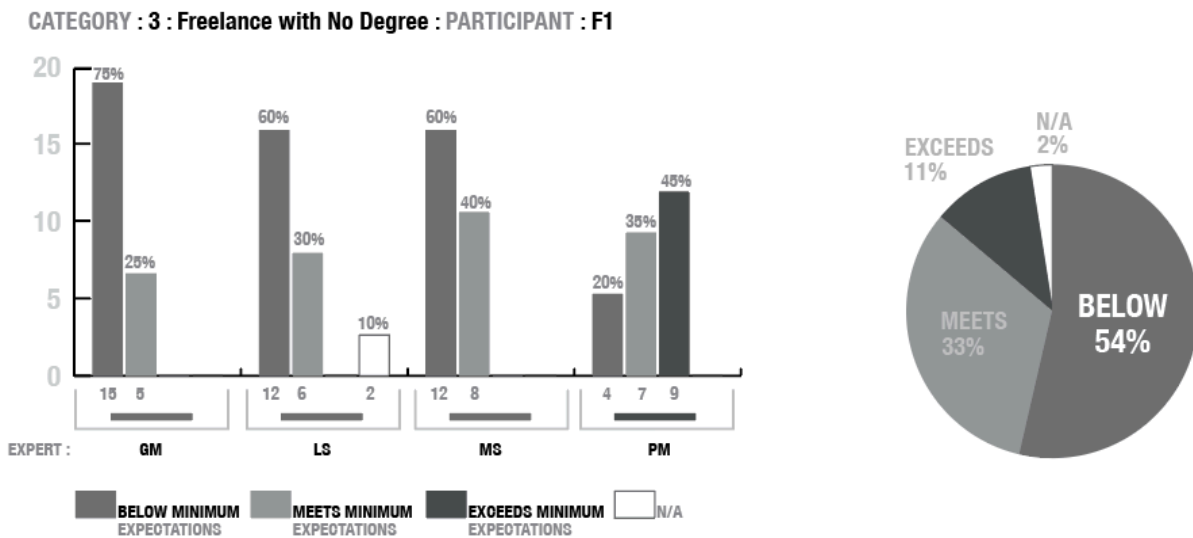
Expert three also evaluated this designer with 12 out of the 20 scores in the Below category and stated that this work was "their least favorite of all of the examples in the collection." Comments were made about seeing the work as amateurish and expected (meaning not original or conceptual in any way). Breaking down the illustration into formal components (absent any uniqueness of concept or originality) did not benefit this work, as comments were made stating that there was no foreground/background relationship, and the work was flat with no compositional benefits. This expert suggested further that this was just an exercise to practice a tool, and these comments again supported not only the individual scoring but the group scoring of this particular participant.

All three of these experts aligned with their scoring and the comments suggested that the focus was once again on skill or software techniques rather than any conceptual higher-level thinking, being more aesthetically than conceptually directed.

The last expert offered their opinion that the work fell within the Exceeds minimum qualification followed closely by the Meets category (7 to 9 points here with 4 in the Below). Their comments suggested similar concerns that indicated no understanding of the intent of the work or its audience (is it for a children’s book or a game?), and despite the higher scores, still suggested that the lack of illustration nuance and refinement in terms of a mono-line weight was “a little jarring,” followed by questions about the justification of the color system.

With respect to **RQ1**: as a *driver* for why or why not choose an IHE education, the participant determined that their career was built by “...[learning] successful ways to self-teach,” including “digital illustration” which they taught themselves and “Pinterest is a great way to learn how other artists draw.”

Figure 24
 Overview of the four expert evaluations in bar graph and pie chart form for 3) Freelance with Non-Design Degree or [F1].



Note: Source: Rebecca D Kelly's data visual analysis based on expert assessments of category number 3) Freelance with Non-Design Degree, participant F1.

RQ2.2 Regarding the scores and definitions:

With reviewers scoring this piece so consistently, looking again at this designer's definition of design and their articulation of their own processes regarding how they approach and begin a new project offered insights whether or not the reviews/comments matched the definitions.

As mentioned previously, there is not a universally agreed upon definition of design as there are many fields that consider themselves designers, so logically it makes sense that the definitions vary. For a communications/graphic designer, the definition of design is generally regarded as using a combination of words and images to create manifestations in 2 or 3 dimensions that are used to creatively solve problems to satisfy a variety of goals regarding target, client, business, etc. These goals are intended to create an action: awareness, responsibility, purchase, engagement or movement using a combination of visual acuity, intellectual prompts and conceptual development to intrigue and engage the viewers. Regarding this participant's definition of design, it is hard to locate or even decipher one from the interview sessions. After several attempts to interpret their interviews, no context was found to support any definition, which may have been due to a language barrier.

A typical design process first involves research to understand the design problem, reading proposals or briefs and then sketching ideas during an iterative process until a design solution is agreed upon, etc. Regarding this participant's description of their particular design process, they stated that they begin with questions back-and-forth with the client about the scope of the work and the budget and less about style, communication, target, purpose, etc. Their definition seems

to be more transactional in nature. See Table 35 for an overview of the overall assessment relationship between scores and research questions.

Table 35

F1: Summary of Participant in Relationship to the Research Questions.

Participant: F1/ Degree: No	General	Detail
Overall Assessment:	3 Below/ 1 Exceeds	Below 54% Meets 33% Exceeds 11% <i>n/a 2%</i>
RQ1: Driver/Outcomes	Driver: No degree, trained as educator (fine art)	Outcome: Weaker portfolio in terms of point, clarity, purpose
RQ2, 2.1: Possible Differences in portfolios	Outcome: More illustrative type of work, vs a typical design piece	Outcome: Work was still hard for experts to understand and confused them. Not clear.
RQ2.2: Relationship between score and participant's definitions	Yes.	Yes. Views pinterest as a great place to learn to draw.

Note: Source: Rebecca D Kelly's data visualization summarizing the participant details and degree, how their assessment was reflected as a positive or negative in terms of their educational trajectory (degreed or non-degreed), an indication of a difference in portfolios in comparison to their degree if any and a relationship between their scores and their definitions. These answers in this matrices begin to address this study's research questions specifically, RQ1, RQ2.1 and RQ2.2.

Overall Evaluation/Discussion: 3) F2:

In a similar fashion to the designer above, this participant was a freelance branding designer who worked on logo development with a focus in illustration that supported the company's brand. This informant was taking college courses in an engineering field but did not

graduate and was a self-taught designer. This designer has been working as a freelancer in the industry since 2011 and became a full-time freelancer in 2018.

RQ2: Portfolio Summary

This final participant had the same educational experience as the previous designer, no degree in any field, some classes in IHE in another field, but no degree was obtained (the previous designer had some training to be a teacher). Both focused their freelancing on branding initiatives but preferred to work as illustrators to support their respective brands. Despite their similar educational pathways this designer's expert scoring appeared much different than the first freelance non-degreed designer.

Two of the four experts scored this participant's work in the Exceeds minimum qualification at 38% followed very closely by Meets at 36%. Although two experts scored this designer in Exceeds, all four experts scored them relatively equally in the Meets category. One expert scored this work highest in the Below category (25%) with three other experts also scoring a few points in that category (20 points total out of a potential of 60, or one out of three in that category). The minimal difference between these nearly identical scores was compared to the expert comments below.

Looking at the two experts who scored this work in the highest category, Exceeds, their comments were similar in that they made note of the well-executed piece, commenting that the work was fun and playful which would be appropriate for the company although there were some concept and typography problems that led to an unclear functionality.

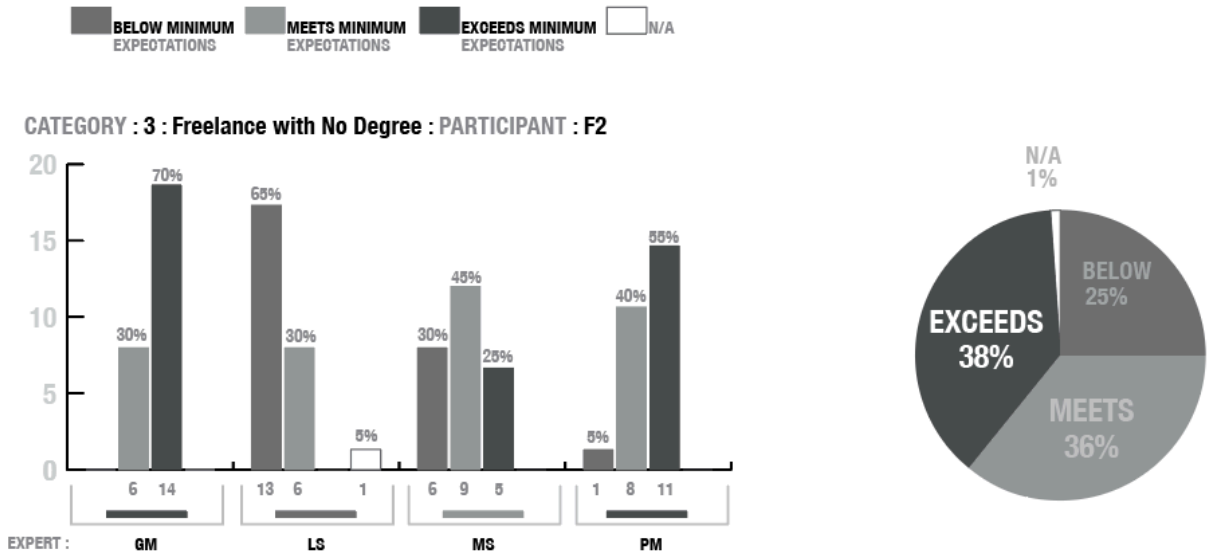
Expert three (9 Meets, 6 Below and 5 Exceeds) stated that it was clear that this was a real-project versus some of the other participants' work in which the intent was in question—were these ideations or prototypes or even experimental pieces? They also agreed this was a fun concept that captured the essence of childhood. Clarity was achieved through provided statements with design decisions articulated. This expert stated in support of this work that “this level of execution demonstrates a strong command of design principles and technical proficiency” which supported a positive view of their technical skills.

The fourth expert scored this work with 13 of the available points in the Below category and the remaining points in Meets. The comments that were used for this review simply stated that this was a below standard piece due to the fact that they had “seen this style and treatment done time and time over again and felt it lacked originality.” Phrased in a clearer way, the repetitive and common nature of the work suggested a more negative perception of the work as derivative and was scored to reflect that assessment.

With respect to RQ1: as a *driver* for why or why not choose an IHE education, the participant deemed that the current area of study in IHE was not for them, so they began learning by participating in crowdsourcing activities to force themselves to learn via self-taught methods along with educating themselves on social media platforms. See Figure 25.

Figure 25

Overview of the four expert evaluations in bar graph and pie chart form for 3) Freelance with Non-Design Degree or [F2].



Note: Source: Rebecca D Kelly’s data visual analysis based on expert assessments of category number 3) Freelance with Non-Design Degree, participant F2.

RQ2.2 Regarding the scores and definitions:

This designer had relatively higher scores and more positive remarks than the first designer in this sixth and final category. The comments supported these scores so the final comparison was between scores/comments and definitions to find any connection between all three components in this Stage 2: expert visual analysis portion of the study.

This participant's definition of design highlights the difference between art and design, which is an often argued opinion, suggesting that design has more of a purpose than art. They state that art is “subjective and design must have an objective that both parties (client and designer) must agree on” because the work has a goal. They also offered a view that usability in design was vital and that this was a good way to define design. This also suggested that design

has a more practical use that supports the participant's view that art doesn't involve an agreement or goal between two parties.

The same person's definition of the design process was "...design is when you take a step back from a problem and you look at the whole thing... so it becomes most accessible to everyone involved." This portion of the participant's definition of process followed suit with their definition of design, in that design has more of a practical purpose than art. Further, this designer suggested that motivation allows a self-taught designer to be more agile than those who pursued degrees in the traditional educational pathway as evidenced in the following statement: "...I don't think anyone who has had a traditional education knows what to do when their client just totally bucks everything at the last final round and you're like what the hell just happened," remarking they had no regret and they had increased skill through their own self-taught pathway in becoming a designer.

The overall scores and supporting comments from experts align with the participant's definitions if one is willing to read between the lines of what was spoken and not spoken. The scores supported this work as it was deemed a successful, realistic project with appropriate design choices that captures the voice of the intended audience (extrapolating backwards supported with some written context). The outlier here was the fourth expert who stated that this work was not unique in style or characteristics, and one could argue that originality in one's design work (especially in illustration) was relevant. The finding supported that the definitions and designs (as rated by the experts' scores) were representative of each other. See Table 36 for an overview of the overall assessment relationship between scores and research questions.

Table 36

F2: Summary of Participant in Relationship to the Research Questions.

Participant: F2/ Degree: No	General	Detail
Overall Assessment:	2 Exceeds/1 Meets / 1 below	Exceeds 38% (nearly tied) Meets 36% Below 25% <i>n/a 1%</i>
RQ1: Driver/Outcome	Driver: Self-taught, feels like the self-directed are more motivated to learn than those with IHE degrees	Outcome: Originality of the work is questioned and technically aware.
RQ2, 2.1: Possible Differences in portfolios	Yes	Outcome: work ideas feel unoriginal
RQ2.2: Relationship between score and participant’s definitions	Yes	Yes. These statements from the participant somewhat support a relationship between definitions and scores.

Note: Source: Rebecca D Kelly’s data visualization summarizing the participant details and degree, how their assessment was reflected as a positive or negative in terms of their educational trajectory (degreed or non-degreed), an indication of a difference in portfolios in comparison to their degree if any and a relationship between their scores and their definitions. These answers in this matrices begin to address this study’s research questions specifically, RQ1, RQ2.1 and RQ2.2.

Below is a comparison chart that summarizes each component of the Stage Two: expert analysis portion of the study for an overview of the findings. Included is the participant, job type, educational type, score and research question relationship. See Table 37 for a complete comparison overview.

Table 37

Comparison Overview of Participants, Education, Job title, Score totals (all four experts combined, and RQ2 answers).

CAT & P#	EDU	SCORE (totals)	Comment aligns with Scoring:	RQ2. RQ2.2 What are the differences? Describe	RQ2.2 Relationship between EDU/Score and Definition.
	Employer Type of Des.				
A1	Degree: Yes: Design / related or Other	4 Experts Below: 64%	Yes. Below basic low-level design skills	Outcome: Focused on lower-level. Focus on technical or software skills	Yes (negative). Unclear and undefined in both design process and definition of design. On par with assessment - lacking detail.
	Company. Visual Designer				
A2	Degree: Yes: Design / related or Other	3 Experts Exceed: 59%	No. Scores high in principles of design, but remarks are low on higher-level design concepts (accessibility, etc.)	Outcome: Basic design lower-level thinking Aesthetics over concept and usability	Yes (negative). Comments and definitions align. No clear definition of design. But does talk about the process which indicates storytelling and problem solving but lacks a research dialog.
	Company. Visual Designer	1 Expert Meet: 31%			
B1	Degree: Yes: Design / related or Other: DIYD	2 Experts Exceed: 43%	No. Good principles and elements - basic lower-level design. Lack of clear concept, usability issues, color, unclear. Not innovative or original.	Outcome: Focus on lower-level design, aesthetics, No concept Not innovative	Yes/no (negative). Comments and definitions align. No clear definition of design except usability and experts had issues on UX and lack of innovation. Process definition is unclear except for usability is vital and there comments about useability.
	Freelance UX/UI Designer	1 Expert Below: 32%			
B2	Degree: Yes: Design / related or Other: DIYD	2 Experts Exceed: 46%	No. Exceeds in design principles and elements, low and meets in conceptual development, purpose and cohesive message - higher-level elements	Outcome: Focus on lower-level design, aesthetics, No concept Not innovative	Yes (negative). Comments and definitions align. Definition of design is very art focused. Art that works aligns with the aesthetic driven aspects from both the designer and expert comments. No comments about the design process.
	Freelance UX/UI Design	1 Expert Meet: 29% 1 Expert Below: 23%			

C1	Degree: Yes: Design/ related or Other: DIYD	3 Experts Exceed: 75%	No. Exceeds in design principles and elements, low scores on originality, ux is questionable, feels unfinished.	Outcome: Focus on lower-level design, aesthetics, No concept Not innovative	Yes (negative). Comments and definitions align but were unclear. Definition of design is about solving a problem. Reflected in scores. Process has more detail about sketches and research but this participant has low scores on innovation which would come through research.
	Company. Web Designer				
C2	Degree: Yes: Design / related or Other: DIYD	2 Experts Exceed: 55%	Yes/No. Fun but no ingenuity beyond that. Nice colors but elements overused. Missing concept, unclear, needs written communication for clarity.	Outcome: Focus on lower-level design, aesthetics, No concept Not innovative	Yes (negative). Alignment of definitions and scores. Definition of design talks about design being a visual application - aesthetic driven work in different forms - web or print. Definition of process focuses on style only and not on research, concept of sketches.
	Company. Illustrator	2 Experts Below: 30%			
D1	Degree: Yes: Design / related or Other: DIYD	2 Experts Exceed: 40%	Yes/No. Excels in basic design principles, Well developed brand. Not innovative. No written support, typography. Demonstrates knowledge of "high-trend" but still lacks innovation. Seen before. Some UX/UI issues.	Outcome: Focus on lower-level design, aesthetics, No concept Not innovative Not functional	Yes (negative). Definitions and comments align. Definition of design entails storytelling that represents brands "ethos" via crafting a narrative. Definition of process is unclear but indicates good design should use a process. Pretty, aware, but not new or usable in some instances.
	Freelance Branding				
D2	Degree: Yes: Design / related or Other: DIYD	2 Experts Exceed: 73%	No. Weak composition (design principles), erratic, clip art looking. Confusing. Some intention and color theory evident, needs clarity below in written communication, some evidence of historical design.	Outcome: Focus on lower-level design, aesthetics, No concept Not innovative	Yes (negative). Comments and definitions align. Definition of design compares design with art - or the way something looks and functions and how they should work together. Definition of process talks about some projects and it helped them get to where they are today (the importance of process). Details discuss research and sketching.
	Freelance Branding	1 Expert Below: 33%			
		1 Expert Meets: 26%			

E1	Degree: No: DIYD	3 Experts Exceed: 64%	Yes. Good design sensibilities, typography, well thought out logo (that won't reduce) so usability is an issue), demonstrates a refinement	Outcome: Focuses on aesthetics and design principles. Some logistical complications, more process implications	Yes (negative). Comments and definitions do not align. Definition of design describes the differences between art and design - with purpose and with boundaries. Design requires a solution. Talks about design has to be functional. Definition of process was lacking detail but did talk about results of the work in terms of Return on Investments and marketing goals.
	Company. Visual Designer				
E2	Degree: No: DIYD	2 Experts Meets: 43%	Yes. Stock illustration vs. original or innovation, concept is weak. Comments focus on how it looks rather than function. Weak design principles and elements. Confusing	Outcome: No evidence of understanding research but even from an aesthetic only perspective, the work is not strong. No concept, problem solving evident.	Yes (negative). Comments and definitions do align. Definition of design discussion involves translating messages visually. This is a fair definition of design. Definition of process involves emulating someone else's work but not stealing it. This is an inaccurate definition of the design process.
	Company. Branding	1 Expert Below: 31%			
F1	Degree: No: DIYD	3 Experts Below: 53%	Yes. Confused to the intention, purpose, Unclear. Ai derivative, Meets minimum design basic criteria, work feels amateur. Basic principles met. UX/UI flow is questionable	Outcome: Work was lower-level in design principles and elements. Focuses on technical skills over	Yes (negative). Comments and definitions do align. There is no definition of design which aligns with scores and comments. Definition of process involves the negotiation of price and scope of work.
	Freelance Illustrator				
F2	Degree: No: DIYD	2 Experts Exceeds: 38%	Yes/No. Well executed idea but below in terms of intent and typography, style is been done before, not original, good design principles, professional, highlights designer's skill,	Outcome: Aesthetics skills are good, showcases some concepts but not original.	Yes/No (positive/negative) Comments and definitions do align mostly. Definition of design talks about the goal of the design and both parties have to agree on the goal. Usability or function is important to this designer. Definition of process centers around stepping back from the problem to look at the entirety and needs to be accessible to everyone.
	Freelance Illustrator	1 Expert Meets: 36%			
		1 Expert Below: 25%			

Note: Source: Rebecca D Kelly's data visualization summarizing the participant details and degree, how their assessment was reflected as a positive or negative in terms of their educational trajectory (degreed or non-degreed), an indication of a difference in portfolios in comparison to their degree if any and a relationship between their scores and their definitions. These answers in this matrices begin to address this study's research questions specifically, RQ2, RQ2.1 and RQ2.2.

4.8.4 *Verification Tests to Support Findings (Chi-Squares Statistical Findings)*

Given that there was the potential for bias in this study, every opportunity was taken to mitigate bias or the appearance of bias. These steps involved blinding participants, working with a research assistant to compare interpretation and manage the visual analysis portion between researcher and experts, and using different triangulation methods during the interview/interpretation processes. Once again, the researcher was aware of the potential flaw in the data collection in this visualization portion of Stage Two and has taken another step to provide this study with more foundational support. The next step was to use a chi-square of independence to determine if there was a significant relationship between two variables that aligned observed results with the expected results. In order to ensure that the selection of participants and their work and the results of the experts reflected a truly random sample, a series of chi-square tests was run to measure statistically a significant relationship in which a probability-value smaller than .5 was generally acceptable to indicate significance.

The next section presents four comparisons important to this study, which juxtaposed the scores of different categories of participants. The first chi-square test was to compare the scores between degreed and non-degreed participants. The second test looked at the scores between the preferred degree of a BFA compared to a BA/other degrees and non-degreed participants. The third comparison was between BFA/BAs scores against other degrees compared to non-degreed

participants. The final comparison was between BFA/BAs scores and other degree/non-degreed participants.

Next, the study looked at the percentages of the results to understand the “expected” results compared with the statistical chi-squared findings to see if they supported the determination about whether a difference between the observed data and expected data was due to chance or to a relationship between the variables. In other words, if the results were significant (with the potential to represent a larger population of similar participants) or if the results were not statistically significant (did not potentially represent a larger population).

To gain insight into the results, which were either significant or not significant, there was a two-step process. The first was to understand the expected results by observing part of the statistical bar graph and observational experience and second, to compare with the chi-square results.

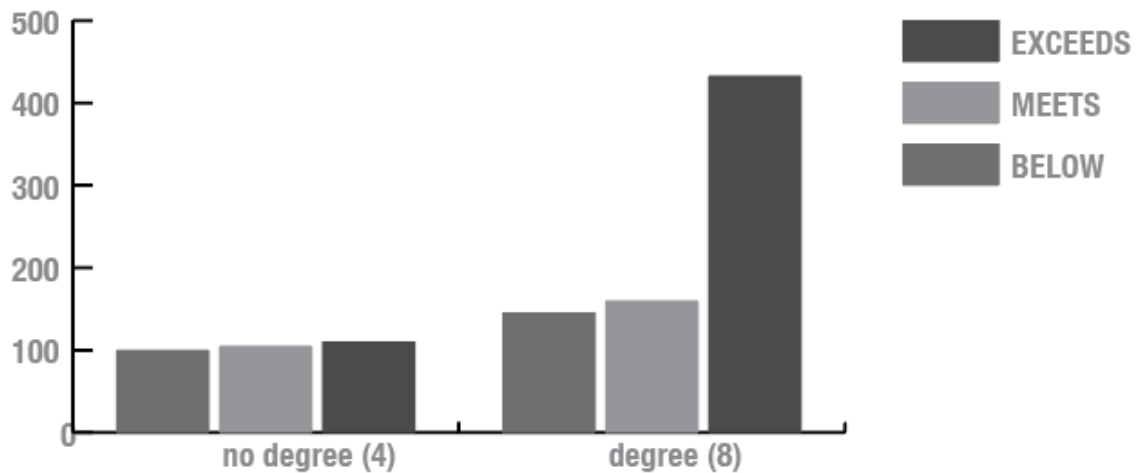
For the first configuration — comparing the Below, Meets and Exceeds scores between degreed participants and non-degreed participants — logic could lead one to expect the degreed participants to score better in the Meet/Exceeds scoring than the non-degreed. Conversely, the non-degreed participants would more than likely receive more Below scores compared to the degreed. Looking at the bar graph (see Figure 26), the results were somewhat expected except that degreed designers were higher in the Below category and were almost equal to the non-degree in Meeting the minimum standards. As expected, the degreed showed a significant difference in the Exceeds category. The next action step was to run the chi-square, which returned results suggesting that generally, the test was significant (see Table 42). This signified that the differences seen in the table (see Table 38) probably did not happen because of a random process or chance. This suggested that this scenario of groups and scores was not a one-time

chance or an anomaly and could potentially represent another body of participants in a similar study. In a similar review for the remaining three comparisons listed above, the results were as follows. See Figure 27, Table 39 for the second, Figure 28, Table 40 for the third and Figure 29, Table 41 for the fourth comparisons.

Figure 26

First comparison bar graph of the Below, Meets and Exceeds scores between Degreed and Non-Degreed participants.

TOTAL IN PERCENTAGES : DEGREE SCORES VS NON-DEGREES



Note: Source: Rebecca D Kelly’s bar graph representing the scores of participants’ marks on the Below, Meets and Exceeds assessment by the four expert designers. This graph represents the scores of Degreed vs. Non-Degreed participants in the Stage Two: Visual Analysis of the study.

Table 38

First comparison table of the Below, Meets and Exceeds scores between Degreed and Non-Degreed participants.

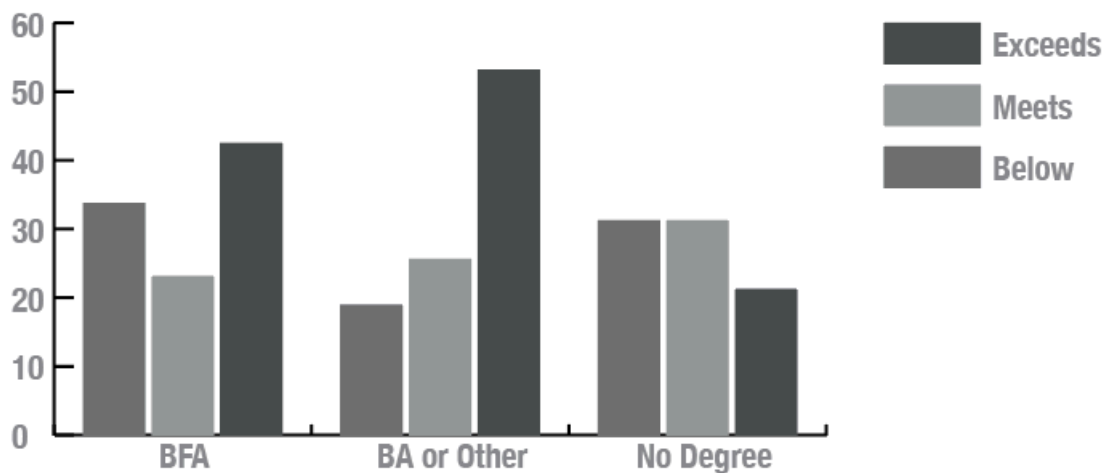
DEGREE/NON-DEGREE	BELOW	MEETS	EXCEEDS
no degree	100	105	110
degree	145	160	433

Note: Source: Rebecca D Kelly’s table representing the total scores of participants’ marks on the Below, Meets and Exceeds assessment by the four expert designers. This graph represents the scores of Degreed vs. Non-Degreed participants in the Stage Two: Visual Analysis of the study.

Figure 27

Second comparison bar graph of the Below, Meets and Exceeds scores between BFA vs. Other Degrees vs. No Degrees participants.

TOTAL IN PERCENTAGES : BFA v Other Degrees v No Degrees



Note: Source: Rebecca D Kelly’s bar graph representing the scores of participants’ marks on the Below, Meets and Exceeds assessment by the four expert designers. This graph represents the scores of BFA vs. Other Degrees vs. No Degrees participants in the Stage Two: Visual Analysis of the study.

Table 39

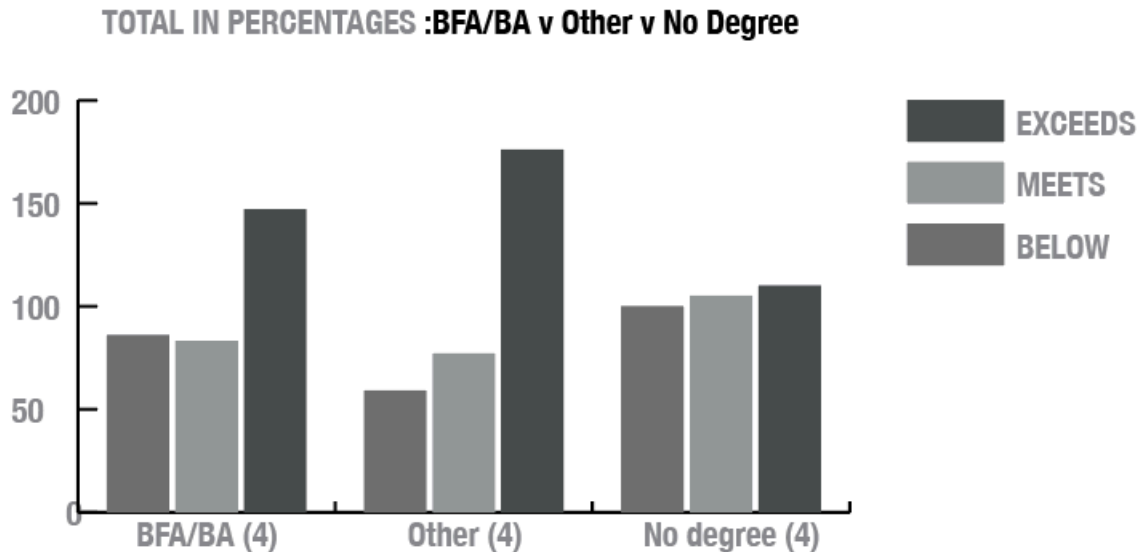
Second comparison table of the Below, Meets and Exceeds scores between BFA vs. Other Degrees vs. No Degrees participants.

DEGREEs BFA/Others	BELOW	MEETS	EXCEEDS
BFA	54	37	68
BA or Other	91	123	255
No degree	100	105	110

Note: Source: Rebecca D Kelly’s table representing the total scores of participants’ marks on the Below, Meets and Exceeds assessment by the four expert designers. This graph represents the scores of BFA vs. Other Degrees vs. No Degrees participants in the Stage Two: Visual Analysis of the study.

Figure 28

Third comparison bar graph of the Below, Meets and Exceeds scores between BFA/BA vs. Other vs. No Degree participants.



Note: Source: Rebecca D Kelly’s bar graph representing the scores of participants’ marks on the Below, Meets and Exceeds assessment by the four expert designers. This graph represents the scores of BFA/BA vs. Other vs. No Degree participants in the Stage Two: Visual Analysis of the study.

Table 40

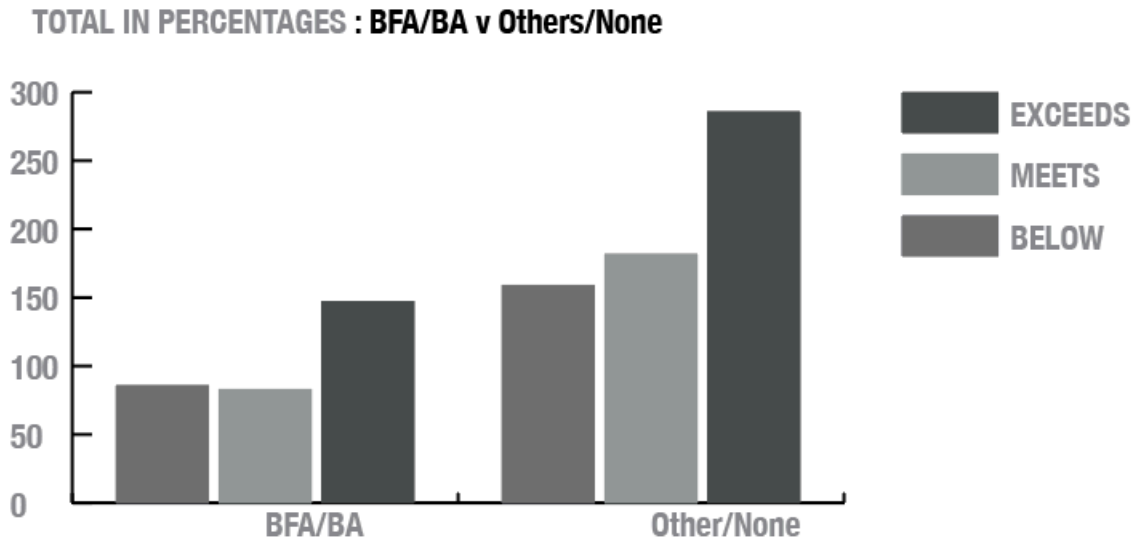
Third comparison table of the Below, Meets and Exceeds scores between BFA/BA vs. Other vs. Non-Degree participants.

DEGREEs BFABA/Others/None	BELOW	MEETS	EXCEEDS
BFA/BA	86	83	147
Other	59	77	176
No degree	100	105	110

Note: Source: Rebecca D Kelly’s table representing the total scores of participants’ marks on the Below, Meets and Exceeds assessment by the four expert designers. This graph represents the scores of BFA/BA vs. Other vs. Non-Degree participants in the Stage Two: Visual Analysis of the study.

Figure 29

Fourth comparison bar graph of the Below, Meets and Exceeds scores between BFA/BA vs. Others/Non-Degreed participants.



Note: Source: Rebecca D Kelly’s bar graph representing the scores of participants’ marks on the Below, Meets and Exceeds assessment by the four expert designers. This graph represents the scores of BFA/BA vs. Others/Non-Degreed in the Stage Two: Visual Analysis of the study.

Table 41

Fourth comparison table of the Below, Meets and Exceeds scores between BFA/BA vs. Others/Non-Degreed participants.

BFA-BA/Others-None	BELOW	MEETS	EXCEEDS
BFA/BA	86	83	147
Other/None	159	182	286

Note: Source: Rebecca D Kelly’s table representing the total scores of participants’ marks on the Below, Meets and Exceeds assessment by the four expert designers. This graph represents the scores of BFA/BA vs. Others/Non-Degreed participants. in the Stage Two: Visual Analysis of the study.

The second comparison: BFA and other degrees vs. non-degrees fell into a similar scenario as the first (see Figure 27). From the observational/logical stance, one would expect BFA/BA to

excel in the Meets/Exceeds categories, while expecting the others and the non-degreed to score higher in the Below category. After running chi-square, the results support this, stating again that this result was significant. The differences shown in the table (see Table 39) were likely not random, meaning there was a probability of less than .05% that these results contained chance, that there were some determinate factors in this data. We could expect a similar result again (see Table 42).

Of note in the second comparison, BFA and other degrees vs. non-degreed participants, the results also were “significant” in the P-Value (not by chance or random), where the BA/other and the non-degreed segments were almost identically in the Below and Meets categories. The BFA were significantly lower in the Exceeds than the BA/others and at the same time the Non-Degreed scores in Exceeds were higher than the more design-focused BFA trained designers.

As expected in the third comparison, see Figure 28, (BFA/BA vs. other vs. non-degreed) BFA/BAs were well in the Exceeds minimum standards category, but second to other degrees, while scoring more negative points in the Below category than other degreed participants. The Meets scoring was almost identical across all three BFA/BA, other and non-degreed — which was unexpected — while the BFA/BA category came in second to the other degree categories. Following the results above (first and second comparisons), this chi-squared statistical analysis was highly significant in this test (no chance that this is an anomaly). See Table 42. The BFA/BA participants were not the highest scoring in Exceeds or Meets or but came close to the most scores in the Below category. They were lower marks in Exceeds compared to degrees other than Design and were less in the Meets category than the non-degreed participants while scoring nearly the highest in Below scores second to non-degreed participants. See Table 40.

The fourth comparison (BFA/BA vs. Others/None) had a NOT significant finding (see Table 42). This grouping was a simple two-category comparison: BFAs with BAs with the supposition that both degrees have a similar structure in terms of design foundation and therefore would be fairly united in scoring. The second category was Other Degrees compared with Non-Degreed insinuating they were both the farthest removed from a foundational design education. Logically, the second category (Other/Non-Degree) would score highest in Below minimum competency and lowest in Meets/Exceeds minimum design competency. They did in fact score highest in Below (expected), but also highest in Meets and Exceeds which seemed like an outlier (see Figure 29). The natural last step was to compare those results to the chi-square test; this fourth category scored non-significant, meaning the p-value of 0.642 suggested that the numbers in the table could have been the results of a simple random process which invalidates the results. What this suggested was that the findings and scoring could be the result of chance or an anomaly. This meant it did not meet the expected results in which the charts and now the chi-square/test confirm (see Table 42). Those two processes aligned in that looking at the numbers logically (see Table 41) in the graph and the chi-square, that these results did add validation to these findings. From here, the study chose to focus on the analysis of the initial three comparisons to validate this study by keeping the expert evaluations and the chi-square results in mind when interpreting the data.

These results (the first three comparisons and results from the logical/observational compared with the chi-square) offered this study a validated interpretation moving forward to the expert evaluations and was considered with the interpretation/findings and discussion portions of this study. The results of this portion of the study compared to the interviews and the expert

analysis can be found in the summary at the end of this chapter along with the implications found in the next section.

In summary, these chi-square tests of independence were used to determine whether or not there was a significant association between two categorical variables. As stated above there were four important comparisons (or variable combinations) necessary to verify the results which supported this research. Below are the categories, important values, results and findings followed by the interpretation. See Table 42 below.

Table 42.
Presentation of the comparison categories and calculations.

Comparisons	Values	Results	Findings
1) Degree/Non-Degreed	$\chi^2(50)$, df=2	p-value=0.00	Significant
2) BFA vs. BA/Other vs. Non-Degreed	$\chi^2(37)$, df=4	p-value=0.00	Significant
3) BFA/BA vs. Other vs. Non-Degreed	$\chi^2(31)$, df=4	p-value=0.00	Significant
4) BFA/BA vs. Other/Non-Degreed	$\chi^2(.09)$, df=2	p-value=.62	Not significant

Note: Source: Rebecca D Kelly’s table graph representing the results of the comparisons in four different categories to test through statistical analysis via chi-squares run through Rscript.

Reporting the Results of Chi-Square Test of Independence

Data was collected on different types of educational pathways in graphic design and a series of minimum qualifications scoring (Below minimum standards, Meets minimum standards and Exceeds minimum standards of graphic design competency). These standards (according to the rubric in *Chapter Three : 3.4.4 Defining Minimum Standard Qualifications*) were defined in this study as the following competencies: Below — more times than not, or inconsistent display of basic design competencies, Meets — more times than not displaying design competencies in a standard or average way, Exceeds — showed most of the time a greater display of design competencies. Next are the brief reporting of the results of the four comparisons between scores and design educational trajectories.

The first comparison (1) was between degreed designers (whether design-focused or not) and non-degreed designers and their Below, Meets and Exceeds scores from the expert reviewers. The results of statistical testing were significant, meaning this more than likely did not happen from the result of a random process and suggested that the results could be representative of a larger population of similar designers. In this analysis (Table 42 above), the degreed designers were higher in all three categories including Below (which is unexpected) but also highest in the Meets and Exceeds categories. This chi-square test of independence was performed to assess the relationship between a degree and scores. There was a significant relationship between the variables showing designers with degrees of any kind were significantly higher in the Exceeds category in design proficiency.

The second comparison (2) was between degreed designers in design (a NASAD recommended BFA versus BA in a design related or art-based program) and other degrees (not related to design) and the non-degreed designer and their scores relative to their Below, Meets and Exceeds scores from the expert reviewers. The results of statistical testing were significant,

meaning that this more than likely did not happen from the result of a random process and it could be representative of a larger population of similar designers. Unexpectedly, in this analysis (Table 42 above), the BFA (the degree with the most focus in design courses) were lowest in all three categories, Below, Meets and Exceeds. However, scoring lowest in Below was the expected result, while scoring lowest in Meets and Exceeds behind BA/other degrees and the non-degreed designer was interesting. This chi-square test of independence was performed to assess the relationship between a degree and scores. There was a significant relationship between the variables, therefore designers with a less focused degree and any other type of degree (not in design) were significantly higher in all three categories.

The third comparison (3) was between degreed designers with BFA/BA (design related or focused) versus other degrees (not related to design) versus non-degreed designers and their scores relative to their Below, Meets and Exceeds from the expert reviewers. The results of statistical testing were significant, meaning this more than likely did not happen from the result of a random process and it could be representative of a larger population of similar designers. In this analysis (Table 42 above), the degreed designers with BFA/BA in a design related or focused area of study were second highest behind other degrees in the Exceeds category and behind non-degreed designers in the Meets category. Additionally, the BFA/BA degreed designers nearly tied with the highest scores in the Below category. This chi-square test of independence was performed to assess the relationship between a degree and scores. There was a significant relationship between the variables therefore designers with degrees in design were lower than other degrees in both Meets and Exceeds categories. They were highest in the Below scores (meaning the worst).

Finally, the fourth comparison (4) was comprised of two distinct categories: the BFA/BA designers (with a close relationship to the focused study in design or design related design courses versus other degrees, not related to design/non-degreed designers). The results were unexpected in that all three categories the other degree/non-degreed designers were highest in all three categories; that they were higher in the Meets and Exceeds categories suggested that their work was more successful. However, this chi-square test indicated that the results were not significant and could be the results of a simple random process. This chi-square test of independence was performed to assess the relationship between a degree and scores. There is not a significant relationship between the variables, therefore designers without degrees of any sort (degree or not related degrees) were significantly higher in all categories, but this may not be representative of a larger pool of a similar set of designers.

To summarize, the P-Value of .05% on the three of the four tests concludes that the results are significant. The differences seen are not due to random sampling.

The interpretation of how these test results answer RQ2 in terms of portfolio differences and RQ1 outcomes to the industry will be discussed in *Chapter Five : Discussion and Recommendations, 5.5 Summary of Chi-Square Findings* along with the implications of these findings.

4.9 Summary

This research utilized a case study method that began through quantitative data observation, and employed a research design using two additional different data sets, grounded in a qualitative nature with a combination of classroom observations, discussions, interviews and expert evaluations to build a deep, thick and broad understanding of designers who learned in a variety of ways. The goal was to develop a narrative that described the choices that designers made in

regards to their educational pathways, if evidence of educated design decisions was reflected in their evaluations as determined by experts, as well as in their own definitions of their process and graphic design. This determination of evidence of participants' educational pathways in the work told a larger story of who the participants were in terms of their design skill, how they learned, what they were learning, why they chose the route they did and if those results might necessitate change in IHE design education and industry.

The areas of assessment considered for a fair evaluation of the participants' work were used to answer research questions RQ2.1 (*difference between portfolios between the varied types of education*) and RQ2.2 (*relationships if any between expert scores and the designer's definition of design and their processes to create effective design*). As a reminder, those assessment methods were the experts' scoring of the work and expert comments, followed by determination of whether the designers' interpretations of the design process (the methods used to begin a design project) and their definitions of design aligned with those scores and comments.

After gathering and analyzing the data, there appeared to be several emerging themes relevant to this study. The quantitative portion of the study, (*Set A, Table 5*) revealed that on the social media site, Dribbble.com, nearly 70% of the participants in that study had no formal training in design and yet were practicing designers. See *Appendix G* for first study and second qualitative results). This was a significant point of discussion in terms of emerging patterns in the data, exploring why so many of the designers who followed a non-traditional educational pathway were working in the industry.

This line of inquiry prompted a second set of data: interviews of designers who used Dribbble.com and learned design in a variety of ways—on the job, self-taught and the IHE route. From these interviews that centered around *drivers* or reasons behind their educational choices,

there were several themes that emerged from that data (*Set B*, Table 5). The patterns (themes) that appeared essentially involved those with degrees in design, those with degrees in other disciplines and those designers who learned in alternative ways all questioning the value of an IHE degree in the field, in terms of PLE. Is a degree in graphic design worth the time in terms of commitment, cost and effort? The answer appeared to be, not necessarily, especially if there was a viable alternative to learning design. This should be a wake-up call for design educators in IHE and the industry and the previously beneficial relationship between the two. The chi-square results supported the theme of questioning the value of higher education in that three of the four results were significant, indicating that those tests of independence supported that the findings were not the result of selected sampling or the curation of particular participants which could easily skew the findings. This method of independence shows that the results of those chi-square tests could be repeated over and over again with the same results. The chi-square test results only strengthen the findings. The patterns or themes from the chi-square tests indicated, as one would expect, that those with degrees scored better in most categories. Significant to this study was that practicing designers with degrees in any field, (in design, related or other unrelated disciplines) scored better than those with degrees specific to design. This does not bode well for the future of design education in IHE.

Additionally, in the last phase of this case study, there were emerging themes that support the research questions (2, 2.1 and 2.2 mentioned above) that there was in fact a relationship (or outcome) of the designers' education, score and definitions. Stated in another way, there seemed to be a direct relationship between the lower scores, the expert comments and a lack of detail when it came to their own definitions of design and process, which answered the research questions and the participants' portfolios. In other words the results answer, RQ1: there is a

direct *outcome* of a DIY designer and this is present in the RQ2.1 *portfolios* and RQ2.2 there and a *relationship between scores and definitions in this case*.

General Summary of the Key Findings.

A summary of the key finding is presented here for both Phases (One and Two). Phase One answers RQ1 identifying the *drivers* and *outcomes* for the educational decisions made by the designer participants in this study (an IHE degree or the DIYD). Those *drivers* are the value of the time, effort and cost (PLE) it takes to obtain the degree. The second finding (another *driver*) is obtaining a degree in order to be a professional designer is not necessary, so why waste the time, effort when you can still be a designer due to accessibility of on-demand and often free resources to learn, even if the quality isn't the same. RQ 2 identifies the impact (*outcomes*) of those quicker and faster efforts (PLE) to chose the DIYD educational decisions on industry and education. Those impacts are what those DIYDs are learning and not learning become important. The DIYD don't learn the value of failure, feedback and they are learning that "learning software" makes you a designer.

Phase Two findings can be summed up in the following ways. RQ2 determined that the differences between both types of designers (degreed and the DIYD) are minimal (*outcome*) despite the lower-quality but ease of access (PLE) learning that MOOCs provide. RQ2.2 findings that the portfolios indicate that degreed designers have slightly better conceptual and clarity skills. This outcome and impact on the industry will be discussed in more detail in the next chapter. RQ2.2 findings revealed that there is a direct relationship between scores and definitions regardless of the type of education the participants' received. This *outcome* is directly tied to the acceptance of a lower quality education over ease of use (accessibility over quality ((PLE)) because the scores and definitions aligned whether the participant scored high or low. Retstated

higher scores had better articulated definitions of design and their processes and the opposite if participants scored lower (those definitions were less clear and less accurate).

There are several significant and unexpected findings found in this work. In more detail both types of designer portfolios (IHE and DIYD) are generally reviewed as weaker in conceptual development (higher-level thinking), while displaying acceptable understanding of how to use the formal, foundational principles and elements of design (lower-level thinking), and demonstrating knowledge of current software tools (through a technical and visual standpoint — lower-level thinking). Generally this visually-facing work that is weaker in conceptual development was also assessed as unclear, and projects were questioned as to their usability in the real world. Finally, all definitions and scores/comments (whether positive or negative) generally align, which answers RQ 2.2: There is a relationship between the evaluations of participants' work and their design processes (how they develop ideas, research, implement, iterate, test and resolve design problems) and their definitions of the purpose of design. These definitions and work processes (solutions) have the ability to impact the design industry, possibly altering the trajectory of design in the future, back to an aesthetically driven, decorator perspective that the profession has worked to evolve beyond.

The second significant unexpected/expected finding is that designers with degrees in design *did not* score significantly *better or worse* than the other types of designers with different learning backgrounds (DIYD or degreed in other areas outside of design).

The third unexpected and significant findings confirms the expected results that some online platforms are encouraging a software focused designer. The higher-level thinking that ensures innovation and problem solving skills necessary in an evolving profession is not as encouraged in online learning platforms. The highest scoring categories are in the lower-level

thinking (software and low-level foundational design skills) scored highest in both types of design educational paths.

The fourth unexpected finding is that the design industry is also encouraging these lower level thinking skills in design as evidenced in this study based on participants' interviews and scores. This is a significant shift in the design IHE/IND relationship.

Finally, the fifth unexpected finding is the amount of the IHE degreed design professionals that questioned their own IHE education. Each of these findings individually are worthy of a thought provoking discussion but when viewed in an integrated lens this research's findings the discussions of implications become more imperative to both IHE and industry.

These emerging themes and the implications of those themes will be discussed in more detail in the next section, *Chapter Five: Discussion and Recommendations*.

CHAPTER FIVE: Discussion and Recommendations

More and more gray literature is showing awareness of the variety of ways that design is being taught. Recently “Eye on Design,” is a AIGA affiliation, here is their editorial platform whose aim is to publish topics relevant to today’s design community, posted this new acknowledgement and acceptance of the new ways of learning design:

According to the 2019 Design Census, the majority of designers working today have a Bachelor’s degree (32%). Seventeen percent said they’ve engaged in online learning and 10% have taken workshops or programs, while only 6% have Master’s degrees, and 0.1% have received Doctorate degrees (participants could pick multiple options). *Most surprising: More people ticked the boxes for online classes or workshops than for specialized art schools.* (Miller, 2019)

The last line is most important to this research and is not new to a few in both the industry and education; however, there is not much research about this topic. These sentiments are not only specific to design but other areas of study that are facing competition from the DIY learner. The hope for this work is to begin a dialogue between those that work in the path of this new type of learning opportunities. This imperative discussion has now been opened with a statement that summarizes the urgency with “Where the hell is design education?” (Heller, 2018).

5.1 Introduction

Chapter Five will cover limitations, summaries and interpretations, implications and recommendations for further research on this important area of study. Included in the summaries are interpretations including answers to how this research answers the research questions and why this is important through this researcher's perspectives.

As a reminder, this research uses a case study approach that contains interviews, statistical analysis and expert assessments to build a narrative about the current state of the design industry and education as well as a glance at the possible futures of both. This case study was built using multiple sources of gathered data and that support the empirical observations. The objective was to investigate the way people are learning design, why participants chose the path they did to learn design and the drivers and outcomes of those decisions, what they are learning and what they are not learning (RQ1 RQ1.2). Further, by examining the results of design experts' assessments of samples of the interviewees' work, this study seeks to discover if there are differences in the portfolios between the two types of designers (degreed and non-degreed) (RQ2), what those differences are, if any (RQ2.1), and how those scores are reflected or not in their portfolios (RQ2.2). The research looked at all data collected keeping the Principle of Least Effort in mind when analyzing the data as to motivation (the *time/effort/cost* necessary to acquiring a degree or not) and whether or not this theory supports the findings.

Stated in the beginning of this work, this research began with another study, when the researcher began to ponder what the skill sets of the designer of the future will need for a long term career in design in an industry that moves, shifts and changes frequently (Kelly, 2018). This study adds verification to those initial theoretical concepts. This researcher initiated this new phase of study when an earlier data set (*Set A*, Table 5) revealed that on a social media site, Dribbble, nearly 70% of the participants in that study had no formal training in design and yet were practicing designers and in the second data set (*Set B*, Table 5) produced the same number of numbers, suggesting that there were a significant number of designers that use Dribbble for design work, that have no formal training in design. Those numbers presented the impetus to explore how the design industry and education respond to this phenomenon, if at all. Considering

the literature about this emerging new paradigm as laid out by Perez, Christenson and Zuboff and others, it is alarming that no movement seems to be happening in the form of an IHE response other than relatively weak attempts to offer “competitive” online courses. Instead of a well-considered plan of action complete with a long-term outlook into addressing the situation, the only response seems to be a knee-jerk, ineffectual reaction in a manner Shirky predicted the IHE would take.

5.2 Limitations

There were several limitations that needed to be considered in this study, for example, some of the basic functions on the Dribbble platform. First of all, the platform culture is flawed in that the site allows written communications to be posted along with the work and users are not trained to give or receive constructive feedback on works in progress. This “feedback” function was designed initially to offer insights, critique and suggestions about posted work but due to the culture of the site, the “feedback” or communication about the process, concept, etc. is not stressed in this environment. “Feedback” is vital to the iterative, improvement aspect of the design process, especially to new or self-taught designers. Several designers saw the feedback feature about concept as a priority and offered insights about how the work was developed, including the process stage of development, the work’s intent and target, etc., but not all understood the value of this back-and-forth iterative process as valuable to the strengthening of their work. The designers who lacked this insight received comments from the experts which reflected their shortcomings as they attempted to assess their descriptive narratives as best they could. This also manifested in their reaction to the idea of failure and responses to critiques as generally negative exercises. As such, the study was evaluating design from more of a purely

visual standpoint with minimal context and conceptual development. By using the interviews, the researchers aimed to offset this part of the platform in the study with participants' own words about their research and process in design in an attempt to balance the data collected. If the interviews and assessments did not address concepts it is not clear based on the work presented in their sites, if participants did not value the communication aspect in their own work. Did designers not include the communications part about the work because they do not understand the value of this part of design or if they were unaware of the importance of communication because it was missing in their education?

Another limitation is with the rubric and the inconsistency between scores and comments. Often, the actual numerical scoring presented the designer's work in a certain light (Meets, Exceeds or Below) but when the comments were analyzed side-by-side with the scores, the overall scoring didn't always reflect the nuanced details found in the comments, meaning the scores were often more generous in nature (Meets or Exceeds) than the critique in the comments. In order to find a balance between those two different assessment options, both findings were heavily considered when interpreting the data by both the researcher and the research assistant to see if those evaluations aligned. For example, if more than two experts commented on the same items, it was compared with the score to determine if those aligned. If they did not, the comments were presented regardless of the score.

Finally, it should be noted that the designers on Dribbble represent one type or strata of designers in one online environment. Here, the two basic categories of employment are freelance (working primarily for oneself on a project-by-project basis) or full-time working at a company or agency. For context, agency types and specializations are changing as fast as technology changes and the industry makes adjustments as well. Generally, there are design agencies and

firms (of various sizes), each specializing in a variety of areas such as marketing firms, public relations, graphic design, UX/UI focused, all service, account service focused, branding and visual identity, digital and/or digital focused, advertising, packaging, environmental, editorial and publishing, motion and experiential, to name only a few. Those agencies also tend to be either independent firms working with a variety of clients or in-house focusing on internal clients, either with a large number of clients and employees or smaller “boutique” firms with smaller clients and employees, including all sizes of agencies in between the two extremes. Generally, the structure of the reporting hierarchy within each firm is equally as unique in structure; there are tendencies in reporting structures, but not one reporting structure for all the different types of agencies. There is typically a reporting system similar to the creative director to art director, junior art directors to designers and junior designers to production designers. As most of the participants are freelancers not working full-time at an agency showcasing work on Dribbble to gain independent design jobs, they represent one lower-level rung of how agencies work in terms of complexity, hierarchy of reporting or hiring. As indicated above, there are vast complex layers of agency structures that exist and Dribbble represents only one of many in a large environment of designers and agency structures.

This research looks towards Yin for guidance in the generalization of a study from a small population to a larger group of designers in which to project the findings to a larger design ecosystem from which to apply these findings. The DIYD mentions learning design from other sites like Instagram, YouTube and Behance in addition to Dribbble. For this reason, other platforms should be studied as well to begin to build a larger body of evidence and to understand if learning on other sites produces the same type designers. In the following sections, the study will summarize the interpretations from the different data sets culminating in the conclusion with

one united viewpoint. The multiple data collection sets (interviews, statistical analysis, observations and evaluations) were used to gain the widest possible range of analysis in order to provide a perspective on one type of design scenario as a starting point for bigger picture discussions and generalizations. The idea is that this specific study could have the potential to represent other areas of study in similar situations in which technology has the potential to change how education teaches and how those in industry learn. Again, this research relied heavily on Yin's (2018) case study framework which has contributed a significant source of structure to the methods section. Yin's work was used to provide a methodological guide to ensure that this case study was as trustworthy and reliable as possible. Steps were taken to ensure that the data focused only on answering the research questions, and justification given as to why these interpretations were important, along with potential implications and prescriptions for moving forward including future research goals.

5.3 Big Picture: Overall Findings

As mentioned in the summary of the last chapter, there were five core findings with supporting insights from interviews and expert evaluations. Additionally, there were five significant and unexpected findings that are important to this study as well as IHE and the design industry. See Table 43.

Table 43

Research Findings with Unexpected Findings.

RESEARCH FINDINGS				
FINDING 1 : Questioning the <i>value of an IHE</i> education (<i>degree</i>)	FINDING 2 : One can <i>still be a professional designer</i> without a degree in design	FINDING 3 : What they are <i>learning / not learning</i> in DIYD becomes important to both IHE/IND	FINDING 4 : <i>Minimal</i> differences between the two types of designers	FINDING 5 : YES: there is a relationship with their interpretation of design, process and their evaluations.
UNEXPECTED FINDINGS				
PORTFOLIOS overall were weaker in higher- level thinking for both types of designers (IHE/DIYD)	DEGREED PARTICPANTS questioned the value of their degree	MINIMAL DIFFERENCES between both types of designers (IHE/DIYD)	CHANGE in design to service decorator status	INDUSTRY is encouraging this shift in design away from IHE (lower-level thinking)

Note: Source: Rebecca D Kelly’s table graph representing the results of the unexpected findings.

When considering all of the findings, both large and small, expected and unexpected, the big picture impact on the industry and education previews a convergence of critical conditions that threatens to bring about an entire paradigm shift within the design industry. MOOCs have the ability to change design at the core of the profession including its very definition as well as the values and the expectations of its practitioners and the public. This disruption (as predicted by Christensen, et al., (2017, 2018) may not be immediately evident or may occur over a longer time period (over the last 15 years), but in a less noticeable manner as predicted by Perez (2002). The point of those citations is to make note that this movement and shift is predictable and yet, again, “educators [and industry] have their head in the sand” when it comes to technology’s influence on the design field (Davis, 2008).

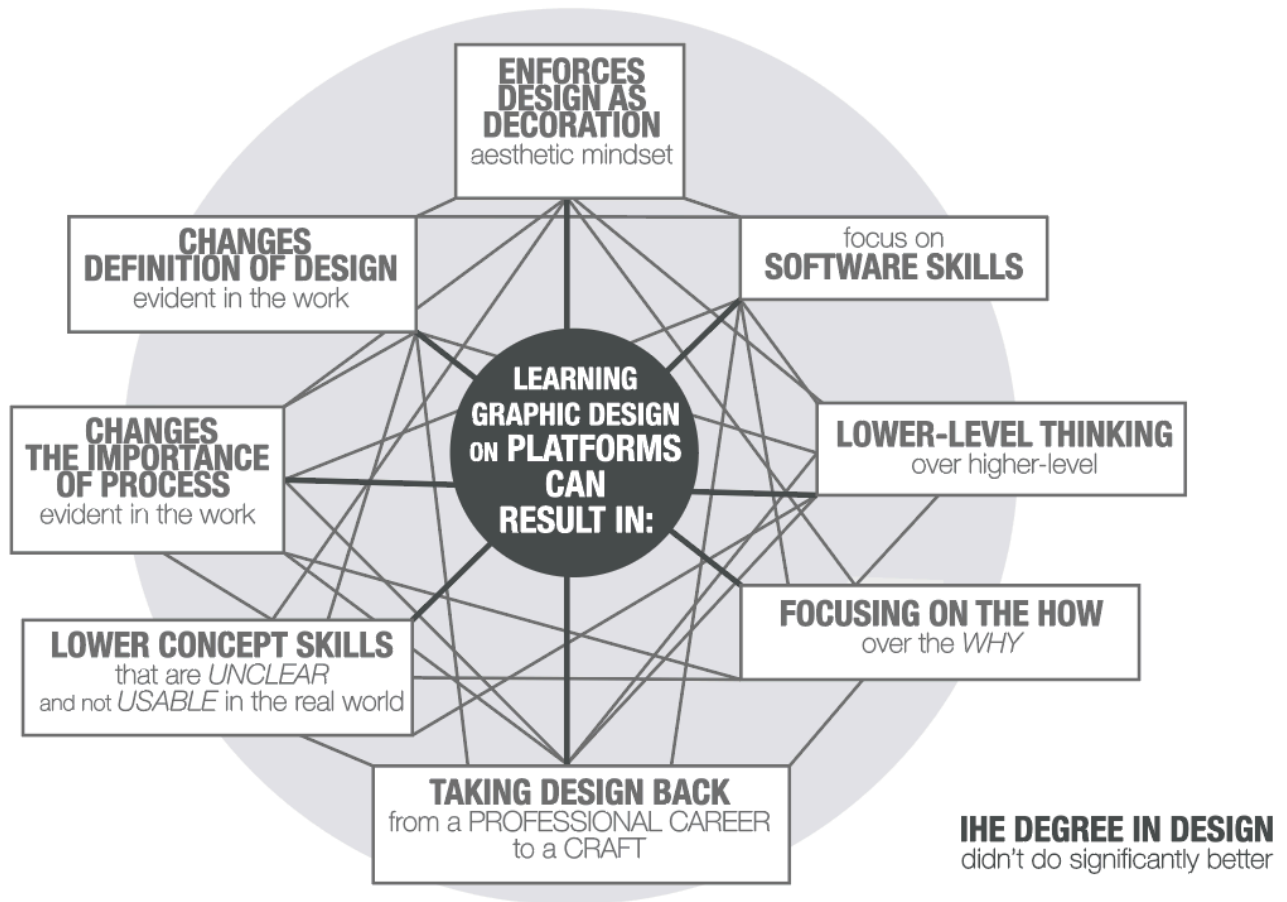
In the next section, the discussion shifts to the impact of MOOCs on industry in the longer term, with the expectation that these conclusions will occur at different times, acknowledging

that some of these findings are in different stages of development or fulfillment. Some of these concepts have already occurred or are already being planted, but movement has begun.

Impacts on the Future of Design

The predictions based on the findings (shown below) are based on the holistic considerations of all of the findings and interpretations of that data. However, with “design” as an industry in constant flux due to its engagement with new technologies, these concepts are developed in part with the industry’s continual struggle with some of these topics, for example, an agreed upon formal definition of what design’s purpose is (this is evident in the data collected for this study, but not used as the primary findings). See Figure 30 below for a comprehensive list of individual small impacts that MOOCs will have on the design industry if IHE design programs do not begin to have some serious conversations about the future of design education and the relationship with industry. When considered together from a wider perspective, these impacts are greater and more damaging to the profession than they would appear to be individually. See Figure 30.

Figure 30
Holistic Impacts on the Future of Design



Note: Source: Rebecca D Kelly's graph representing the results of all of the findings in this study.

As shown in the figure above, the core findings do not follow a linear format — none of these factors presented here marks a beginning or end; all are interwoven and affect one another. Resolving one of these pain points in isolation will not change the trajectory of design; each one of the components shown here impacts and informs the others and this discussion suggests a holistic approach to a solution is necessary in order to make informed reactions by the industry and education.

These eight factors shown above, which are discussed in more detail and presented here in no particular order, are impacts that learning design through MOOCs only will manifest and change the design industry in the following ways: it will shift a focus of design to involve software skillsets only, MOOCs create a focus on lower level thinking, they refocus tasks on the *how* over the *why*, encourage the lower level hand skills over high level thinking and go so far as to minimize the importance of process while simultaneously changing the very definition of design. This new type of technology driven education enforces design as decoration over strategic thinking, taking the profession back to a service or craft reminiscent of early design (commercial art) practices. The most significant finding from this research is that the IHE degreed designer portfolios did not score significantly better than the DIYD in the expert evaluations. This final revelation is one of the most significant and unexpected discoveries derived from the research. Each one of the following pillars identified in this study is briefly discussed below and demonstrates that learning graphic design on unstructured platforms like Dribbble and YouTube can result in the following themes influencing the design industry in the short term and ultimately having a substantial negative influence on the long term trajectory of design as a whole.

Focus on Software Skills

This research showcased the stratum of designers who learned using online platforms and revealed that the primary focus of their learning through self-driven education without structure focused on software skills (the Adobe creative suite of design software) over conceptual thinking, etc. Software is a vital component of graphic design. It is hard to imagine being a designer early in one's career without being proficient in the suites. However, knowing software doesn't make one a designer and it alone does not make one good at design. It is merely the

instrument, just as knowing how to use a pencil doesn't make one a writer and owning a violin does not magically turn a person into a musician. As an example in design, without knowledge and appropriate use of color theory and simultaneous contrast, a sign becomes unreadable, not effective or usable in the real world. In the UX/UI realm with the end user at the center of the design problem, these mistakes can become more prominent, even catastrophic, and expensive to fix or mitigate.

Focus on Lower Level Thinking

Following suit from the above statement, by platforms focusing on software techniques, tips and tricks easily found on both types of sites — those that are considered more unregulated platforms like YouTube and more structured sites like Udemy, etc. — the focus is still on software skills or lower-level thinking rather than the high-level thinking that elevates the profession to the point at which designers are leaders, not merely those who make other peoples' ideas look pretty after the fact. High-level thinking is existentially vital to the industry; using creative methods and creative thinking to develop strategic thinking, conceptual thinking, big picture thinking, idea generation and problem solving is what sets it apart from pure decoration or arranging elements on a screen. High-level thinking stretches the mind beyond the basic software and technical skills that production artists rely on. In contrast, lower-level thinking in design refers to rote tasks and basic skills and is more about technical abilities, following instructions or guidelines, information gathering and memorization of tasks rather than developing and understanding higher concepts such as semiotics, demographics, psychology and anthropology to name a few. These skills are difficult to imbue through MOOCs, difficult to ascertain by DIYD, so, thanks to PLE, they are conspicuously absent, leaving the field increasingly one-dimensional.

By focusing on technical skills (the *how*) rather than critical thinking skills (the *why*), once again, designers are relegated to decorator status, those who make something look good over the strategy development, conceptual thinking, message making, and effective communication.

Focus is on the How Over the Why

The concept of *how* versus *why* is important in the conversation surrounding IHE education in which the idea of *why* a designer should make decisions is a priority over *how* the solution is implemented or the technical processes which should only come after determining the intent and end results of the project. The *how* merely addresses the actions or techniques to accomplish a task and can be seen as the easier route to take — jumping into a solution immediately and bypassing the more cerebral steps of defining the problem, researching the situation, evaluation the target audience, refining, creating a plan of action and making any necessary modifications, which should all occur prior to the actual work being initiated. Going with a purely decorative, look-and-feel approach eliminates the high-level thinking that determines what the purpose of the final solution is, who it is meant to reach and where it will be manifested, which, in turn, determines its success or effectiveness when implemented. Both *how* and *why* are important but the decorative aspect needs to be secondary to the function and purpose.

Lower Concept Skills

Similar to the reasoning above, focusing on a lower-level approach to design can negatively impact the clarity and usability of the work in real world applications. Many designers in this study showed beautiful work, which was acknowledged in the evaluations, but they were criticized for a lack of clarity in their purpose or for being ineffective or unusable in a practical sense. The Mona Lisa can be (and, of course, is) a beautiful piece of art, but if it is meant to bring awareness to global food insecurity, it would be considered a failure. Effective graphic

design is predicated on the idea of communicating specific ideas (concepts) to identified audiences for the purpose of inspiring a change of thought or specific behavioral action. Without this consideration — without engaging in prior high-level thinking — design becomes effectively inert and loses its power to persuade, influence and motivate.

Changes the Importance of Process

Supported by the findings of this study, the participants' descriptions of their own design processes are important aspects of this work. The DIYD who scored lower in their expert assessments tended to have less of a clear understanding and articulation of their design processes. In design, process is often formulated in a linear path beginning with a design brief (stating the goals and strategy of the design), research phase (competition analysis, current market position, target audience, etc.), concept phase (a methodological approach to brainstorm multiple sound solutions), concept development (an objective refinement and reworking, tracing the evolution of ideas), design critique (feedback and advancement of ideas), iterative processes (involving critique, refinement, testing and prototyping of ideas), approval and iteration (typically from internal and external reviewers), and user testing (feedback from the final clients and users). The lack of process detail from the DIYD is alarming as this removes 90% of the work that should be involved. The iceberg vanishes, leaving only the tip.

Process builds depth of understanding similar to that of a detective doing research, interviewing witnesses, searching for clues, and building a watertight case, allowing for a deeper understanding of the problem and a much more sustainable and convincing solution. This could mean the difference between a solid and effective campaign versus a flimsy case overturned on appeal.

Changes the Definition of Design

Similar to their approach to the definition of a design process, the participants in this study struggled to articulate a clear definition of graphic design. To be fair to the participants there are several points to consider for this topic. One, seasoned and degreed professionals often have a difficult time expressing a universally agreed upon definition of design and its purpose. This is a highly debated topic as some see design as an integral part of the business problem solving operation and others see design as an “afterthought.” For the purposes of this study a definition of design was described to the participants as a way to articulate the point of designers’ roles. The lack of clarity in the participants’ definition is aligned with their scores in which some viewed design as a thing that supports a business and happens after business decisions are made. The lack of clarity in the participants’ definitions is exactly reflected in their scores. In higher education, design’s role is that of a leader, project seeker, problem solver and by removing these the field and perceptions of the field are severely diminished.

Enforces Design as Decoration

Historically, in design’s nascence, it was a way to make communication of important information clear, passing important knowledge along from one group of early hunters to the next through informative cave paintings. The goal was to offer insights in order to make the next generation of hunters successful in their endeavors. Graphic design was not intended to make those cave paintings prettier or more aesthetically pleasing but to make this vital knowledge legible and clear. Through this study, the DIYD, encouraged by their learning platforms’ content, focused on pretty, frequently well-executed designs that displayed a strong knowledge of the software skills. However, through this research, it became clear upon examining the expert analysis that while they mastered software, the clarity and usability of the graphics was sub-par. The work was unclear and not usable in the real world. The work looked good, but was not

effective in either regard. This is a highly alarming trend that promises to change the intention and direction of design initiated by software developers, engineers and business entrepreneurs who may or may not have anything to do with graphic design, yet are irrevocably altering its future.

Taking Design Back to a Service/Craft

The word “design” has been adopted by virtually every field for one reason: it is provocative. It means something has been thought through, carefully considered and put together in an intentional manner for a specific purpose. It means that a process has been logically considered, prototyped, reconsidered, tested and vetted. Design is valued, whether in fashion, industry, technology, plumbing or architecture. Interior designers are valued over interior decorators. The word means quality and thus elevates whatever profession or vocation it refers to. Until, unfortunately in the case of graphic design, the very near future in which MOOCs, DIYD, and even IHE degreed designers and professionals themselves are successful in redefining it to encompass software skills and visual decoration only, removing all of the conceptual behind-the-scenes efforts entirely.

Democratization, as a concept, sounds positive, inclusive and progressive. However, in the realm of graphic design, allowing everyone with a computer to identify as a designer without the training and background to support them only threatens to devalue the profession and the word. If it once meant quality and reliability, it can be safely assumed that these notions will sooner or later begin to change.

Since its inception, graphic design’s role has been in flux, often being questioned: is design a craft or a profession? Crafts are more individualized and can be self-defined in terms of standards, whereas a profession is an activity or association which must have met certain

academic, peer reviewed performance standards based on professional practices and expectations. By the industrial revolution, design moved into business practices (Meggs, 2012) with the articulation of the principles used in the more recent modern design from Frank Lloyd Wright's "The Art and Craft of the Machine" 1901 presentation (Wright, 1902, Siry, 1997) and through the growth of different branches of design such as advertising. With the growing presence of MOOCs which focus on the decoration aspects of design, the way in which it is practiced is undoubtedly changing, from pricing and hiring to its role, focus and the nature of design as a profession to more of a service or craft (Duran et al., 2022).

IHE Degreed Work Did Not Do Significantly Better

While it is easy to view DIYD and MOOCs as the impetus for creating these eight critical influences on the industry, they may not be the sole factors for this change. Both of those influences do have a hand in forcing a pivot in how design is perceived and practiced, how and what is being taught, and even how design sees itself as discussed above, but the IHE degreed designers did not score significantly higher in the higher-level thinking skills. In a self-reflective manner the IHE designers revealed their own concerns regarding their education and IHE's ability to prepare them for a career in design. Those comments and scores when considered together should be a clear and present cause for concern for IHE design programs and graphic design educators, especially when enrollment has steadily decreased and mistrust in the value of an IHE education is at an all-time high.

This researcher does not think that industry, profession and IHE are communicating with each other, especially when this research revealed that industry is also affecting hiring qualifications and the core of what IHE is teaching. Informal and cursory observations on

discussion groups of graphic design educators and practicing designers reveal conversations still revolve around the production of design, the aesthetics of projects and how to teach certain software skills, lay out resumes and LP records designs.²⁰ These represent some of the same parallels found in this research. While there are educators who are discussing the future of design, they are almost exclusively found in graduate levels of instruction, are industrial designers or design researchers whose work lives and dies in academic journals and, based on the data collected here, remain unread by practicing designers.

These eight significant overall key findings are presented here in order to highlight the combined problematic concerns about how these factors may alter the very definition of design, its role in business and its perceived value. The next subsection in this chapter looks at the changing relationship between industry and education based on the influence of learning graphic design primarily on MOOCs and the DIYD.

Changing Relationship between Industry and Education

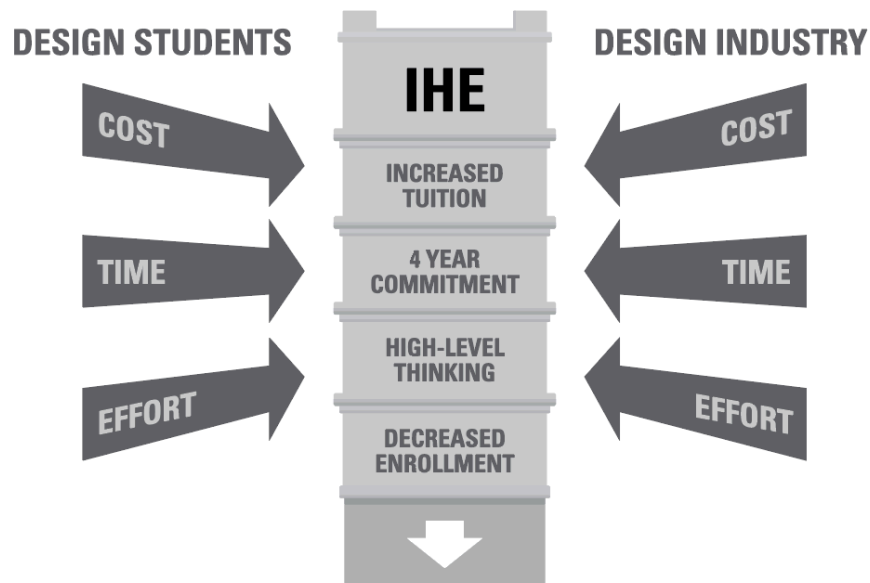
The interview analysis part of the study reveals several expected and unexpected findings that are supported by the overall expert scores and comments, which helps to construct a solid research study. However, due to the applied aspects of this study (the results do, in fact, have the ability to be learned from and brought into the industry to make change or at least begin conversations unlike a purely theoretical study. One of the most significant findings worthy of a separate discussion with industry partners in this section is the online platforms' focus on software skills over higher-level thinking and the industry's shift away from the degree as the minimum requirement for entry in favor of software-based technical skills rather than conceptual

²⁰ This researcher is an active member of several social media groups consisting of design groups, freelance groups and design faculty groups.

skills. Typically there has been a somewhat mutually beneficial relationship between those who practice in the design field and those that teach the subject. Design is a professional practice after all. The industry and education must be in sync with expectations as a “passing of the baton” occurs when students move into the field equipped with the knowledge that a new young design professional should come into the practice with.

As revealed by the interview and analysis findings, there is evidence that the PLE instincts are driving a surge in online learning away from IHE. The PLE influence is having the same effect on the industry, weakening the partnership between IHE and industry. See Figure 31. This finding was discovered in the repeated comments by participants expressed as “They [employees] don’t care what school you went to...just show me you can handle a file correctly” P[20], reducing the designers’ roles away from the art director to that of a lower-level production artist. This marks a major disruption to the field and, as well, the *perception* of the field by practitioners, agencies, clients and even the public audience by minimizing its worth to mere hand skills and ignoring the conceptual creativity that previously gave it prestige and possibly even a kind of mystique. This truly marks a sea change in the evolution of the profession.

Figure 31
The Influence of PLE on Education from Industry and Students



Note: Source: Rebecca D Kelly’s graph representing PLE pushing students and industry from both sides, creating an island on IHE education.

There is another element to the PLE components (time, cost, effort and choosing accessibility even at the sacrifice of a quality education) which is that the learners stop learning. As discussed in the literature review, due to PLE effects, DIYD learning tends to end information seeking behaviors as soon as enough knowledge has been obtained. Considering the impacts of DIYD learners ceasing the quest for knowledge once they learn enough to pass as designers, one can see the profession itself devolving into a one-dimension tool-centric endeavor. The concept of a short educational timeline combined with what the online learning platforms primarily focus on — software skills and design technical tricks and tips — does not bode well for the growth of the design industry. As if Zuboff is speaking specifically about the design industry, she states in her research about workers who learn these new technologies, this adoption of technology should

begin with conversations about how to use it, roles and intention, rather than accepting these new technologies without context, which results in a weaker workforce (1988). This statement is supported by design educational leaders and researchers like Steven Heller, Phillip Meggs and Allston Purvis, who share this concern as unregulated technologies' impact on the education and industry will produce "untrained or marginally trained practitioners [that] enter the field" (Heller, et al., 2012, Meggs & Purvis, 2012). This researcher doesn't believe that the true repercussions of this "shorter-term" and expedited learning on industry have been fully realized, as a greater number of the self-taught designers entering the industry and declining numbers of degree designers with higher level skills will undoubtedly have exponentially detrimental effects.

The following sections represent the discussions about the findings of the interviews, visual analysis and chi-square testing along with future studies, impacts and implications.

5.4 Discussions of Interview Findings Summary

Interviews that directly answered the Stage One: interviews : *RQ1 what are the drivers for choosing either a IHE degree in design or a DIY self-taught path*, revealed that there were a few findings that arose, as highlighted below.

There were three key findings from the interviews with the designers from various educational backgrounds as previewed in *Chapter Four : 4.5.1 Final Three Thematic Findings and Sub-Themes* that were important to not only answering RQ1 but also RQ1.2. The initial insights derived from the analysis were "questioning of the value of higher education," (a driver) with the sub-theme of "IHE general issues" such as dated projects, relevancy, behind-the-times technology and problems with the topics that were studied. The second set of findings showed that "a career in design is possible without a degree in design" (due to alternative ways of

learning), which led to the third finding, “what are they not learning.” Considered in another way, what are the potential gaps in the DIYD education and are those “gaps” noticed by the expert evaluators? These last findings tied to RQ2, RQ2.1 and RQ2.2 are discussed in the section *5.4 Summary of Expert Assessment Findings*.

The findings as to why someone chose the educational path to commit the *time, effort* and *money* to attend an IHE or not (*driver*) was that both types of participants (non-degreed and degreed) questioned the value of an IHE degree in the design field. The significance of that statement is worth repeating, whether the person had a degree in design, a degree in another area of study or if the person learned design on their own, all three types of participants all questioned the value of IHE, even those who had already attended and received the IHE degree. This was a significant finding as one would expect the DIYD who chose the path of independent learning because they questioned the value of an IHE degree (due to the PLE rationale—not worth the time, effort or cost to obtain a degree), but those who already committed the time, effort and expense to earn the degree questioned the value after the fact. Looking at the comments from participants across the entire spectrum of educational experience, the sentiment towards the growing irrelevance of IHE degrees (in design or otherwise) was consistent. This mindset along with the instinctual human tendency to follow PLE, constitutes an existential threat to IHE in general, and if IHE fails to recognize and address it appropriately, could lead to an entire paradigm shift away from IHE in the educational landscape.

5.5 Discussion of Expert Assessment Findings Summary

This study was built with a detailed research framework and was developed to include a multi-layered expert analysis component to further deepen the data and contribute to the

findings. This system was designed to compare interview findings that answer RQ 1 and RQ1.2, with expert analysis designed to answer RQ 2, RQ2.1 and RQ2.2 resulting in a glimpse of participants' opinions, decisions and definitions compared with the *outcomes* (expert analysis), which provided a holistic picture of the IHE-trained or self-taught designer.

As mentioned above, there are emerging themes that support the research questions (2, 2.1 and 2.2 mentioned above), confirming that there is in fact a relationship (or *outcome*) of the designers' education, scores and definitions. This portion of the Stage Two: expert analysis uncovered important findings summarized here.

Important to note, there were inconsistencies between expert scores and detailed comments about the participant's work as mentioned in the limitations section above. While it was identified as a limitation, this discrepancy also created an opportunity to understand the scoring in more nuanced detail than with scoring alone. Through this combination of scores and comments the following four important insights were derived.

First, nearly all of the participants scored fairly competently in foundational design skills, which places the emphasis on low-level design skills, specifically superficial, purely aesthetic design. Basic foundational graphic design skills are more technical in nature and in this study were considered as a function of lower-level thinking that emphasizes craftsmanship and style (how it looks) over higher-level conceptual thinking skills (what it says, how it communicates, etc.). Examples of basic foundational graphic design skills are typography, color and image use, along with the arrangement of elements such as shape, line and form in a layout, used effectively with a basic knowledge of design software. Higher-level thinking skills include an understanding of the purpose of the work, which is reflected in the design with appropriate design choices, brainstorming, problem seeking/solving, conceptual methodologies, problem identifying,

target-specific language, clarity in communications, how and what it communicates, and innovative solutions to unique design problems.

Secondly, despite the nearly unanimous scoring in foundational design skills, there was evidence of a lack of higher-level thinking as indicated in both scores and expert comments. Repeatedly, interviewees' work was found to be strong in foundations, but lacked functionality, concept development and problem solving, in addition to having accessibility and readability issues, etc. These revelations began to appear more in the DIYD work and less in the work of designers with degrees in any field, leading to another *outcome*: that due to the influx of the new DIYD entering the market, there is also the potential for the devaluation of higher-level thinking skills. (Duan, et al., 2022)

The third important finding that came out of the expert reviews was that those participants with degrees in design generally scored higher in the Exceeds/Meets for nearly all areas of assessment. This may not be unexpected, however, the participants with degrees in areas not related to design also scored higher overall. This showed that perhaps the specific degree was not responsible for the high scores as much as the process involved in obtaining any degree. This reinforced the statements above that the successes achieved by participants in these specific groups could be a result of the discipline, rigor and thinking required when obtaining a degree assists in learning design successfully.

Finally, the fourth significant finding was that the participants who have no degree at all tended to have more equal scores in all categories: Below, Meets or Exceeds minimum standards. This indicates a "hit or miss" or randomness of the quality of work versus a more intentional and consistent scoring record; in other words, they are more consistently unremarkable with regards to above and below average scores. If these types of designers are increasingly populating the

industry and comprising a greater presence within the profession, this could eventually have highly concerning and negative consequences—a workforce with unpredictable and unreliable skills would only serve to undermine the field itself and weaken perceptions of its practitioners in general.

All of these points were supported by the chi-square tests demonstrated in *4.8.4 Verification Tests to Support Findings (Chi-Squares Statistical Findings)*, lending verification to the study.

5.6 Discussion of Chi-Square Findings Summary

Running a series of chi-square statistical analysis tests was important to the study because it ensured that the data collected here was not anomalous. More explicitly, the chi-square test is a statistical test used to support the data by determining if the differences between the data (observed and expected) are due to a connection between the variables (a relationship) or by random chance.

As detailed in chapter four, of the four chi-square tests conducted, three statistical tests identified significant results. One of the four was determined to be not significant, which means that more than likely this is a chance sampling ensuring that any conclusions were derived from those results. The significant results (P-Value less than .05%) found here are not due to random sampling errors—this data represents a general population of designers and the study is not skewed or misrepresentative of a true body of designers, therefore this was the data used for these findings.

The results indicated that in test one: degreed versus non-degreed, any type of degree scored better in the Exceeds and Meets minimum design standards categories, suggesting that perhaps the rigor and structure of obtaining any degree prepared one to acquire the mentality

(such as tenacity, rigor and curiosity versus technical skills) needed to be more successful in design. This suggested that the likelihood of getting an Exceeds mark was greater with a degree. Perhaps soft skills learned in college benefited the self-taught designer by providing the participant with the work ethic necessary to earn a degree in other areas. Perhaps it is these soft skills that are universal standards across many areas of study, such as organizational skills, deadline orientation, ability to question, a desire for discovery and a growth mindset that contributes to their success in learning design in more informal settings.

Another finding when looking at the first chi-square test (degreed vs. non-degree overall scoring), was unexpected. As demonstrated in the graph (see Figure 26 10), there are two distinct differences between the degreed scores and the non-degreed scores. The unexpected result in the degreed scores is that this group scores higher in the meets Below minimum standards category over the non-degreed. In other words, the non-degreed designers had fewer Below minimum standards scores. One would expect the non-degreed designers would have the highest score in the Below category. Interestingly, the non-degreed designers scores were nearly identical in all three categories (Below, Meets, Exceeds). These results suggest the non-formally trained designer has a nearly equal chance of scoring in either of the three categories - there is no discovered strength or weakness in any category, except the received far lower scores in Exceeds.

A similar pattern was found in the second chi-square; those with degrees (BFA, BA and Others) scored highest in Exceeds, while both groups scored lower in the Meets category to the non-degreed participants. Additionally, BFAs scored highest (a negative) in the Below category. The results are similar to the first test above and suggest that one has an equal chance of scoring in Below, Meets or Exceeds category, more of a hit-or-miss scenario in the non-degreed formula.

Similarly to the above, any degreed background almost assures better scores in the Exceeds category. This reinforces the concept above about soft skill supporting a stronger aptitude when learning through the self-taught path. The same interpretation exists for the third chi-square test in which any type of degree almost assures that the designer will score higher in the exceed category. The fourth test which had results that are not significant and therefore not reliable to use in this research (that test suggested that the Other/Non-Degreed designers scored higher in the exceed category).

5.7 Bringing All Findings Together

There was a consistency when looking holistically at all four data components: interviews, expert evaluations and the chi-square testing with the final examination of scores and definitions. This was done by bringing all components together for insights as to what graphic design is by looking at working participants' definitions and processes and therefore the value trajectory of the profession (whether or not the professions' values are changing). The point of the larger comparison of all of the data was to discover if there were patterns in the data supported by multiple interpretations to determine if educational pathways could impact industry and education in terms of what they are learning or not learning. When industry is challenged or alter, IHE must respond by adjusting requirements and expectations in order to adequately prepare students for the field.

The interviews were used to determine *drivers* of choosing to obtain or not obtain an IHE degree in design and if there were any potential *outcomes* to those decisions. The study was searching if there are differences between the two types of portfolios, what those working professionals valued or how they defined design, the designers' roles in industry, how they

worked, what they focused on, such as aesthetics or concepts. Those results were discovered in this research and it was determined that there were many *drivers* that the participants considered when deciding to pursue a degree or not. These *drivers* discovered in the interviews of design participants included dated projects, a lack of focus on current technology, gaps in practical knowledge, and relevance with respect to the industry, etc. These *drivers* and the relatively new on-demand availability of a viable alternative to an IHE education in design directly competes with the *time* commitment, *effort* and *high-cost* or the Principle of Least Effort (PLE) involved in attending an IHE. However, the study also revealed that there were problems with a strictly self-directed, DIYD educational pathway in design including a shift from higher-level thinking back to an aesthetically driven, tool-focused industry from the early Bauhaus era. This was also supported by new employment practices that emphasize software skills over higher-level thinking and degrees in their job-listings for employment in the “design-related” fields.

By taking the points expressed above as *drivers* for not obtaining a degree, IHE continues to suggest that offering more online courses or dropping enrollment requirements and raising tuition to cover the costs related to offering more student incentives is a solution to combat student enrollment competition (Skirky, 2021). These short-term remediations address some issues but it now becomes unsustainable as a long-term solution. The value of an IHE education is still in question, not only by the DIYD who chose the faster, cheaper, easier route towards a design career, but also by those who learned through the IHE route. The questioning of the value was initially about the financial cost of the degree and had not even addressed potentially problematic projects or curriculum issues brought up later. The participants’ comments of IHE education indicated a dissatisfaction with the focus of educational decisions—aligning with this research and its ultimate questions about the future of IHE design education: should design be a

service or a career, should IHE focus on producing technology experts as listed in their prioritized skill sets or thought leaders, or do graphic design programs in IHE let the industry dictate what they value (technical skills and software)? If education is to remain relevant in satisfying the job qualifications that are driven by industry, the value of higher-level thinking skills will likely be diminished in favor of the more preferred skills, ultimately devaluing those higher-level thinking skill sets. This priority change in the emphasis in IHE in graphic design programs presents a two-fold value shift in design. The first is that the general definition of design across programs and within the industry would devolve to prioritize skill-based aesthetics over strategic thinking. This change in priority was evident in the alignment of the expert assessments of participants' work which scored high in technical skills but low in high-level thinking, problem solving and conceptual thinking. Despite the nearly unanimous scoring in adequate foundational design skills, there was a lack of higher-level thinking or discussions of detailed design processes in this body of research among the study's subjects.

When those scores were juxtaposed with the participants' definitions of design as more superficial, and considering their lack of high-level practices of design methodology or process, the nature of designers shifts towards an identity as tool-masters, beholden to the latest software as mere "hands" working to make something look good. The second value shift back to this type of design subject matter (focusing on technology) shows designers becoming more service-driven rather than participating in leadership positions and problem solving roles. These actions are moving design backward towards being a service versus an elevated career with ethics, principles, integrity, and decision making authority. The observations discussed above are supported by participants' reflections found in the interviews along with their statements. Participants stated that finding out what the clients wanted and delivering those requests without

insight, analysis or expertise diminished the value of what design processes and higher-level thinking can bring to business. Similarly, negotiating a service for the lowest-priced competition versus the added value that a designer can bring, including conversations about solving business problems using design thinking to understand accessibility issues, etc., also diminishes the value of the profession. Based on the interviews, many of the participants indicated that learning online would offer more contemporary or relevant projects and skills than traditional IHE pathways. Participants also suggested that revising the nature of design projects must be considered to remain relevant to the industry. One scenario based on these findings and hiring practices indicated that industries were looking for technology experts in design software. Design programs became aware of this industry priority for new hires and, in order to compete with online learning, began altering their curricula to meet the desires of potential students. Is it appropriate for potential students to dictate the nature of projects? Does this shift in IHE priorities to align with professionals working in industry justify the kind of assignments tailored to become more competitive with online courses? In other words, should IHE be led by those who aren't aware of all the different teaching methodologies and outcomes and who are unaware of what they need to know, with critical issues such as higher-level thinking, conceptual thinking, strategic thinking, plagiarism, ethics, industry standards and professional practices in jeopardy of being sidelined?

There is a lack of higher-level conceptual development from participants without degrees and degrees in other areas as evidenced by the generally lower scores and comments from the expert evaluations. In the unstructured MOOC learning avenues, in which algorithms determine the next appropriate lessons based on previous users' searches, the findings above make logical sense as these higher-level topics (ethical discussions and plagiarism-related topics) are found

lacking in online learning. Those examples represent only the beginning of topics that challenge independent learning through the DIYD learning environment. Based on interview responses of how participants attempted to learn design skill sets online, the potential scenarios could look similar to the following example. If the DIYD were interested in learning how to work with a “bezier” curve, several tutorials are offered once those keywords are input in the search field. Algorithms designed to suggest the next related subjects would present a selection of videos to the user who is clearly interested in learning Adobe Illustrator software skills and ethical practices are not included in this list as this is a highly differentiated high-level skill set. In another scenario, a more curated series of suggested courses would be available to purchase in order to gain knowledge or micro-credentials by the interested DIYD, but due to PLE and statistics about the low number of paid subscribers of those credentialed packages, the participants are more likely not to finish those courses—ensuring the courses specific to ethics are not completed. There were two likely situations based on evidence found in this research: the Principle of Least Effort and the incompleting curated content of those selected credentialed courses.

As discussed in *Chapter 2 : Literature Review*, studies have shown that even when a user pays for curated courses, they stop following the course once they have learned the most minimal skill sets that provide them with enough knowledge to pass as a designer (the PLE effect). So even if plagiarism, etc. is included, learning these subjects is not a high priority; it is not guaranteed that the user will ever arrive at those topics. Further, with regard to the curated content of pre-selected courses, those responsible for developing the course packages (either human or algorithmic) need to be made aware of the importance of these professional practices topics in order to include them in the pre-packed series of courses. In a brief examination of the

top five most popular MOOC learning platforms, ethics, plagiarism, and similar topics were not included in the paid or unpaid course curricula.

In the above scenarios, the inexperienced user does not understand what they do not know regarding the topics they should search for. For example, unless there is some innate knowledge about design and plagiarism when searching a software technique, the topic would typically not appear in the suggested list. However, these important topics (ethics, copyright infringement, plagiarism, design strategy development and higher-level thinking in design, etc.) would be a valuable part of any designer's knowledge base regardless of the educational pathway, or eventually there will be a significant gap in this knowledge manifesting in the industry, and significantly impacting the profession. If the DIYD are unaware of the importance of these types of lessons within the industry, how would they know to search for them in order to generate similar topics for the next lesson?

In summary, as seen in the overview chart (*Table 37*) found in *Chapter Four: Results of the Study, 4.8.3 Expert Assessment Analysis of the Six Categories*, there seems to be a direct relationship between the lower scores, the expert comments and the lack of detail when it comes to their own definitions of design and process, which answers the research questions: what are the *outcomes* of choosing the DIY direction when it comes to differences between the two types of portfolios (the formally trained and the DIYD)? This offers an answer to RQ1: an *outcome* of a DIYD is present in the portfolios, therefore there is a relationship between scores and definitions in this case (RQ2.2). Stated more directly, there is a relationship between *drivers*, scores and portfolios (or *outcomes*) between the different types of learning pathways. But what do the results mean?

These findings are important to both IHE and industry because these perceived *drivers* and *outcomes* have the ability to change how we teach, learn and practice design and direct the future of the profession. By not being able to define design's purpose or intention, or understand the value of the creative processes and higher-level thinking, the field shifts to more of a purely aesthetically-driven, software-based support structure that is demanded by an industry that emphasizes those skills over higher-level thinking, and therefore IHE will ultimately change as well.

5.8 Recommendations

This study is intended to begin conversations with educators, IHE and industry professionals about the future of design in terms of its purpose, the roles of designers, underlying values, and the importance and relationship between education and industry. The study also reflects personal conversations from colleagues and responses to public presentations on the importance of these concepts, and findings from academics in other fields that are interested in this area of study as this research provides additional information that can be applied to other areas in IHE that are also being impacted by technologies that allowing for ways of learning.

Future studies can use this research as a starting point to address other platforms that offer alternative learning environments to the DIYD students. Additionally, IHE specifically in design must begin to come together to begin a dialogue about the future of design holistically, which begins with the assessment and consensus of the different types of programs, curriculum framework, objectives and outcomes, and definitions in addition to the acknowledgment that design involves more than using new technologies and software skills. It is the hope that through this study the value of design in both industry and design programs in IHE be more didactically

articulated and agreed upon by all parties. Agreement on a definition, goals, objectives and purpose would highlight the value of thinking over software (which is still important, but in a supportive role) in order for design programs in IHE to remain relevant working with industry that could also, include addressing the allure of online learning avenues (PLE) that protects both education and the profession from making devolution back towards a decorative service role.

This study demonstrated that online education, whether through more organized structures (MOOCs) or merely available and accessible means on sites like YouTube, is making a mark on the educational landscape, but to what extent? Demonstrated here using varying types of research—interviews, surveys and empirical studies—how is online education in design specifically being impacted? Does higher education ignore, join in or divide itself and evolve in response? Online learning is not going away, but the implications for traditional design education needs to be studied in more detail in order to anticipate and address the future as the field, as it will certainly be impacted in some way. Below are a few areas of inquiry that could be explored in future studies or possible scenarios that design education could consider.

In Zuboff's *In the Age of the Smart Machine: The Future of Work and Power*, (1988) the author states that new information technology requires new leadership, but are MOOCs considered the new leaders? MOOCs began as leaders (disruption innovators as predicted by Christensen, et al. (2017, 2018)) when they introduced users to additional avenues to learn and reach nontraditional audiences with these new information pathways. However, MOOC models seem to have some difficulty achieving their initial goals of overtaking traditional education (Lederman, 2019). Seemingly, in a sense of irony, the MOOCs are having to “pivot” in “order to make [their] troubled business models more successful, they are changing all the ways in which they were novel” by looping back around in ways that resemble IHE models and forcing IHE

into moving into MOOCs' online learning environments (Lederman, 2019, Reich, et al., 2019) to stay competitive (Burd, 2015). Using Christensen's own four-step filter that determines whether or not a new business is in fact a disruptive innovation or not, this researcher initially went against popular opinion that MOOCs are not disruption innovators, but now it seems that they might be, but not in the way that Christensen intended.

Experts who study the specific impacts of MOOC on IHE as disruption innovators (based on Christensen's disruptive innovator evaluation criteria discussed previously), are split. Some say that MOOCs are disruption innovators and other academics state that MOOCs are not. This researcher is split on whether MOOCs are the great equalizer: leveling the educational playing field by offering cheaper, more accessible education to people who normally would not be able to attend college courses (a disruption innovator). As discovered in this research, there are three points that this researcher argues both for and against this notion. First, as discovered through this research, a larger proportion of participants had already obtained IHE degrees, (not necessarily in design), so MOOCs did not provide these participants with their only opportunity to obtain an education that they otherwise would not have been able to reach. Second, as previously suggested for a disruption innovation proponent, MOOCs have disrupted the relationship between IHE and the design industry as industry is moving towards a skill-based, software priority over a degree, and third, MOOCs have changed education in that there may be a way for IHE to respond to the cost, effort and time challenges that IHE currently face with the new ways of learning and may alter how and IHE education is delivered.

Zuboff's ideas in this situation can be interpreted in the following ways. IHEs in response to declining enrollment and increased competition, believe they have control over new learning methods by matching MOOC offerings and tactics. There are a few problems that need to be

explored prior to making just a blanket move online because according to Shirky (2021), “institutions will try to preserve the problem to which they are the solution” with “knee-jerk” reactions that are not sustainable.

Using Zuboff’s (1988) logic, perhaps the “leader” (IHE) should champion a split in design that allows IHE to maintain control by creating a “new division of labor” (1988) by drafting a new business model for IHE, by creating intentional “meta-jobs” (1988). In essence, this would mean embracing production-based, technique-oriented jobs (lower-level thinking) while simultaneously offering a distinctly different option as well.

With Zuboff’s work in mind, it could be time to shift design education into two discrete yet related fields. The first would compete directly with online learning, targeting the “decorator” designer concerned with the visual only and representing a “tool-driven” mentality but with the necessary information of professional practices included. The other direction would move design in higher education away from the Bauhaus model and focus designers of the future on higher-level activities such as critical thinking, design thinking, and strategic problem seeking behaviors at the undergraduate level. These shifts would represent designers who aim to change the world with a “why” versus “how” mindset. This new division of design in IHE would benefit both the new design demands that align with online, on-demand learning as well as create a new area for IHE to explore and expand design to encompass both areas while elevating the value of an IHE pathway for higher-level designers of the future.

This split would ensure the proper training and certification of low-level designers according to professional organizations such as NASAD, AIGA, etc., and industry standards on ethics, trustworthiness and integrity while focusing on software skills, foundational basics and technological advancements with concepts that engender an ethically-grounded, well-rounded

designer (BA, focused on the desire of a skill-based degree, hybrid with the professional practice standards). Incentives would ideally encourage students to move into the next-level design evolution: a problem seeker, strategic design thinker, etc. (this would involve developing a new BFA track that would meet new NASAD qualifications).

The new designers of the future would begin at the undergraduate level (instead of the current trend of limiting these topics to a graduate level of study) and would include the theoretical qualifications that are currently being taught, tested, tracked and evaluated in a prototyped classroom over the last several years at the Junior level at this researcher's institution. These new design methods and objectives include preparing students to master global thinking and design from multiple perspectives, targets and interest levels. The classroom also includes "intentional failure" activities leading to overcoming the fear of the unknown, teaching an entrepreneurial mindset (with evaluation and pivoting skills), enabling the mastery of "concrete ambiguity" skill sets (offsetting a "teaching to the test" mentality), encouraging "round robin collaboration" (a design-thinking offshoot, encourages designing from multiple perspectives), and effecting unexpected adaptation (developing adaptability skills and conceiving multiple viable solutions) (Kelly & Stress, 2023).

These new pedagogical techniques would provide the designer of the future with long-term skills and higher-level abilities in an industry that may look radically different than it does currently. These new thinking skills and behaviors could help protect the quality and perception of the design industry and design IHE and allow its practitioners to counteract or respond to new technologies such as artificial intelligence ("Creative Skills are Critical," 2019).

Without such conversations and pivots, an ineffectual educational system can lead to long-term problems, especially if it is not meeting the needs of the industry into which it

channels students. Educational systems have been around for centuries and have of course undergone evolutionary stages — they have evolved to meet the needs of society, but not necessarily in a technological skill-based capacity only.

The first schools (China, 2076 BC) taught philosophy, history, cultural awareness, rituals and literature. These are big picture areas, big idea moments (higher-level thinking) that advanced society for thousands of years. This soft-skill versus hard-skill learning is what is needed for future planning and learning (Gelen, 2018) to promote the advancement of society. The additional benefits of a traditional model of learning—instructionally-focused forums surrounded by extemporaneous conversations that erupt as teaching moments—cannot be duplicated through a YouTube video.

One can learn the tricks or hand-skill design tools that the higher-level designer utilizes to create the big idea, but not how to arrive at the idea itself. It is suggested through this work that these MOOCs and social platforms have a tendency to emphasize the tools over the kind of thinking that makes designers more valuable in the long term. Tool learning can be considered short-term, as the tools are constantly changing, but *thinking* is what produces the innovation that changes the tools. Without the higher-level thinking, who develops the next big tool used to solve a problem, who opens more space for creativity and productivity? More importantly, studying this shift in this particular industry/educational system could not only lend insight into similar phenomena in other fields but could offer ways of navigating the changing landscape and even successfully adapting to it.

5.9 Future Studies

This case study investigation was not the first on this subject for this researcher and it is the goal to continue this line of inquiry through numerous study extensions. Of the potential research projects, four additional projects have been identified here to add to these findings.

The first is to continue to examine all of the unused data that was collected in order to discover additional findings relevant to this subject matter for new insights that may not be addressed with these research questions. This research created numerous additional potential topics related to the state of IHE and the design industry, for example, the value of failure exercises in the classroom.

Second, as talked about previously, additional research on other design platforms and other professional design practitioners (art directors, for example) would add to this body of work to determine if DIYD are working in other levels within the industry. The goal would be to determine whether different educational paths affect different professional experiences, and the distinguishing nuances between the different types of designers would be beneficial to this body of research.

Third, conducting a series of examinations of MOOC and IHE curricula for instructional content would be beneficial to compare and contrast learning activities, objectives, skills and topics to determine potential gaps and understand the algorithmic suggestions for topics identification. As mentioned previously, through a cursory examination of courses offered on an online resource in which suggested topics were more curated with little to no options were found for a class on ethics in the visual design fields.

Finally, when interviewing participants, nearly all were completely unaware of academic research into visual design, its purpose and where it could even be found. Participants tended to

read online articles from gray and trade publications. Adding to that, academic journal requirements for design professors are growing in traditional graphic design IHE, but this is generally not the primary area of research; creative projects, competitions and client work are the usual research trajectories. Academic journal research occurs more commonly in engineering design, systems design and industrial design, and with that consideration, this study incorporates gray and trade publication sources as references. Additionally, when reviewing a body of gray literature and industry publications, one must add levels of authentication: who is hosting the courses, what their motives are, who the creators of online learning are and what their backgrounds are.

All of the considerations above are important to graphic design, graphic design education and graphic design research because as indicated in the seminal book *Research for Designers*, written by design educator Gjoko Muratovski, stated that design as a profession and in higher education deserves greater investigation due to the nature of the practice. He states that design has always struggled with being considered solely a craft (Muratovski, 2016). Despite that, the thoroughly trained designers (studied, degreed and apprenticed), using design methods provides in the broad human sense (Simon, 1982) solutions to large complex systems to solve issues (Muratovski, et al., 2014: np).

5.10 Implications:

Based on early research into the role of MOOCs and alternative learning pathways, it was assumed that people who chose to learn in the DIYD path probably chose this route due to the *time* commitment, high *costs*, and the *difficulty* of the work to attend IHE. Interestingly, found through this research, that statement is not necessarily accurate as the majority of the interviewees already had IHE degrees, but a majority of those degrees were not in design. They had degrees in other fields and chose to change their careers to begin working in design. This finding was interesting as MOOCs were a democratizing force in education, providing opportunities for more people to achieve learning due to the *time*, *cost* and *ease* of using the platforms.

This discovery not only questions if MOOCs are the disruptive innovator as originally thought. Or is the relatively new way of learning online simply the new normal in many industries, moving further away from IHE instruction? As previously noted, companies are now listing, as a desired qualification, software skills-based certifications rather than degrees. These same companies are offering pay-to-learn classes within their own learning environments. These companies benefit not only from additional opportunities for revenue but also the ability to recruit new workers trained within their own “schools” with the assurance that the company’s specific needs will be met.

The implications of all of the above (interview answers, themes and current learning opportunities) are quite significant, not only for design IHE and industry but other industries that are either facing a similar fate or soon will. IHE reputations have never been under more scrutiny and doubt—with a decrease in enrollment, increase in tuition and availability of new ways of

learning—the options for IHEs are to either remain as is or address the situation and adapt, in order to stay viable and competitive.

The questions that stem from these findings are: is IHE aware or involved in this new evolution of the learning and hiring process? If these trends continue in the current state, how does IHE participate or evolve? What is the IHE stance on these new ways of education, hiring and work?

Regardless of the pathway, holistic training is crucial; otherwise the status of the profession may be compromised by a host of unqualified individuals taking on the title of designer without the proper knowledge to back it up (Muratovski, 2015).

5.11 Summary

In the following section, the three core findings are summarized as *finding one: educational descriptions, finding two: pathways determine learning, and finding three: pathways changing the value and definitions*. As a reminder, when looking at these findings, there needs to be a general humanizing of the participants to compare the educational differences between the informants and the types of work that they practice in order to better understand their experiences in learning design and their perspectives on design, courses, learning and definitions of design and the design industry through the lens of PLE. This would shed light on some of their choices when deciding on a four-year degree or the DIY pathway.

The summary below focuses on the three major findings.

5.11.1 Educational Descriptions (*finding one*)

Of the respondents in this coded category for the interviews, ten of the thirty did not have the NASAD accredited minimum degree (Bachelor of Fine Arts with a specialization in a graph

design area of concentration), while five held that degree. Three additional levels of details for consideration when evaluating those comments are: of the 15 total respondents who were questioning the value of design, five had degrees unrelated to design, nine had degrees related to design and of those, three had non-minimum requirements (Bachelor of Arts or Fine Art focused) and five had BFAs. Comparing some of those figures, in both categories, BA and BFA (participants answered yes and no on whether or not they valued their education) it makes sense that the BA-degreed participants responded the way they did. Three BA degree holders said yes, they did value their education, three said no and two stated yes and no. For a BA, according to NASAD requirements, there was a much smaller emphasis on the specialization courses in design and therefore it is a much broader understanding of design compared to very focused and significantly higher number of courses specific to graphic design.

These participants questioned the value of a higher education in design as they indicated that it was possible to work in design without a degree. Building a narrative that supported these findings was important to better understand participants' responses. It was in these anomalies that this study took interest: the five non-related degrees that prepared them for a job in design and the two BFAs that stated they were not prepared despite their focus in design. These findings also indicated a shift in thinking within the industry as discussed below.

5.11.2 Pathway determines what participants are learning (finding two)

As a reminder, there are many themes that arose in the findings section regarding what a degreed participant learned as well as the non-degreed. Degreed participants mentioned learning a classic graphic design education, and the DIYD who frequently learned design skills on MOOC sites like YouTube learned the tools of design. The DIYD mentioned software-based tricks and tips, skills that helped them in their careers. Even the degreed acknowledged “I

certainly learned a lot more on Instagram about freelance than I did from school” [P15]. Another participant [P20] stated that there is a tendency as to what companies value more in a new hire is “just show me you can handle a file correctly,” which is a production artist position (one rung below “graphic designer” in ranking). There are a few important points to dissect about these findings from both the DIYD and the degreed.

Upon closer analysis, many degreed respondents mentioned that, along with the traditional design foundational learning, their education was dated P[28], irrelevant and “basic” and “don’t keep up with trends” [P13]. These remarks were often followed with comments from interviewees who did obtain the four-year degree, that they “regretted going to school and spending money on a design major” [P13].

In support of the type of work, participants can find and learn on YouTube, several non-degreed participants made note of what they were learning with examples like [P14] “now it’s like the programs are so accessible that a kid who didn’t go to college or chose not to go to college, they open it up, look at it on YouTube, watch a bunch of tutorials, go on like Instagram, look at their favorite artist and think okay how do I create that, like how do we make this, and that’s on illustrator and then all of a sudden you can make it.” Others noted more directly that learning on MOOCs was very good when you needed to know how to learn skills or “master...software...tools” [P28].

What these two types of feedback imply is that IHE projects weren’t worth the *time*, *effort* and *cost*, which reinforces that idea that the broad-based theory of the PLE is relevant here. A four-year degree in design may not be the most effective way to obtain the education necessary to become a practicing designer today. Secondly, based on the findings, the new

alternative way to learn design online places an emphasis on technical skills over thinking, strategy development and the creative process taught in IHE.

Most of the participants frequently mention that several IHE design programs often prioritize the focus of design studies of software skills. It is often noted that online learning environments are great places to find tips or techniques. The participants rarely discuss the complementary topic of *why* a designer engages in this practice. *Why* should designers make decisions, *why* is this an effective communication piece, *why* should we not draw cartoon camels that smoke cigarettes to appeal to younger kids, etc.²¹ (Collection: Joe Camel Cartoons, n.d.). Theoretically, a creative director developed this idea (based on a company directive), an art director hired the illustrator who worked with the copywriter to produce this headline and the art. This is an example of a *why* discussion that did not take place (*why* is targeting young children to smoke a good or bad business move). This is also why these types of topics need to be enforced in any educational pathway. The distinction between the two is important for designers of the future to consider as they produce work in the industry.

By heavily focusing on *how* (low-level thinking) or making, designers are shifted away from the *why* or higher-level thinking, (critical thinking skills, etc.). Due to more contemporary industry demands²², it is almost certain that some IHE courses will spend more time on aesthetic design (and less time on the conceptual and design thinking processes), teaching techniques that bolster the “decorator” designer, concerned with the visual only and representing a “tool-driven” mentality with a focus on software. This leads design higher education away from the

²¹ R.J. Reynolds, cigarette manufacturer launched a widely criticized “Joe Camel” advertising campaign from the public in an effort to reach, lure and attract to garner a younger target for their tobacco products. By reaching a younger audience to become addicted earlier and therefore longer client. <https://tobacco.stanford.edu/cigarettes/cartoons/joe-camel-cartoons/#:~:text=Reynolds%20initiated%20the%20now%20infamous,for%20influencing%20children%20to%20smoke>.

²² Previous studies by this researcher indicated that industry professionals requested higher-level thinking was more valued than software skills. Kelly, R., (2018). Design in Decline: Breathing New Life Into an Industry Through Education. DMI: Journal, 13, 41-52.

higher-level activities such as critical thinking, design thinking, and problem-seeking that helps to mold designers who aim to change the world with a *why* versus *how* mindset.

This more “soft-skill” versus technical “hard-skill” education is what is needed for future planning and learning to promote the advancement of the field and its relevance in society. The additional benefits of a traditional model of learning—instructionally-focused forums surrounded by extemporaneous conversations that erupt as teaching moments—cannot be duplicated through a YouTube video. One can learn the software tricks or hand-skill design tools that the higher-level designer utilizes to create the big idea, but not how to arrive at the idea itself. It is hypothesized here that these social platforms have tendencies to emphasize the tools over the kind of thinking that makes designers more valuable in the long term. Tool learning can be considered short-term, as the tools are constantly changing, but thinking—engaging in the creative process of conceptual development—produces the innovation that changes the tools. Without the higher-level thinking, who develops the next big tool used to solve a problem, who opens more space for creativity and productivity? The consequences of an ineffective educational system foreshadow a long-term problem.

This line of thinking is supported in the findings of the expert analysis in which practicing designers reviewed, evaluated and ranked participants’ work in a blind review using an assessment rubric. Most of the expert comments on the random sampling of 12 participants made up of six types of designers (freelance, fulltime, degreed, non-degreed, degrees in design and related and not related to design) noted repeatedly that the non-degreed or non-design degreed participants scored high in technical and software skills (the *how*) but consistently lower in concept, clarity, communication, and color theory categories. These scores enforced the theory that learning online primarily trains the DIY designers to be aesthetically stronger but leaves

them weaker in terms of ideas, concepts, strategy and clarity (often identified as higher-learning assets): the *why*.

In direct opposition to the *how* discussion is the thinking behind the *why*, which is the other side of the designer-of-the-future conversation. Rarely discussed in the interview data sets are the *whys*, which the design thinking thought leaders of change—like Tim Brown of IDEO—those who challenge design practice beyond the aesthetics,²³ often talk about why this solution is beneficial to the user, why an awareness campaign is the most effective way to inform people about voting, etc. It is these important conversations that help designers make decisions beyond mere decoration that help society move forward in more substantive ways beyond aesthetics. If the industry doesn't value this aspect of design, IHE must provide the “software skills” industries desire. The shift in thinking to aesthetics only diminishes this focus in the classroom in order to remain competitive with other programs that focus on what the industry demands.

5.11.3 *Pathway is changing design definition/value (finding three)*

The last emerging theme that was observed has the potential to impact not only the purpose or definition of design but also what the industry values. With respect to having a design degree on the resume, one participant responded, “I've found that it's rarely ever come up. They're just like “what's your work look like” [P20]. This sums up the potential shift in design from career to service and from a strategically driven to an aesthetic-only craft type of work.

Judging by the expert evaluations of the broad range of participant portfolios, one really doesn't necessarily have to be formally trained in design to be a practicing designer. The results

²³These are leaders in their respective industries that use design thinking to lead innovation and problem solving to accelerate businesses into the future large organizations. Nicole Jones (Delta) and Meeta Patel (Under Armor) are among the CEOs considered Design Thinking Thought Leaders of Change. <https://www.stonehillinnovation.com/blog/seven-design-thinking-thought-leaders-to-follow-on-linkedin>

indicated that the structure of obtaining a degree (whether in design or not) does impact the participants' scores and experiences. Generally, in the degreed category, there are more consistent comments about communication, evidence of thought, theory, and clarity. Conversely the non-degreed participant portfolios often scored high in aesthetics, color, software expertise, etc. In other words, they scored high marks and comments about more aesthetically-oriented design. The focus of importance in this type of DIYD learner is on a more “surface” type of design: prioritizing colors, hand skills or the *hows* over the higher-level thinking that emphasizes concept, communication, strategy and thought—or the *whys*.

There are two potential consequences to evolving definitions of design and what the industry values that are significant to both IHE and industry. First, if companies continue to challenge what they view as valuable in new designers (skills, software and decoration over degrees and higher-level skills), then this changes how the design industry is perceived. The shift becomes slow at first with expectations that designers need to be skilled at software only (which has already appeared in large company job requirements at Lighthouse, Google and Amazon), then educational shifts must also adjust in order to remain competitive. Following a logical trajectory, industry begins to value aesthetics over higher-level strategy development and critical thinking skills, IHE must compete for enrollment and justify a comparatively heavy time, cost and effort commitment by altering how and what is being taught to shift to the how over the why. Alternatively, programs in IHE must work to ensure the value of higher-level thinking in the design profession and focus primarily on these skills, which, through these findings, appear to be lacking in DIY learning avenues.

5.12 Conclusions

These expressions about the future of design education are supported by this research. Is design education merely teaching the tools (software) of design, a glorified pencil? Design education is more than teaching software. Design education is more than teaching image solution, layout, grids, headline writing and effective and sustainable packaging solutions. Design is much more than decorating, choosing pleasing colors and picking pretty typography. Properly trained designers can use their abilities to address bigger picture issues; they can use their intellectual skills and creativity to allow them to become leaders and act as agents of change for the betterment of society (Heller, 2019). The goal of this research is to inform IHE design programs that design is not about designing. It is about teaching design students how to see, think, and research to effectively become problem-seekers, facilitators of change and strategists as opposed to decorators, and this can happen as early as the undergraduate level.

The findings from this study (in combination with the concerning comments from design-as-leader advocates, Meredith Davis and Cheryl Heller), “Design education [IHE] has its head in the sand when it comes to technology’s influence,” (Davis, 2008) and “Where the hell is design education?” (Heller, 2019) present a pivotal moment in history for the future of design education in IHE. To add further urgency to the situation, the current paradigm in which communications/graphic design finds itself is not specific to this field alone. Across the spectrum of disciplines, MOOCs and DIY learners appear to pose an existential threat to the current framework of IHE.

Given that these new learning environments are now active participants in teaching the designers of the future, design educators of both the IHE and DIY learners need to understand

the importance of what *is* and what *is not* being taught, not only from a curriculum content perspective, but perhaps from a business model understanding. These conversations about the new wave of designers entering the field must include the positives and negatives that arise from this relatively new form of design education and its potential to alter the design industry.

The implications of a diminishing reliance on formal educational systems—in conjunction with an increased accessibility to less structured design classes—is of global consequence, specifically in visual design, considering that this type of work has a greater possibility of being seen on a much broader scale than in the past. The concepts being taught in higher education help allow professionals in the field to evolve to take on leadership roles in problem solving. Examples of the types of design pedagogy that design programs at the undergraduate level employ include teaching the assignments/projects for design-for-good and service-oriented design opportunities for growth versus a purely commercial career trajectory. However, there is room for all, but set up to achieve different goals under a general “communications/graphic design” IHE education. In opposition to these higher-level goals that some IHE programs seek to achieve, the primary focus of online platforms is based in technical/software skills development. Often in formal education, topics like ethical practices, conceptual development, and societal and global implications are part of the discussions. The well-regarded agencies understandably rely on the software-based skills but they also spend a significant amount of time on creative strategy development, big picture problem solving, in other words, high-level thinking. These conversations are important for all involved—designers, clients, target audiences, etc. in order to continue to evolve design education and even more so in the future field of design. So how does this new type of DIYD who are increasingly entering this profession affect the industry?

Design's influence can be seen throughout society as the carefully crafted and visually expressed communication of concepts and ideas; design reflects but also shapes society which, in turn, showcases the effectiveness of many forms of graphic design. The movement to use design for good, is more important than ever, especially when design becomes more democratized with online, on-demand, and do-it-yourself learning. Design could and should be used to make a positive difference in the world (Davis, 2021). With the increasing supply of self-taught designers who have learned at the minimum the technical side of software skills (and even less of the ethical training) design has the potential to go back to the old argument (Kelly, 2018, Brown, 2009, Brown 2008, Davies and Reid, 2000) that it is an aesthetics-only profession, again becoming a low-level service (Burdick, 2009). If important design topics and practices are found lacking in the more informal, less rigorous training used in the various learning avenues mentioned above, design will likely continue to shift to a "service" once again. This movement away from a "service" or craft to a profession has been nearly a hundred-year battle as the Bauhaus movement changed design from decorative arts only (Heller, 2015). Tim Brown, the leading design thinking advocate and entrepreneur as the co-CEO of IDEO, focuses on human-centered solutions using design thinking. IDEO is an international design agency that, through their work and mission statements, understands these conversations about design's changing roles. He began in 2008 with these ideas and continues to speak frequently about the value of design thinking, creative leadership, and innovation to business leaders and designers around the world, and directly insists that to "put a beautiful wrapper around the idea," (Brown, 2008) is no longer acceptable in design and yet, this is what online learning prioritizes. In other words, decoration that was once at the core of the profession continues to shift, and based on these new findings, has now becomes secondary to the new mandate: design must be a leader.

How does the new generation of DIYD, who are taught the opposite, affect this professional trajectory? The consequences that these new generations of software-focused skill-based designers have on the future of the design industry are complicated. These scenarios positioning technology over thought are potentially worse for both types of education in this “new design education system,” as Rolston (2016) suggests. If this is where design is headed as programs (IHE and MOOCs) choose to focus on technology over thinking, he states that technology itself has the potential to move the design industry profession towards extinction with tools that human designers cannot keep up the pace with. This scenario was envisioned prior to the advent of artificial intelligence, and promises to be much more amplified when design programs in IHE, the clients, agencies and companies prioritize aesthetically-based work that is produced by this emphasis on technology-based solutions. In other words, technology will begin to make aesthetic choices. Those former service design labels that many have tried to move away from (design as decorators or aesthetic only driven) will diminish the significance of design research. The advances that some researchers, educators and professionals have strived to move toward (higher-level problems) will once again be challenged. With the uncertainty of the “technology skill over the design thinker” in the new design education paradigm, other areas peripheral to the profession, such as photography, illustration and copywriting may also be in jeopardy. Their priorities, values, definitions, and roles will also be challenged or changed.

Free instructional sites, social sites (both personal and business focused), open education sites, and MOOCs offer tremendous potential for up-and-coming designers to learn how to design without the time and cost associated with traditional formal education. A study of conversations and empirical research shows that YouTube is able to deliver a basic graphic

design education and participants in the study confirmed that they had no formal training in design, yet are currently working as professional designers (Kelly, Hemsley, & Duan, 2020).

How does IHE justify ever-increasing tuition costs, especially when enrollments continue to drop, in design in particular? Should these institutes compete directly by offering their curriculum for free? Should they resist and ignore the situation, as Davis suggested they are currently doing? Are online classes offering similar curricula ensuring a well-rounded designer that is ready to lead the profession into the future? This paradigm not only directly affects IHE/FDE, but a growing lack of professionalism, strong, thoughtful work product and general ethical behavior. This has the potential for adverse effects on the design profession writ large, including practitioners, clients and the audiences whom the visual work is ultimately meant to reach. Shortcuts throughout the process can lead to weaker (Zuboff, 1988), less effective, less creative (Dewey, 1934, Stoller, 2013) inappropriate or misdirected work and messaging. In order to properly assess the situation, we must look at the current environment and determine if these programs are just a new trend and/or serious competition or a viable addition to the industry. More likely they are both and potentially more.

5.12.1 Implications for IHE at large

This study sought to understand the potential of two types of design-focused educational pathways that impact not only how practicing designers are learning, but what they are learning. It also sought to identify the potential impact these new shifts could have on IHE (what they teach) and industry (what they value) and could mark the beginning of studies targeting other areas in IHE that will be impacted by new learning pathways positively or negatively. For example, teaching exact directives that focus on technology and “how to do design” through this

software focus, according to Dewey (1934), to an inability to think creatively and consequently, and to a lack of creativity (Stoller, 2013) essential in the design industry.

Finally, it is the hope that this work will begin a dialogue for those interested in the long-term evolution of IHE and how they must respond to these new ways of learning in order to maintain relevance to an evolving student population.

APPENDIX:

Appendix A: Interview Questions

4/27/2020

Dribbble Interview Questions

General demographic information

1. A little sketch of your background
 - a. What is your highest education degree? What is the degree in?
 - b. What is your occupation?
 - c. In which city do you live the most often?
 - d. How long have you been working in design, and in what ways?
 - e. What is your age (Rebecca said it could be generation thing)
 - f. How do you identify your gender? Male/female/(other?)

Before they used Dribbble

1. What resources did you use to promote your work before you signed up on Dribbble?
 - a. What were the main venues you used to show your work (online/offline)?
 - b. How often did you show your work?
 - c. Did showing your work lead to work/gigs?
 - d. Do you consider your previous work as gig work?
2. Do you think there was a close connection between your degree and your past work?
 - a. If yes, in what ways do you think your degree helped you to complete your tasks?
 - b. If not, do you think your degree has helped you gain attention for your work/build social networks at all?
 - c. What do you think the value of formal design education is or would be for your work? Would it help you get more work in the design space?

After they started using Dribbble

1. Why did you choose Dribbble to post your work?
 - a. How did you hear about Dribbble (From coworkers, friends, Google, etc)?
 - b. How long have you been using Dribbble?
 - c. How often do you use Dribbble?
 - d. What features do you use most often?
 - e. What do you see as the main reason for using the site?
 - f. Are there other sites you also use to show your design or find jobs?
 - g. Do you consider your work on Dribbble as gig work? Why or why not?
2. Do you learn new design skills on Dribbble?
 - a. If so, what kinds of skills?
 - b. How do you learn new skills on Dribbble?

- c. Are these skills helpful to bring followers/work opportunities for you?
 - d. Are there other places/ sites you go to for continuing design education?
 - e. How do you see your work relate to other forms of design? (e.g. UX/UI designer and animation designer)
3. Do you see Dribbble as changing design education? If so, how?
 - a. Do you think a formal design education is necessary for people who try to work in related fields since there is a website like Dribbble that provides opportunities for people to learn design skills? Why or why not?
 - b. In what ways do you see Dribbble changing design education?
 - c. Would Dribbble affect a decision on your part to pursue (or not) a degree in design?
 - d. Do you think age plays a role in deciding whether to pursue a formal education in design?
 - e. Do you think the percentage of having a formal education degree in design of older generations is higher than younger generations?
 4. Do you think Dribbble is changing or challenging the design industry?
 - a. Do you find it is possible/easier to find work opportunities through Dribbble than traditional 9-5 office jobs?
 - b. Does work you posted on Dribbble and/or work opportunities you get through Dribbble take up the main portion of your income?
 - c. How do you maintain your work relationships built from Dribbble?
 - d. Is there any difference between the relationships built from Dribbble and those from a traditional office setting?
 5. What is your definition of design?
 - a. What traits or processes do you utilize in your work?
 - b. Form vs concept? Need to figure out how to phrase this.
 6. What is your goal of posting on Dribbble/ why do you post on Dribbble?
 - a. Do you have a targeted audience in mind before posting on Dribbble? If so, why is that your targeted audience?
 - b. What do you value more: visual appealing or design thinking to solve problems. Why?
 - c. Do you think Dribbble helps you to achieve your goal? If so, in what ways?
 - d. Form vs concept? Need to figure out how to phrase this.
 7. Is your work shaped by the feedback you received on Dribbble? Why or why not?
 - a. If so, what kind of feedback do you value?
 - b. Why do you value this type of feedback?

For future use of Dribbble

1. Has Dribbble changed your work style?
 - a. If yes, in what ways did it change?
 - b. If not, do you think there might be a chance that Dribbble changes your work in the future?

2. Do you see yourself using Dribbble as the main platform to build your social networks and share your projects?
 - a. If yes, why Dribbble?
 - b. If not, what other platforms do you think you would use for this purpose?

3. What do you think would impact the value of formal design education in today's environment?
 - a. Why do you think these factors could impact the value of current design education?
 - b. How would you prepare yourself to adapt to the changes?
 - c. What about the future?
 - d. How do you stay current in industry? Design education, design research?

The wrapping up part

Is there anything you would like to tell us that wasn't covered in the interview?

Appendix B: Sample of Graphic Design Rubrics

Name: _____

Assessor Use Only | Templates Intact? ___

Total Score: ___ /40

GRAPHIC DESIGN RUBRIC

40 pts.

Be sure to follow the rubric thoroughly.

You will have the first 5 minutes to review it and then the rest of the hour to design the assessed piece.

You may choose between using Adobe Illustrator, Adobe Photoshop, or GIMP for this assessment.

If you delete any of the templates it's an automatic 10 points off.

	Effective- 5 pts	Adequate- 4 pts	Approaching- 2pts	Below Standard- Opt
Design and Composition Worth 10 points (raw score x2) <i>The principles of design are balance, emphasis, movement, pattern, repetition, proportion, rhythm, and unity.</i>	The design demonstrates an exceptional understanding of the principles of design, is aesthetically pleasing, and contains objects placed in a creative and/or fun way.	The design demonstrates an adequate understanding of the principles of design and/or the use of them didn't add that much to your work. The design is mildly aesthetically pleasing.	The design demonstrates a basic working understanding of the principles of design and/or the attempted use of them subtracted from the work. The design choices made took away from the aesthetics of the piece.	The design does not demonstrate an understanding of the principles of design and/or the design choices severely lacked a sense of aesthetics.
Mechanics Spelling and Grammar	The design is free of spelling or grammatical errors. Clear attention to detail is present.	The design contains a few spelling or grammatical errors but those errors don't necessarily distract from the design. Adequate attention to detail is present.	The design contains a few spelling or grammatical errors and those errors distract from the design. Weak attention to detail is present.	The design contains many spelling or grammatical errors and those errors severely distract from the design. There is a severe lack of attention to detail.
Graphic Relevance Worth 10 points (raw score x2) <i>The elements of design are line, shape, form, color, texture, space, and value.</i>	The graphics effectively grab the attention of the audience, are effectively composed using the elements of design, and fit with the rest of the piece. All graphics submitted are created by you and you created at least 1 new graphic that wasn't already provided.	The graphics adequately grab the attention of the audience, are adequately composed using the elements of design, and/or mostly fit with the rest of the piece. All graphics submitted are created by you and you created at least 1 new graphic that wasn't already provided.	The graphics distract from the design, are weakly composed using the elements of design, and/or loosely fit with the rest of the piece. All graphics submitted are created by you and you created at least 1 new graphic that wasn't already provided.	The graphics severely distract from the design, are not composed using the elements of design, and/or do not fit with the rest of the piece. OR There are no new graphics or the graphics are not created by you.
Color choices <i>Color principles include color wheel theory, complementary, analogous, hue, etc.</i>	The design clearly and effectively demonstrates an exceptional understanding of color principles, a clear color scheme is present, and all of the colors add to the design.	The design adequately demonstrates an understanding of color principles, a color scheme is present, and/or most of the colors add to the design.	The design demonstrates a basic working understanding of color principles, it is difficult to distinguish a unified color scheme, and/or the colors distract from the design.	The design does not demonstrate an understanding of color principles, a color scheme is not present, and/or the colors severely distract from the design.
Layers On Adobe Photoshop, Adobe Illustrator, or GIMP	All of the layers are labeled and clearly and concisely express what is on the layer.	Most of the layers are labeled and/or the labels adequately express what is on the layer.	Many of the layers are not labeled and/or the labels make it hard to distinguish what is on each layer.	None of the layers are labeled, the labels do not relate what is on each later, and/or the design does not contain separate layers for different elements.
Use of Illustrator, Photoshop, or GIMP and Final Submission Submission Formats -Adobe Photoshop: PSD -Adobe Illustrator: PDF -GIMP: XCF	The design demonstrates an effective use of at least two different tools and/or panels in the program. All of the typography effectively relates to the graphics of the piece. The design is submitted in the appropriate format and effectively completes the prompt.	The design demonstrates an adequate use of at least two different tools and panels in the program and/or all of the typography adequately relates to the graphics of the piece. The design is submitted in the appropriate format and adequately completes the prompt.	The design does not demonstrate an adequate use of at least two different tools and panels in the program and/or not all of the typography relates to the graphics of the piece. The design is submitted in the appropriate format and attempts to complete the prompt.	The designer only used one tool to compose the piece, none of the typography relates to the graphics of the piece, and/or the design is not submitted in the appropriate format and does not complete the prompt.

Student Name: _____

Project Name: _____

Visual Design Evaluation Rubric

CATEGORY	4 Excellent Demonstration	3 Partially Demonstrated	2 Not Effectively Demonstrated	1 Not Demonstrated
Creativity	Excellent approach to original thinking and expression, with evidence of risk taking.	Competent development in expression of creative idea with evidence of risk taking.	Improved thinking and expression in development or creative idea but with limited risk taking.	Novice and restricted approach to developing the idea with no evidence of risk taking.
Craftmanship	Excellent understanding and application of artistic qualities: line, color, texture and balance in the use of materials. Good attention to detail.	Competent understanding and application of artistic qualities: line, color, texture and balance in the use of materials. Adequate attention to detail.	Improved understanding and application of artistic qualities: line, color, texture and balance in the use of materials. Little attention to detail.	Novice understanding and application of artistic qualities: line, color, texture and balance in the use of materials.
Composition	Demonstrated: Placement of Design Elements, Rule of Thirds, Emphasis: Center of Interest, Follows the line of the subject (horizontal vs. vertical), Balance of Positive & Negative Space, Distractions & Value Balance, A natural balance with arrangement.	Partially Demonstrated: Placement of Design Elements, Rule of Thirds, Emphasis: Center of Interest, Follows the line of the subject (horizontal vs. vertical), Balance of Positive & Negative Space, Distractions & Value Balance, A natural balance with arrangement.	Not Effectively Demonstrated: Placement of Design Elements, Rule of Thirds, Emphasis: Center of Interest, Follows the line of the subject (horizontal vs. vertical), Balance of Positive & Negative Space, Distractions & Value Balance, A natural balance with arrangement.	Not Demonstrated: Placement of Design Elements, Rule of Thirds, Emphasis: Center of Interest, Follows the line of the subject (horizontal vs. vertical), Balance of Positive & Negative Space, Distractions & Value Balance, A natural balance with arrangement.
Effort	Demonstrated Excellent: Degree to which an idea was developed, Attitude & Behavior in class & towards project, Use of daily class time, Preparation for class with attitude and materials, No absenteeism (or all work has been made up)	Partially Demonstrated: Degree to which an idea was developed, Attitude & Behavior in class & towards project, Use of daily class time, Preparation for class with attitude and materials, No absenteeism (or all work has been made up)	Not Effectively Demonstrated: Degree to which an idea was developed, Attitude & Behavior in class & towards project, Use of daily class time, Preparation for class with attitude and materials, No absenteeism (or all work has been made up)	Not Demonstrated: Degree to which an idea was developed, Attitude & Behavior in class & towards project, Use of daily class time, Preparation for class with attitude and materials, No absenteeism (or all work has been made up)

$$\text{Score: } \frac{\text{Your Rubric Pts.}}{\text{Total Rubric Pts.}} \times \frac{16}{\text{Total Project Pts.}} = \text{Your Score}$$

Assignment Evaluation

** Please note that each part of criteria indicates overall accomplishment of each discipline observed by the instructor during each class. Students will be graded as an average letter by each assignment and the final grade will be delivered within 2 weeks from the final critique. Also you may consult with the instructor for the improvement.

Evaluation Rubric

Criteria	Excellent (A -- A)	Above average (B -- B+)	Average (C -- C+)	Below Average (D -- D+)	Unsatisfactory (F)
Process	<i>Following instructions & Evidence of design process (Homework, class activity, final due)</i>	<i>Followed an excellent process from given guidelines/instructions without missing any due dates/activities.</i>	<i>Followed a decent process from given guidelines/instructions without missing any due dates/activities.</i>	<i>Followed the minimum requirement but missed due dates/activities.</i>	<i>Followed the minimum requirement, but a lack of materials.</i>
	<i>Visual & written research</i>	<i>Showed evidence with excellent visual and written research that influenced the final result efficiently.</i>	<i>Showed enough visual and written research that influenced the final result.</i>	<i>Showed minimum materials that influenced a part of final result.</i>	<i>Showed the minimum materials, but a lack of materials.</i>
	<i>Idea sketches</i>	<i>Showed excellent quality and quantity in sequential refinement. Procedure from thumbnail sketches to computer sketches is well done.</i>	<i>Showed a decent quantity in sequential refinement, needs to improve efficient quality in visual brainstorming.</i>	<i>Showed minimum requirement but needs to improve both quantity and quality in sequential refinement.</i>	<i>Showed minimum requirement (Quantity).</i>
	<i>Professionalism</i>	<i>Presented the design process and management with excellent preparation professionally.</i>	<i>Presented the design process and management with a good manner.</i>	<i>Presented the design process with necessary information, but a lack of professionalism.</i>	<i>Delivered only final outcome(s) with necessary information.</i>
Visual Creativity (Problem Solving)	<i>Critical thinking Process</i>	<i>Demonstrated excellent decision making process, innovative criticism and challenge.</i>	<i>Demonstrated a decent quality to show the evidence of innovative challenge.</i>	<i>Demonstrated decision-making process regularly, but need to improve innovative criticism.</i>	<i>Demonstrated only minimum requirement.</i>
	<i>Visual concept Development (Proficient visual literacy)</i>	<i>Showed excellent visual concept applied by proficient visual literacy for creative value.</i>	<i>Showed good visual concept satisfied with essential visual literacy.</i>	<i>Showed clear concept, but a lack of efficient visual literacy.</i>	<i>Showed only completed outcome without efficient visual concept.</i>
	<i>Aesthetic & Function (Clarity & Uniqueness)</i>	<i>Showed excellent visual hierarchy, dynamics, unique design with accurate communication methods.</i>	<i>Showed decent balance between aesthetic and function, visual information is unique as being distinguished with other designs.</i>	<i>Showed either aesthetic or function with communication methods, but a lack of efficient balance between clarity and uniqueness.</i>	<i>Showed only completed outcome and needs further steps for major improvements.</i>
	<i>Craftsmanship (Visual density)</i>	<i>Executed excellent visual density dealing with necessary detail information of graphic elements in time consuming.</i>	<i>Executed essential details showing evidence of visual density in time consuming.</i>	<i>Executed minimum requirement in completing assignment, but a lack of visual information.</i>	<i>Executed only minimum requirement in completing assignment.</i>
Finals	<i>PowerPoint (Document Report)</i>	<i>The final document is well organized with excellent materials and quality of presentation.</i>	<i>The final document is well organized with good materials and quality of presentation.</i>	<i>The final document is well organized with the minimum requirement.</i>	<i>The final document is organized with the minimum requirement, but a lack of quality and quantity.</i>
	<i>Critique Participation</i>	<i>Demonstrated excellent activities & manner during the final critique.</i>	<i>Showed interactive activities during the final critique.</i>	<i>Participated in the final critique in a passive way.</i>	<i>Participated only partially</i>
	<i>Submission Requirements</i>	<i>Submitted on time before the final critique date/time.</i>	<i>Final submission is 1 day late. (One letter grade down: A to A-)</i>	<i>Final submission is 2-3 day late. (Two letter grade down)</i>	<i>Final submission is one week late. (Three letter grade down)</i>

Failed the minimum requirement. "F" grade is based on overall assessment within evidence of academic learning disciplines. Any failure from each criteria may affect the overall grade per each assignment and final grade.

https://www.unlv.edu/sites/default/files/page_files/27/Provost-GDAssignment-SampleRubrics.pdf

This assessment form is an indication of your present level of accomplishment in areas vital to your success in the Communications Design Program. A rating in any category below 5.0 indicates an area requiring special attention if you want to succeed in the program. A cumulative rating below 4.0 indicates that, for whatever reason, you are not demonstrating the competencies and proficiencies needed to succeed in the program.

This assessment reflects the consensus of the entire faculty. It should become the agenda for your work during the rest of the semester or over the break. If you would like to discuss it further, contact any faculty member during their regularly scheduled office hours.

Roderick Martinez | Rebecca Kelly | Rachel Aubrey | Margaret Dietz | Meri Page | Marc Stress

SKILLS	1	2	3	4	5	6	7	8	9	10	
Process	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Type Indication	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Accuracy & Neatness	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Use of Materials	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Image Creation	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
DESIGN	1	2	3	4	5	6	7	8	9	10	
Clarity of Concepts	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Originality	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Layouts	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Typography	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Art Direction	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
PROFESSIONALISM	1	2	3	4	5	6	7	8	9	10	

KEY

Process: Problem definition, generation of ideas through thumbnails, roughs and final comprehensives.

Type Indication: Skillful representation of letter forms by hand or by computer.

Accuracy and Neatness: Meticulous and consistent attention to detail, quality, and craftsmanship.

Use of Materials: Use of most appropriate materials, tools, and processes for task.

Image Creation: Depiction and rendering quality of pictorial subject matter by hand or by computer.

Clarity of Concepts: Clear intentions and well-defined messages, free of ambiguities. Directed to proper audiences.

Originality: Is work new and unusual, or familiar and competent? Is the result surprising or predictable?

Layouts: Unity, continuity, and composition of all visual elements according to their order of importance.

Typography: Varied typographic voice, appropriate for specified audiences.

Art Direction: Effective conceptual and aesthetic use of imagery, photography, illustration, or other.

Professionalism: Enthusiasm, work ethic, response to criticism, attendance, classroom participation, presentation of work and meeting deadlines.

Important Note:
Process and Professionalism areas are only filled out by your professor of record.

BS Portfolio Review Rubric

Level 4: Meets all Level 3 criteria *plus* goes beyond exemplars provided in class and mere adaptation/reproduction.

Level 3: Demonstrates competence in all criteria; holistically integrates formal, material and conceptual qualities

Level 2: Meets some but not all criteria; or *minimally* meets all criteria.

Level 1: Does not meet criteria.

<i>Artworks in portfolio:</i>	4	3	2	1
1. Perceptual Acuity/Observational Skills: Uses acute visual observations to make decisions about the overall design and concept of the artwork; <i>and</i> displays understanding of visual perception				
2. Technical Competency: Demonstrates technical proficiency with the chosen medium; artwork consistently displays a high level of finish.				
3. Consistent, effective use of design principles: Demonstrates comprehensive understanding of basic design principles, formal relationships, and conceptual frameworks.				
4. Creative Problem Solving: Expresses complex ideas through an independent approach to the selection and manipulation of materials; <i>and</i> integrates concepts and contexts beyond the studio classroom.				
5. Critical Thinking; Asks critical questions about artistic processes and problems <i>and</i> demonstrates thoughtful investigation of concepts and media.				
6. Generates visual meaning/concepts: Communicates ideas that extend beyond the simple rendering of images and form.				



professional development

AIGA Portfolio Assessment Evaluation Criteria Pilot Year 2023

Evaluation Criteria	AIGA PD	AIGA DL
Ability to define problem/purpose/goals	2 points	4 points
Clearly presented problem/purpose/goals	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Demonstrated critical thinking skills	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Demonstrated leadership skills		<input checked="" type="checkbox"/>
Demonstrated strategic thinking skills		<input checked="" type="checkbox"/>
Ability to justify Creative Choices	4 points	6 points
Explained main creative choices made	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Articulated choices with user/customer/ business needs	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Explained how tested/ validated choices made	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Demonstrated creative problem solving skills	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Demonstrated leadership skills		<input checked="" type="checkbox"/>
Demonstrated risk taking in the design choices		<input checked="" type="checkbox"/>
Ability to explain Design Process	3 points	5 points
Explained process used (standardized; adaptation)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Demonstrated curiosity	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Designed for accessibility	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Demonstrated leadership skills		<input checked="" type="checkbox"/>

Shown initiative/risk taking		<input checked="" type="checkbox"/>
Ability to explain Research Insights	3 points	6 points
Shared insight gained while conducting research	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Explained methods used in the research	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Explained application of insight	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Demonstrated leadership skills		<input checked="" type="checkbox"/>
Demonstrated strategic thinking skills		<input checked="" type="checkbox"/>
Shown ability to assess and analyze information		<input checked="" type="checkbox"/>
Ability to communicate the value of Design	N/A	3 points
Articulated value brought to client or employer		<input checked="" type="checkbox"/>
Articulated impact brought to society more broadly		<input checked="" type="checkbox"/>
Demonstrated strategic thinking around outcomes		<input checked="" type="checkbox"/>
Ability to advocate for the team	1 point	2 points
Explained individual role and team roles	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Demonstrated collaboration skills		<input checked="" type="checkbox"/>
Ability to advocate for the discipline		2 points
Raised the profile of Design within organization/ client		<input checked="" type="checkbox"/>
Highlighted the value of the Design profession		<input checked="" type="checkbox"/>
Demonstrated professionalism¹	- 4 points	- 4 points
Demonstrated professionalism with quality of design work	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Shown effective communication (oral/written) skills	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
MAX POINTS	13 points	28 points
PASSING POINTS	9 points	20 points

¹ Potential deduction of points if not fulfill criteria

Appendix C: Design Rubric for Expert Assessment

EXPERT NAME:

DATE:

PARTICIPANT: #:

INSTRUCTIONS: First, thank you everyone for your participation in this research. Your expert opinions on these basic evaluations are very important. Although this evaluation lacks context and is different from how you all operate daily in your professional work, the insights we will get from your assessment is important.

The directions are straightforward. Please evaluate all work (one participant one piece per rubric provided here). There are six groups with roughly two-to-four pieces per group, so there would be a minimum of 12 sheets. "Please save as" with your initials and the participant letter and number (example RDKelly_A_3) Please put ONE X in one of the three categories, *below, meets or exceeds*, minimum proficiency. The minimum proficiency definitions are provided in the CRITERIA column and are based on the fundamental knowledge of graphic design skills. The three main categories are SKILLS (formal - how it looks, what it says, etc) DESIGN (more conceptual evaluation). All work is from professional designers so critical analysis and nuance assessment would be appreciated. This goal is an overall proficiency assessment and not a numerical or detailed evaluation for improvement purposes.

It is already understood that this is more of a formal evaluation with less conceptual context (if designers talked about their process or concept it will be provided), but do your best to judge all categories. If you have additional comments that support your findings please feel free to elaborate - your nuanced insight as professionals would be beneficial to the study.

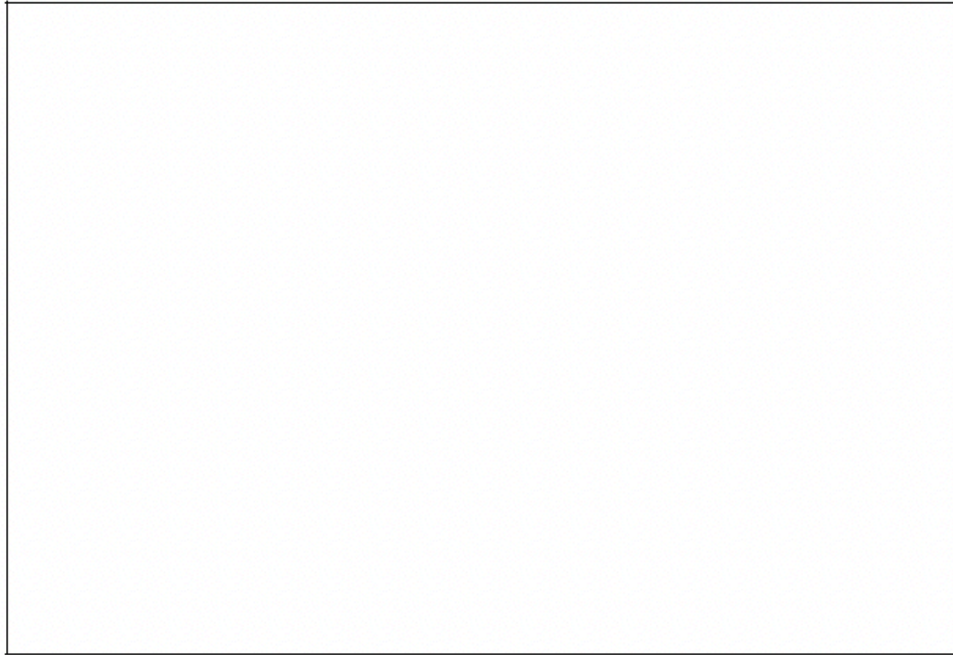
TECH	CATEGORIES	CRITERIA	BELOW MINIMUM PROFICIENCY	MEETS MINIMUM PROFICIENCY	EXCEEDS MINIMUM PROFICIENCY
SKILLS	FORMAL: HOW IT LOOKS	Ability to use basic design Principles / Elements to visually communicate a message and give meaningful visual form to content.			
		Principles of Design: Symmetrical/Asymmetrical or radial balance, movement and rhythm, pattern, harmony, emphasis (focal point), variety, unity, contrast and proportion /scale.			
		Elements of Design: Line, shape, form, color, value, texture, space.			
		Typographic Indication: proper selection and intention (legible)			
		Color: is color theory evident.			
		Composition/Layouts: All the separate elements come together to form a holistic and unified image. Type, color, image and ideas work together. Unity and continuity (clear hierarchy and path flow).			
	FORMAL:	Distinctly clear ability to form a			

	WHAT IT SAYS	coherent written/verbal message			
		Typographic voice: varied type voices, specific to appropriate audiences (readability)			
	FORMAL : UX/UI HOW IT FUNCTIONS	The design/user flow is realistic, obvious and thoughtful.			
DESIGN	DESIGN PROCESSES: Critical/Design Thinking	Ability to analyze or critically assess and research a problem, use design thinking and clearly demonstrate problem-solving skills. Evident or not evident.			
	Problem Solving	Ability to look at a problem from multiple perspectives, experiment, take risks and develop innovative visual solutions.			
	Communication	Typographic application: Ability to communicate visually and verbally in the work.			
		Typographic application: Ability to communicate visually and verbally in the work.			
		Color: A visible color concept.			
	Concept	Concept is evident			
	Creative Skills	A holistically attractive, effective and memorable design - from type, color, image, concept, layout etc.			
	Clarity of Concepts	Clear ideas, lacking ambiguity.			
	Original	The work is new, unusual and original. Innovative.			
	PROCESS : UX/UI	In their online presence, is there any written articulation about concept, user research, user flow or usability studies that inform decision making when creating the design.			

OVERALL ASSESSMENT	MEETS MINIMUM PROFICIENCY	EXCEEDS MINIMUM PROFICIENCY	BELOW MINIMUM PROFICIENCY

See below for the comments section.

OVERALL COMMENTS ON THIS WORK:



Appendix D: Initial Coding Organization Rounds Research and Research Assistant

Round One: Deductive/Inductive/PLE thematic organizing

WHO	STEP ONE:	RQ ONE and TWO	STEP ONE ONE	DED KEY WORDS:	DED KEY WORDS:	STEP ONE TWO	IND KEY WORDS	IND KEY WORDS:
INTERVIEWS	COMBINING INDUCTIVE AND DEDUCTIVE APPROACHES	RQ1 Drivers and Outcomes Impacts RQ2 Portfolio Differences Interpretations of Design Design Research Processes	DETERMINE A FEW KEY CATEGORIES TO SEARCH FOR			PRINCIPLE OF LEAST EFFORT RELATED	READ THROUGH DATA (FIND OLD / NEW CATS)	PRINCIPLE OF LEAST EFFORT RELATED
RESEARCHER			RQ1: Deductive	Why	PRO IHE	ease	RQ1: Inductive	Degree In Design threshold of acceptability
				Choices	NEG IHE	time		BFA minimal
				Expenses	Impact	cost		Freelance
				Easier	hiring	hard		Type of Designer
				On demand	content			location
				Job				Age/Sex/
				Career				Content
				Advancement				Value
				Excitement				No need for degree
				Ex				process
				Expectation				Project Relevance
				Money				What are they not learning.
			RQ2: Deductive	Definitions	What are you learning		RQ2: Inductive	Definition
				Processes	Not learning			Not learning
				Research				Design wider lens
				Concept				
RESEARCH ASSISTANT								
		QUESTION FOR MARCH 29TH	RQ1: Deductive	Location			RQ1: Inductive	Career Uncertainty
				Proximity				Career Certainty
				Financial Ability				Expectations from Others
				Pace/ Speed of Access				Expectations of Self
				Resources/ Help				Spontaneity
				Goal-Based				Difficulty/ Ease
				Enjoyment				Social Mobility
			RQ2: Deductive	Design as a Defined Concept			RQ2: Inductive	Neutral View of Self-Taught
				Design Synonyms				Blended Values
				Step-by-Step/ Concrete Process				Value on Concept
				Freeform/ Loose Process				Value on Aesthetics
				Research of Elements				Positive View of Self-Taught
								Negative View of Self-Taught
								Positive View of IHE
								Neutral / Mixed View of IHE
								Negative View of IHE

WHO	STEP ONE:	RQ ONE and TWO	STEP ONE ONE	DED KEY WORDS:	DED KEY WORDS:	STEP ONE TWO	IND KEY WORDS	IND KEY WORDS:
INTERVIEWS	COMBINING INDUCTIVE AND DEDUCTIVE APPROACHES	RQ1 Drivers and Outcomes Impacts RQ2 Portfolio Differences Interpretations of Design Design Research Processes	DETERMINE A FEW KEY CATEGORIES TO SEARCH FOR			PRINCIPLE OF LEAST EFFORT RELATED	READ THROUGH DATA (FIND OLD / NEW CATS)	PRINCIPLE OF LEAST EFFORT RELATED
RESEARCHER			RQ1: Deductive	Why	PRO IHE	ease	RQ1: Inductive	Degree In Design threshold of acceptability
				Choices	NEG IHE	time		BFA minimal
				Expenses	Impact	cost		Freelance
				Easier	hiring	hard		Type of Designer
				On demand	content			location
				Job				Age/Sex/
				Career				Content
				Advancement				Value
				Excitement				No need for degree
				Ex				process
				Expectation				Project Relevance
				Money				What are they not learning.
			RQ2: Deductive	Definitions	What are you learning		RQ2: Inductive	Definition
				Processes	Not learning			Not learning
				Research				Design wider lens
				Concept				
RESEARCH ASSISTANT								
		QUESTION FOR MARCH 29TH	RQ1: Deductive	Location			RQ1: Inductive	Career Uncertainty
				Proximity				Career Certainty
				Financial Ability				Expectations from Others
				Pace/ Speed of Access				Expectations of Self
				Resources/ Help				Spontaneity
				Goal-Based				Difficulty/ Ease
				Enjoyment				Social Mobility
			RQ2: Deductive	Design as a Defined Concept			RQ2: Inductive	Neutral View of Self-Taught
				Design Synonyms				Blended Values
				Step-by-Step/ Concrete Process				Value on Concept
				Freeform/ Loose Process				Value on Aesthetics
				Research of Elements				Positive View of Self-Taught
								Negative View of Self-Taught
								Positive View of IHE
								Neutral / Mixed View of IHE
								Negative View of IHE

Appendix D: Initial Coding Organization Rounds Research/Research Assistant

Round Two: Deductive/Inductive/PLE thematic organizing

THEMATIC ORGANIZING - FINAL RESEARCH and RESEARCHER			
RESEARCH QUESTIONS	MULTI-CODING FOCUS APPROACH		
RQ1: Drivers and Outcomes	Deductive	Inductive	PLE
Drivers	Expenses, Project Relevance	No need for a degree, Value,	Price, Time, Effort Cost
Outcomes	What they aren't learning	Assignments aren't relevant, can still be a designer wo degree	Threshold of acceptability, minimum
RQ1.2: Drivers and Outcomes Impact (IHE)	Deductive	Inductive	PLE
Drivers	Degree to Work preparedness	Assignment	
Outcomes	What are they not learning, Failure	Enrollment, Deeper thinking about design	

Round Three: Theme Categorizations (a more comprehensive view)

DEDUCTIVE	INDUCTIVE	PLE	CATEGORY	DRIVER	OUTCOME	IMPACT	RQ:
EXPENSES	CHEAPER WORTH THE COST	COST	PRICE (2)	X		IHE: ENROLL-MENT	RQ1 RQ1.2
TRAINING	CONTENT	THRESHOLD OF ACCEPTABILITY	FAILURE (23)		X	IND PRACTICE	
TRAINING	VALUE IHE		PRO IHE (32)	X			
EASIER	CONTENT	EASE	PLE (6)	X			
CHOICES /	+ - VALUE	COST/	THOUGHTS IHE (47)	X			

WHY		SPEED					
CHOICES / WHY	VALUE		JUSTIFY IHE (11)	X			
CAREER / ADVANCEMENT	TYPE OF DESIGNER	EASE SPEED COST	SITES CHANGING IND (40)		X	IHE IND	RQ1 RQ1.2
CAREER	HIRING		SITES CHANGING IHE (23)		X		
CAREER / ADVANCEMENT	FREELANCE		DRIBBBLE (41)	X	X	IND	RQ1
TRAINING CHOICES			LEARN (97)	X	X	how/ what they learn	RQ1 RQ1.2
			DESIGN RESEARCH (23)		X		
	Process		PROBLEMS W LEARNING ONLINE (41)		X	how/ what they learn	RD1 RQ1.2
	Process		USES FOR DRIBBBLE (101)		X	IMPACT IHE/IND	
Definitions			DEFINITION OF DESIGN (35)				RQ2.1
	No need for DesDeg		DESIGN WO IHE (31)	X			

Round Four: Initial Driver and Outcome Findings

RQ1:

What are the drivers and outcomes of DIY design as perceived by those who undertake it?

Drivers:

Decisions to choose DIY path:

Main Category: **Value of IHE**

- 1) Tied to Principle of Least Efforts (time, cost, effort)
- 2) IHE Issues - (47)
Assignments aren't relevant:
(Tied to dated projects)
- 3) Adaptation

Outcomes:

Decisions to choose DIY path:

Main Category: **A Career in Design is Possible without a IHE education:**

- 1) Learn alternative ways and can still be a designer
- 2) Where they are learning - Learn on social sites:
- 3) Preparation for the workforce

RQ1.2:

How do those reported outcomes impact the future of IHE?

(the expert review is the ultimate outcome in stage two of this project)

Outcomes:

What are those learners not learning?

Main Category: **Failure (positive and negative)**

Feedback (critique)

Thinking of design in a wider sense is valuable

- 1) Useability Will it Work - pro IHE (32)
- 2) How to Approach a Problem - pro IHE (32)
- 3) Importance of Concept - pro IHE (32)
- 4) Fundamentals - pro IHE (32)
- 5) Critical Thinking - Negs of IHE - (47)
- 6) Networking - Negs of IHE - (47)

How vs. why impacts

Appendix E: Research and Research Assistant Initial Participant Categories

Employment and Degree: *How does the guidance of a company / working for oneself alongside a degree/ self-taught create change?*

1. Freelance with design or design-related degree
2. Freelance with non-design degree
3. Freelance with no degree
4. Company with design or design-related degree
5. Company with non-design degree
6. Company with no degree

Experience (in years) and Degree: *How does experience in industry create change against initial degree earned?*

1. 1-2 years of experience with '0' in design degree column
2. 1-2 years of experience with '1' in design degree column
3. 3-5 years of experience with '0' in design degree column
4. 3-5 years of experience with '1' in design degree column
5. 6+ years of experience with '0' in design degree column
6. 6+ years of experience with '1' in design degree column

Design Training and Education Status: *"Untrained" as a designer versus "Trained" with some sort of design degree*

1. Untrained in design with no IHE degree
2. Untrained in design with IHE degree in non-related field
3. Trained in design with design-related degree (not a BFA)
4. Trained in design with BFA in design (according to national standards)

Follower Count and Degree: *Do Followers on Dribbble Reflect Skills Gained in Education?*

1. Low Dribbble followers, no degree
2. Low Dribbble followers with IHE degree in non-related field
3. Low Dribbble followers with design-related or design degree
4. High Dribbble followers, no degree
5. High Dribbble followers with IHE degree in non-related field
6. High Dribbble followers with design-related or design degree

Age and Degree Status: *Is there a noticeable difference of quality in someone who got their degree 5 versus 10 years ago / who are younger and self-taught versus older?*

1. Younger than 30, no degree
2. Older than 30, no degree
3. Younger than 30, degree in unrelated field
4. Older than 30, degree in unrelated field
5. Younger than 30, degree in design/design-related field
6. Older than 30, degree in design/design-related field

Simplified Type of Design (3) and "Trained" / "Untrained" Status

1. Illustrator, untrained in design
2. Illustrator, trained in design
3. UX/UI, untrained in design
4. UX/UI, trained in design
5. Graphic, untrained in design
6. Graphic, trained in design

Appendix F: First and Second Dribbble Study Education Background Studies

INTERVIEWS : DRIBBLE STUDY ROUND 1 : FORMALLY TRAINED (UNDERGRAD) : PRACTICING DESIGNERS						2017
#	GENDER	AGE	DESIGN DEGREE	TYPE	JOB TITLE	
1	M	24	X	MECHANICAL ENGINEER	DESIGNER	
2	M	28	X	BACHELOR INFORMATION MANAGEMENT	DESIGNER	
3	FM	31	X	BFA : VISUAL ARTS	DESIGNER	
4	M	18	X		DESIGNER	
5	FM	26	X	FINE ART / PAINTING	ILLUSTRATOR/ARTIST	
6	M	25	X	AUDIO ENGINEERING	DESIGNER	
7	M	25	YES	BFA : GRAPHIC DESIGN	DESIGNER	
8	FM	28	YES	BFA : GRAPHIC DESIGN	DESIGNER	
9	M	26	X	ELECTRICAL ENGINEERING	DESIGNER	
10	FM	34	X	BACHELOR : ART & SCIENCES (<u>COMP SCIENCE</u>)	DESIGNER/ <u>COMP SCIENCE</u>	
11	M	30	X	BACHELOR : DIGITAL COMMERCE	DESIGNER	
12	M	24	YES	BACHELOR : GRAPHIC COMMUNICATIONS	DESIGNER/ <u>MGMT</u>	
13	M	28	YES	BACHELOR : GRAPHIC ARTS	DESIGNER/VIDEO	
14	M	27	YES	BFA : ART AND DESIGN	DESIGNER/ <u>WEB/DIGI-TAL</u>	
15	M	23	X	<u>BIO</u> MECHANICS	DESIGNER/PRODUCT	
16	FM	21	X		DESIGNER	
17	M	24	X	<u>BIO</u> PHYSICS	DESIGNER	
18	M	23	X	ENGINEERING	DESIGNER / WEB	
19	M	32	YES	BACHELOR : DIGITAL DESIGN	DESIGNER	
20	FM	29	X	ENVIRONMENTAL DESIGN	DESIGNER	
21	M	27	X	ENGINEERING	DESIGNER	
22	FM	32	YES	BACHELOR OF SCIENCE : VIS COMMUNICA-TIONS	ILLUSTRATOR	
23	FM	28	X	BACHELOR : SCIENCE & ILLUSTRATION	ILLUSTRATOR	
24	M	21	X	BACHELOR : STUDIO ART	DESIGNER	
25	M	28	YES	BFA :	DESIGNER	
26	FM	27	X	BACHELOR : COMMERCE	DESIGNER	
27	M	30	X	BACHELOR : THEATER ART	DESIGNER	
28	M	38	YES	BFA :	DESIGNER	

Qualitative Numbers - 70% of Dribbble users are DIYD (Dribbble One Study: Interviews)

INTERVIEWS : DRIBBLE STUDY ROUND 2 : FORMALLY TRAINED (UNDERGRAD) : PRACTICING DESIGNERS '20-21					
#	GENDER	AGE	DESIGN DEGREE	TYPE	JOB TITLE
1	M	33	YES	BACHELOR OF ART: MULTI-MEDIA	DESIGNER
2	M	27	X	BACHELOR OF : RESOURCE COMMUNICATIONS	DESIGNER
3	M	51	X	TRAINING SCHOOL : FINE ART/DRAWING	ILLUSTRATOR
4	M	25	X		DESIGNER
5	M	23	X	FINANCE / ENGINEER	DESIGNER / UX/UI
6	M	33	YES	BACHELOR : GRAPHIC COMMUNICATION	DESIGNER
7	M	28	X	PSYCHOLOGY	DESIGNER
8	M	32	YES	DOUBLE MAJOR : DESIGN/PRODUCT	
9	M	28	X	BACHELOR SCIENCE : MARKETING	DESIGNER
10	F	29	X	BACHELOR : INDUSTRIAL / ENGINEERING	DESIGNER
11	F	26	X	?	ILLUSTRATOR
12	M	24	X	MECHANICAL ENGINEERING	ILLUSTRATOR
13	M	25	YES	BACHELOR : GRAPHIC DESIGN	DESIGNER/VIDEO
14	M	33	X	BA : CERAMICS	DESIGNER
15	M	23	YES	ASSOCIATES : DESIGN	DESIGNER
16	M	34	X	PRE-MEDICINE	CREATIVE MGR/DESIGNER
17	M	32	X	INTERIOR DESIGN	DESIGNER
18	M	34	YES	BFA : VISUAL COMMUNICATION	DESIGNER / WEB
19	M	32	YES	BFA : GRAPHIC DESIGNER	DESIGNER
20	M	28	X	BA : FINE ART	DESIGNER
21	M	33	X	PHYSICS	DESIGNER
22	FM	32	X	BA : GRAPHIC DESIGN : CONCENTRATION : ILLO	ILLUSTRATOR
23	FM	24	X	SOFTWARE ENGINEER	DESIGNER
24	FM	29	X	BA : FINE ART : PAINTING	DESIGNER/ PRODUCT
25	M	29	YES/X	BFA : COMMUNICATION SCIENCE	DESIGNER
26	M	33	YES/X	BFA : GRAPHIC DESIGNER : /NON TRADITIONAL	DESIGNER
27	M	31	YES/	BFA :	DESIGNER
28	M	29	X	BFA : ILLUSTRATION	DESIGNER/ILLUSTRATOR
29	M	32	YES	BFA :	DESIGNER
30	FM	29	X	ECONOMICS	DESIGNER

Qualitative Numbers - 70% of Dribbble users are DIYD (Dribbble Two Study: Interviews)

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Author : **Rebecca Davis Kelly** : Assistant Professor
Communications Design : School of Design : College of Visual and Performing Arts : Syracuse University

Education

Degrees Awarded

DPS	Spring : 24	Doctor of Professional Studies, Information Studies	Syracuse University
MFA	Spring : 05	Master of Communications Design	University of North Texas
BFA	Spring : 94	Bachelor of Communications Design	University of Texas at Arlington

Areas of specialization : research, ux/ui, data analysis, digital visualization, critical thinking, design thinking, conceptual thinking, public speaking, presentations, lectures, branding, strategy, creative methodologies, design pedagogy communications/graphic design, advertising/art direction

Professional Summary : Worked for thirty years as a professional designer and nearly twenty years teaching communication/graphic design in higher education preparing students for a long term career in this profession.

ACADEMIC BACKGROUND (overview)

Teaching:

Tenured faculty at Syracuse University in the Communications Design program in the School of Design. Before that, was tenured at another institute of higher education in design. Prior to that position, was tenure track at another R1 institution with a trajectory for a successful tenure application. Focuses in teaching design are design thinking, design problem solving & innovation and conceptual development.

Research:

Areas of research focus on impact of learning design through social media platforms, future work, evolution of higher education and innovation in pedagogy.

ACADEMIC AWARDS

Teaching/Research Awards:

Work in both teaching and research was awarded at all three institutions of higher education. Was awarded the Chancellor's Award for Outstanding Contributions to the Student Experience and University Initiatives (2019-2020), Teacher of the Year (2017) and Junior Researcher Award (2007)

ACADEMIC SCHOLARLY ACTIVITIES

Presentations at international conferences for a global audience in England, Spain, Scotland, etc., and at renowned institutions such as Harvard and Oxford. Activities also include journal articles, conference proceedings, chapters in books, and grants.

PROFESSIONAL EXPERIENCE

Professional/Client Work:

1998-Present

Partner/Creative Director : Pixel Pushers, Inc.

Clients range from large Fortune 500 international organizations to national and regional/local clients and specialty industries such as food and beverage, education, gaming, health care, products and services.

International Children's Book Co-Author:

Co-author for four children's book for two international publishers. The books' main initiatives are to support girls as heroines and normalizing girls in the STEM fields. Also tour and lecture through readings to schools about the work and process of graphic design and writing a book.