Curriculum & course design

preparing graphic design & visual communication students

by

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DEDICATION

I dedicate my thesis work to my loving wife Laura, without her support I would not have made it this far. I also want to give special thanks to my many wonderful friends who have supported me throughout my education. I would like to show my greatest appreciation to my father-in-law, Mel Hawkins for his help proof-reading and editing the following words. Lastly, I would like to thank and remember my grandfather, Robert Stough – without his interest and support I would have not been so driven in my education.

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NOMENCLATURE

AIGA	American Institute for Graphic Design
CLE	Continued Learning Education
CSS	Cascading Style Sheets
IRB	Institutional Review Board
NASAD	National Association of Schools of Art and Design
UCD	User-Centered Design
UI	User Interface
UX	User Experience

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ABSTRACT

For a majority of undergraduate design students, their education will lead them to a professional career in professional design practice. It is important to understand how that outcome is connected with a design education. Graphic design and visual communication students are taught differently from university to university, college to college. The intent of this thesis is to fully understand curriculum and course design and how each can be best modified to allow for changing practices in the industry as well as constantly changing technology. There is great importance in understanding the needs for a design education as well as the needs for what that design education offers students.

A recursive method of curriculum and course design would allow for more frequent changes in a design education, allowing for flexibility in a student's education. Additionally, an assessment tool can be developed to regularly capture the needs of the industry and to collect data on where recent graduates of design programs feel they would have benefited from more education. How much of a design education should be taught in school and how much should be left up to experiential learning?

CHAPTER I

INTRODUCTION

Foreword

Throughout this paper the programs of “graphic design and visual communication” will be discussed. For the remainder of this paper, “graphic design and visual communication” will be referred to as “design”. When discussing the word ‘design’ in any other definition, the definition will accompany it explicitly.

Introduction

Design students are taught differently from university to university, college to college. The intent of this review is to fully understand curriculum and course design and how each can be best modified to allow for changing practices in the industry as well as constantly changing technology. There is great importance in understanding the needs for a design education as well as the needs sought of entry-level designers in professional practice. For a majority of design students, their education will lead them to a career in professional design practice (from here on referred to as “the industry”). It is important to understand how a design education contributes to that outcome. Is it the purpose of a design program to prepare students for industry? Is it our purpose as educators to prepare students for life practices? Or, is it our purpose as educators to provide students with a design education paralleled with the school’s curriculum, attempting to instill in the students the skills and tools they may need for practicing the trade of design?

Some may take offense in referring to design as a trade, however the U.S. Department of Labor’s Index of Occupational Trades, officially classifies the practice of design as a “trade” not requiring college study (Heller, 13). If there is no need to study design in college why are so many programs expanding due to more students trying to get into their programs? This may speak more to the need of learning design history, methodology,

theory, and practice through practical application and from educated and experienced individuals rather than through learning tools available on the internet and/or through self-motivation. Or it may suggest that most design students are unaware of there being no specific need for them to be enrolled in their current choice of education.

This thesis focuses on undergraduate design education over graduate education because of the assumed level of professionalism and preparedness associated with graduate students. To be accepted into a graduate design program a student must first apply, demonstrate a proficiency in design, submit a portfolio representing quality of work, and, after faculty review, be accepted into the program.

Interest in this topic stems from personal experience in the industry of having felt both feeling unprepared professionally while communicating with clients, design managers, and peers, as well as seeing the same traits when managing entry-level designers who were unprepared technically and professionally. There is a need to prepare undergraduate design students for the realities of the marketplace and level of expectations against which they will be evaluated in the industry. How do we as educators translate these needs into curriculum and course design? There should also be an understanding that only so much can be taught before the student actually has to experience for himself or herself, learning both from the successes and failures of that experience; referred to as 'experiential learning' or 'experiential education'. How much of a design education should rely on graduates learning through experience on-the-job and how much should we choose to add to our curriculum and course design?

The following section represents the literature reviewed when researching this topic. The following section includes a discussion of five major themes: **defining curriculum**; the history of curriculum, development, methodology and practice; **how design has been and is currently being taught** at design schools, colleges, and universities, and looking at those past and current universities to inform what made/makes them stand out and what external forces allowed for them to thrive and be looked upon as a 'good' design

education; **the challenges of a design education**, evaluating the current practice of a design education; **how to evaluate the needs of the industry** and assess the design curriculum to incorporate professional and best practices, current trends, and current technologies; and ideas of **how to reform design curriculum**. While these themes represent many views and opinions, some potentially unpopular in comparison to current practice, this thesis will primarily focus on how to further the field of design education, examining how to better prepare undergraduate students for employment post-graduation, and whether or not this preparation in undergraduate education is ultimately necessary.

CHAPTER II

LITERATURE REVIEW

"Teaching cannot be repeated in its most valuable moments – when we succeed in touching a student's innermost core and striking a spiritual light."

– Johannes Itten, *Design and Form; The Basic Course at the Bauhaus*

Curriculum for graphic design and visual communications students is taught differently from university to university, college to college. The intent of the literature review is to understand curriculum and how it can be best designed to allow for changing practices in the industry as well as constantly changing technology.

Curriculum Definition

The general understanding of curriculum it that it refers to 'what' schools should be teaching – but there is more depth to the definition of curriculum than the basic concept of 'what'. The Latin root of curriculum means "race course" (Marsh, 6) or "a course to be run" (Wiggins, 36). Marsh defines the term 'curriculum' in five different ways. Only three of Marsh's five definitions and insights into the problems caused by the definitions are relevant to higher education, the topic focused on in this paper. In *Curriculum: Alternative Approaches* (1995), the three definitions relevant to our discussion are:

"Definition 2: Those subjects that are most useful for living in contemporary society" (Marsh, 7). Marsh suggests that this definition has issue with the focus of value on "contemporary society", assuming that what has come before has less value. It could be argued that this same comment could be made against the argument for modernizing design education based on the current or contemporary needs of the industry – however, to truly understand design, as with any topic, one must first understand the history of design and what has come before.

"Definition 3: All planned learnings for which the school is responsible" (Marsh, 7). Marsh finds fault in this definition in the word "learnings". This assumes that everything that is taught or studied is learned. A good suggestion might be to refine this definition of curriculum to be: All planned *education* for which the school is responsible, implying that it is up to each individual learner to be responsible to learn what is taught.

"Definition 4: All the experiences learners have under the guidance of the school" (Marsh, 8). The issue that Marsh finds in this definition is that "all" implies both good and bad experiences. This definition is murky at best, especially in a higher education setting, where universities cannot manage all experiences. "The guidance of the school" is vague as well – should curriculum continue outside the classroom? Outside the school? One argument might be that a department is only responsible for what the student does while in class. But then what about the experiences from homework, deadlines and research; typical activities that take place or influence outside of classroom activities?

The concept of 'curriculum' is far too detailed to sum up in a one-sentence definition as suggested in Marsh's interpretations. Curriculum expert Elliot Eisner, in his book, The Educational Imagination (1985) discusses the five orientations of curriculum that have been conceived:

1. Development of Cognitive Processes: Educate students how to learn to learn and how to strengthen their "intellectual faculties" (Eisner, 62).
2. Academic Rationalism: Educate students "in those subject matters most worthy of study" (Eisner, 66).
3. Personal Relevance: Educate students in what they are interested in learning as defined by teach-student collaboration (Eisner, 69).
4. Social Adaptation and Social Reconstruction: Educate students to "take their place in the social order (Eisner, 74)", or to "become aware of the kinds of ills that the society has and become motivated to learn how to alleviate them" (Eisner, 76).
5. Curriculum as Technology: Education is viewed as a product and education should

> be a means to this product (end). The ends are defined and evaluated by the school. Eisner notes that this orientation "has a long history in education", with its historical interest in curriculum professionals like Benjamin Bloom, Franklin Bobbitt, John Dewey, Ralph Tyler and others (Eisner, 80).

Each orientation is a two-sided coin, both with its values and downfalls. Eisner reflects on what makes each orientation similar, discussing "The Three Curricula That All Schools Teach" (Eisner, 87). In Pamela Bolotin Joseph's book, *Cultures of Curriculum* (2012), she too reflects on understanding curriculum as suggested by Eisner, considering his *Explicit*, *Implicit* and *Null* aspects of curriculum.

Explicit curriculum is the "publicly stated goals of education" (Joseph, 5), or rather, the printed mission statement, methods and goals that a school or department may produce, publish or post on their website. Implicit curriculum is, as stated in Marsh's "Definition 3" above, is all of the learning that goes on outside of the stated curriculum, encompassing both the positive and negative aspects of a school or a program (Eisner, 88-97).

In Ronald C. Doll's book, *Curriculum Improvement* (1996) he accounts an example of the differences between explicit and implicit curriculum through a fictional conversation between a visitor and a principal:

> "Let me show you our curriculum," said the principal to the visitor in his school. Proudly, the principal removed from his desk a mimeographed document that told teachers what to teach, subject by subject.
>
> The visitor scanned the document and replied, "Now let me see your real curriculum."
>
> "What do you mean?" the principal asked.
>
> "I mean that I must spend at least a few hours in your school. I need to visit several classrooms at random. I want to stand aside in hallways as the children move through them and wander through the cafeteria while

> children are eating and while they're talking freely. If an assembly program is scheduled for today I want to attend it. And I'd like to visit the library and then follow the children out to the playing field while they're under a teacher's supervision and while they're on their own. By doing these things, I'll at least get a limited view of your *real* curriculum." (R. Doll, 357)

Null curriculum, as defined by Eisner (97-107) and summarized by Joseph, is the information that is "systematically excluded, neglected, or not considered" (Joseph, 5). This includes teaching a limited view of a topic, only presenting the popular or influential view. An example of null curriculum in design would be teaching to one specific style, artist or method of craft without mentioning or promoting other avenues of thought or possibilities relevant to design and its history.

Is curriculum simply a "course to be run", a series of gauntlets to be attempted and conquered (Wiggins, 36)? If this is the case, perhaps the true definition of curriculum is the accomplishment at the end of this "race course" (Marsh, 6). As Grant Wiggins and Jay McTighe discuss in, *Schooling by Design*, perhaps each school should define their results, setting the bar first, and then, by working backwards, write their curriculum (Wiggins, 37). This is most directly related to Eisner's 5th orientation, Curriculum as Technology, defining the ends and developing the means, or rather courses, for the transfer of "desired performances" (Wiggins, 42).

If the goal of a design education is to prepare students for entry-level positions in the design industry, combining Eisner's orientation 4, "Social Adaptation and Social Reconstruction" and orientation 5, "Curriculum as Technology", shouldn't we be "framing curriculum around performance goals" (Wiggins, 44) creating an experience for undergraduate design students where a "desired performance" is defined by both industry and educators that students are working towards? Wiggins relates this type of curriculum theory to athletics, comparing coursework to practice and "drills" and "the game" to immersive learning (Wiggins, 46). Wiggins suggests that, while both are important in the

learning process, “do”-ing a subject has more benefit than simply learning how to “do” (Wiggins, 46-47).

It becomes clear that defining ‘what is curriculum’ is unclear. The definition lies in each academic institution, college, and department separately. Purpose first needs to be defined, as suggested in Eisner’s five orientations. Considerations need to be made looking at what the explicit goals of the curriculum are, how and what implicit outcomes might affect the stated curriculum goals and what null topics should be addressed, like, what is left out; why is it being left out; and, should we incorporate more? In a later section we will examine how limited resources and time affect curriculum. Perhaps the discussion should be on creating a standard for curriculum? From Wiggins, “We maintain that the curriculum is only truly finished when it meets explicit design standards and has proven effective with learners” (Wiggins, 107).

History of Curriculum

The concept of curriculum design began in the 1890s with the discussion of how to provide everyone with an equal education (Marshall, 4). Three of the early curriculum scholars arose around the turn of the century, John Dewey, Franklin Bobbitt and Maria Montessori (Flinders, 7). However, each scholar had a drastically different view of the definition of curriculum.

Right around the turn of the century, John Dewey, a philosopher and educational reformer looked at the topic experimentally. “Dewey’s pedagogical process included identifying individual student interests, encouraging students to share these interests within a community of learners, excavating common human interests, tapping a broad array of experimental resources as precedent, and drawing on the fund of written knowledge in pursuit of original interests and the discovery of new interests” (Marshall, 6). Dewey suggested “children require the ‘psychological’ organization of subject matter,

moving gradually toward adult modes of understanding associated with formal school subjects" (Flinders, 10-11). Dewey believed that education and community went hand-in-hand, and that lessons learned in school should be taken outside of the classroom into society. Dewey is noted as being one of the first to set an "intellectual tone and direction" for curriculum design (Eisner, 10).

Maria Montessori focused on structuring school for the individual student. Educators would have the role of scientist and observer, much like a botanist in the field, tailoring the education per student and reporting on their findings (Flinders, 9, 24-28). Montessori believed that talents should be nurtured. She writes, "Everyone has a special tendency, a special vocation, modest perhaps, but certainly useful. The system of prizes may turn an individual aside from this vocation, may make him choose a false road, for him a vain one, and forced to follow it, the natural activity of a human being may be warped, lessened, even annihilated" (Flinders, 10).

Franklin Bobbitt's approach was to survey adults that work in the industry to see what they know and what they know how to do. Bobbitt's intent was to create a systematic procedure for teaching students the needs for the industry more efficiently (Flinders, 8; Eisner, 10). Bobbitt believed in "maximizing output (i.e., student learning) at minimum cost (i.e., paying teachers)" (Flinders, 8). He cited that curriculum of the time was outdated. His curriculum would also focus on "the shortcomings of children and men" developing things like grammar and spelling as well as preparing students for being part of the labor force after graduation (Flinders, 17).

Towards the middle of the 20th century, there arose a new group of curriculum theorists; the most notable was Ralph Tyler. From 1933 to 1941 a group of curriculum theorists conducted what is known as "The Eight Year Study" (Marshall, 8). The study was conducted by notable curriculum advocates of the time, such as Franklin Bobbitt. Tyler was appointed to lead the evaluation committee for The Eight-Year Study, which was created to analyze progressive view, individual-centered curriculum. The study followed a "group

of students through four years of secondary school and four years of college" (Marsh, 68). "The Eight-Year Study seemed to demonstrate that individual-centered curricula were at least as good a preparation for college as was the traditional subject-centered curriculum and an even better preparation for life in general" (Marsh, 68). The results of the Eight-Year Study were not published until 1942 and the study was ignored for the most part because of America being in the depths of World War II (Marsh, 69). However, the study did help to bring Tyler "into prominence among curriculum specialists" and created an interest within the curriculum theory world about progressive curriculum (Marsh, 69).

Tyler wrote *Basic Principles of Curriculum and Instruction*, published in 1949, which is said to be the most influential piece of literature written on curriculum studies (Flinders, 65-66; Eisner, 11). Tyler's work was created with Bobbitt and Dewey's theories in mind, both very structured and scientific needs assessments to reach their goals (Flinders, 66; Eisner, 10; W. Doll, 52). Tyler echoed Bobbitt's emphasis on the importance of objectives in curriculum development because "they are the most critical criterion for guiding all the other activities of the curriculum maker (Eisner, 11). The book Schooling by Design quotes Tyler:

> The purpose of a statement of objectives is to indicate the kinds of changes in the student to be brought about so that the instructional activities can be planned and developed in a way likely to attain these objectives; that is, to bring about these changes in the student. Hence, it is clear that a statement of objectives in terms of content headings… is not a satisfactory basis for guiding further development of the curriculum. (*Basic Principles of Curriculum and Instruction*, pages 45-46, quoted in Wiggins, 20)

In Tyler's book, *Basic Principles of Curriculum and Instruction*, he developed what became known as the 'Tyler Rationale', a method for considering curriculum. Tyler writes, "The rationale developed here begins with identifying four fundamental questions which must be answered in developing any curriculum and plan of instruction. These are:

1. What educational purposes should the school seek to attain?
2. What educational experiences can be provided that are likely to attain these purposes?
3. How can these educational experiences be effectively organized?
4. How can we determine whether these purposes are being attained?"

(Flinders, 69; Eisner 12; W. Doll, 52)

From its publication in 1949, The Tyler Rationale continues to be influential to curriculum theorists. Eisner suggests that the reason behind this is the simplicity and straightforwardness of Tyler's concepts. "Although it embraces no particular view of education, the technical procedures it prescribes are bound to have consequences for what individuals trained to use this rationale will come to consider professionally adequate decision making in curriculum" (Eisner, 12). However, professional educator and modern curriculum theorist William E. Doll, Jr. calls The Tyler Rationale "general, fuzzy or vague" (W. Doll, 53). Regardless of feelings towards Tyler and his Tyler Rationale, his philosophy continues to be heavily influential on future curriculum theory (W. Doll, 54; Eisner, 12; Flinders, 67).

In 1960, Jerome Bruner published a report called, *The Process of Education*. Bruner, a cognitive psychologist (Marshall, 46), noted three important principles. First, students "will learn more effectively if they discover ideas for themselves" rather than being told (Flinders, 66). Second, students "are capable of engaging in authentic intellectual activity from an early age" (Flinders, 66). And third, students should "focus on the structure of disciplines, how things are related, rather than on acquisition of mere information" (Flinders, 66). Bruner believed that students would benefit more from discovering information rather than being presented with information (Marsh, 344). Studies of students learning using this method show that "students learn more, learn more quickly and meaningfully, forget less rapidly, find learning enjoyable, and are able to transfer what they learn to new situations" (Marsh, 244).

Bruner believed that "everyone thinks in similar ways; therefore, a curriculum could be intellectual, academic, and much the same for everyone" (Marsh, 344). In Burner's later book, *The Relevance of Education* (1971), he goes on to say "…any subject can be taught to anybody at any age in some form that is both interesting and honest. Once mastered in that appropriate form, the learner can go on to more powerful, more precise forms of knowing and of using knowledge. It is already reasonably clear that this can be done in mathematics and science – though we are very, very far from doing it well. But it is also the case that reading simpler poetry brings more complex poetry and reach, or that reading a poem once makes the second reading more rewarding" (Bruner, 18).

This idea is called 'transfer'. Transfer is the ability to learn and apply knowledge to other situations. The idea of transfer is echoed in the previous mentioned curriculum theorists, relating directly to Bruner's idea of a "spiral curriculum" where concepts are "revisited in subsequent years with increased sophistication" (Marshall, 46). For example, design students may be taught the concepts of design principles in their foundation year and asked to create several projects focusing only on one principle. The following year design principles are revisited, reinforced and realigned to a new series of projects, this time combining the principles in different ways. This would be repeated the following years of schooling varying the project but keeping the underlying concept similar with the complexity increasing each time the student encounters the concept. In Schooling by Design, this transfer principle of Bruner's is called 'recursive' (Wiggins, 52). Wiggins' further expands on Bruner's spiral concept: "In an education for understanding and transfer, the curriculum would spiral in two ways: (1) courses and units would be organized around a few cornerstone disciplinary tasks, toward which all teaching and learning would be focused and prioritized; and (2) the same essential questions would recur, in different forms, over the course of the entire education" (Wiggins, 52).

Bruner was also the first to propose a division in curriculum into Monday, Wednesday, Friday classes and Tuesday, Thursday classes. The purpose for this separation

was so that the Tuesday, Thursday curriculum could be experimental such as, "seminars, political analyses, the development of position papers on school problems, 'problem–finding' in the local community, you name it. Let it be as controversial as it needs to be" (Bruner, 117). Monday, Wednesday, and Friday classes would continue to function using the programs that had proved successfully in the past. This could mean that an experimental Tuesday, Thursday class, after a successful trial period, could become part of the standard Monday, Wednesday, Friday curriculum.

The 1960s also brought the 'Curriculum Reform Movement', started by the United States Federal Government in response to fears that teachers did not understand the subjects they taught. This was coupled with the fear that the United States was falling behind in education, specifically the sciences, which had been called to attention after Russia's launch of Sputnik (Marsh, 344-345). A partial goal of the Curriculum Reform Movement was to 'teacher-proof' curriculum, which was contrary to Bruner's three important principles (Marsh, 345); allowing students to discover information for themselves, exposing students to many ideas and structuring a subject.

Modern curriculum theorists tend to align themselves with the theories listed above, adding their own modern twist. For example, William E. Doll Jr., in his article The Four R's – An Alternative to the Tyler Rationale responds to Tyler's fundamental questions with his own value scale in *The Curriculum Studies Reader*:

Richness – a curriculums depth of meaning;

Recursion – the complex structures that support critical reflection;

Relations – the intersecting of curriculum and cultures, and

Rigor – a commitment exploration (Flinders, 240).

These four R's, created by William E. Doll Jr. (whom I will refer to as 'W. Doll' so as to not confuse him with Ronald C. Doll, no relation), were created as both a response to the 3 R's of education – Reading, wRiting, and aRithmetic – as well as a response to the Tyler Rationale. W. Doll's discussion on Richness offers a variety of offerings to

students, reflecting concepts of Montessori-ism, tailoring the educational experience to the individual student. Recursion relates to Bruner's recursive, spiral curriculum or learning through transfer. The purpose of Relations is to relate pedagogy to real-world connections (Flinders, 270). In design, this could be relating classroom interactions back to industry practices, design practices, and best practices; also tying into professionalism and understanding real-world design industry skills. The last 'R', Rigor, relates to ensuring understanding of the message through demonstration.

There are many prominent modern curriculum theorists. The two that are frequently compared to the likes of Tyler are Decker Walker and Elliot Eisner. In the late 1960s and 70s, Walker studied how curriculum projects were developed, seeking to demystify the curriculum planning process. His method was called the 'Naturalistic Model' "because he wanted to portray how curriculum planning occurred in practice, in contrast to other approaches that prescribe how curriculum planning should occur" (Marsh, 20). His method breaks curriculum creation up into three phases. The first phase, 'Platform', allows for a large group of instructors to bring all of their ideas and concerns to the table and to all have equal input through discussion. When the group reaches a consensus of the platform, the process moves on to the next step, 'Deliberation' (Marsh, 21). Deliberation calls for instructors to identify any problems that may arise with the platform and modify. Marsh notes that there is not a definitive line between phase one and two (Marsh, 21). Phase three, 'Design', is for the creation of materials to execute the curriculum. Walker's intent is to "accurately portray what actually happens during curriculum planning" (Marsh, 22). The weakness in this approach is that it only looks at the planning phase of curriculum and not the execution (Marsh, 23). Walker's Naturalistic Model can be seen in Figure 1.1 on page 16.

In the 'Curriculum Definition' section, we previously discussed Eisner's "The Three Curricula That All Schools Teach", *Explicit*, *Implicit* and *Null* (Eisner, 87), as well as his five curriculum orientations. In addition, Eisner outlined an 'artistic', as in the 'art of teaching',

approach to curriculum planning (Marsh, 24):

1. Goals and their priorities
2. Content of the curriculum
3. Types of learning objectives
4. Organization of learning opportunities
5. Organization of content areas
6. Mode of presentation and mode of response
7. Types of evaluation procedures

Like Walker and Tyler, Eisner has developed a method for a group of individual educators to come together to achieve an effective curriculum. However, Eisner is more detailed in his methods than Tyler (Marsh, 25). Eisner points out a difference in "planned curriculum" and "enacted curriculum", while the curriculum has been designed (planned), educators "have the responsibility of transforming the content into forms that are appropriate for students" (enacted) (Marsh, 26).

Eisner defines 'aims', 'goals', and 'objectives' of education. "He considers 'aims' to provide the general direction of education and a set of values, 'goals' to be more specific statements of intent, and 'objectives' to be the most specific statements of all" (Marsh, 25). 'Aims' would be more explicitly defined, such as in a mission statement of a school or department. 'Goals' a more refined level of what will be taught, more on a class or course design level, and 'objectives' to be defined on a project-by-project basis. The purpose of a mission statement and curriculum is to tie the pedagogy of the entire department together into one concept (Wiggins, 27). To begin any curriculum redesign, it is important to first understand the objectives the department is trying to impart to the students. These objectives should be combined into a detailed mission statement that will govern the curriculum and course design for the department (Figure 1.2, Page 18).

Eisner's step 'Types of evaluation procedures' considers not only the evaluation of student, such as testing, but also the continued re-evaluation of the curriculum. Eisner

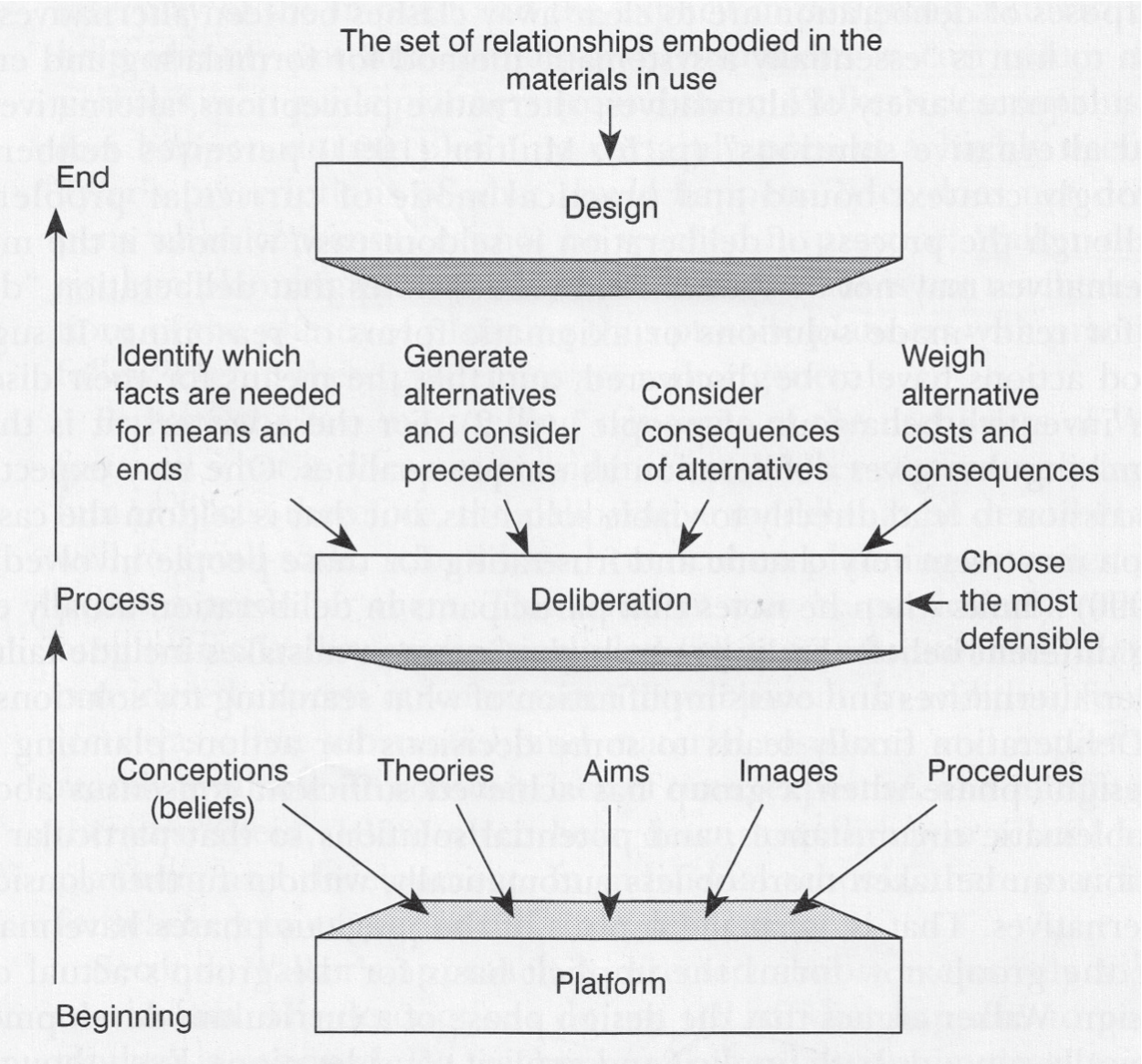


Figure 1.1 – Walker's Naturalistic Model *– Source: March, page 21*

believes that this approach "demands that many of the most important decisions about the curriculum be made in the classroom by the teacher who enacts it and who observes how students experience it" (Marsh, 28).

How Design Has Been Taught/is Currently Being Taught

Methods for Teaching Design

Warren Lehrer, a design educator, points out that design education is relatively new, "Graphic design was forged in early twentieth century out of revolutionary art, literary, cultural, scientific, and political movements. It developed as a professional art practice imbued with the ideals of making a better world" (Heller, 75). In most cases, graphic design is currently being taught using the apprenticeship model, where students learn from an experienced designer, mirroring their work until the student can go off on their own (Davis, speech). This model is based on "individual performance, ownership and the belief in control" (Davis, Speech). In addition, schools and departments have their own responsibility to show high pass rates for their classes as well as a high rate of their students being hired post-graduation (Giloi, 257).

All schools, not just those who teach design, use one, or a combination of the following curriculum models: Heritage-based curricula, Thematic-based curricula, Competency-based curricula, Career-based curricula, Experience-based curricula, Student-based curricula, Value-based curricula, and Future-based curricula (Chickering, 87). Of the design schools that have influenced how design is currently being taught, the Bauhaus seems to have encompassed most of the curriculum-based models Chickering mentions.

Bauhaus

The Bauhaus, a design school started in Germany from 1919 to 1933, and re-imagined

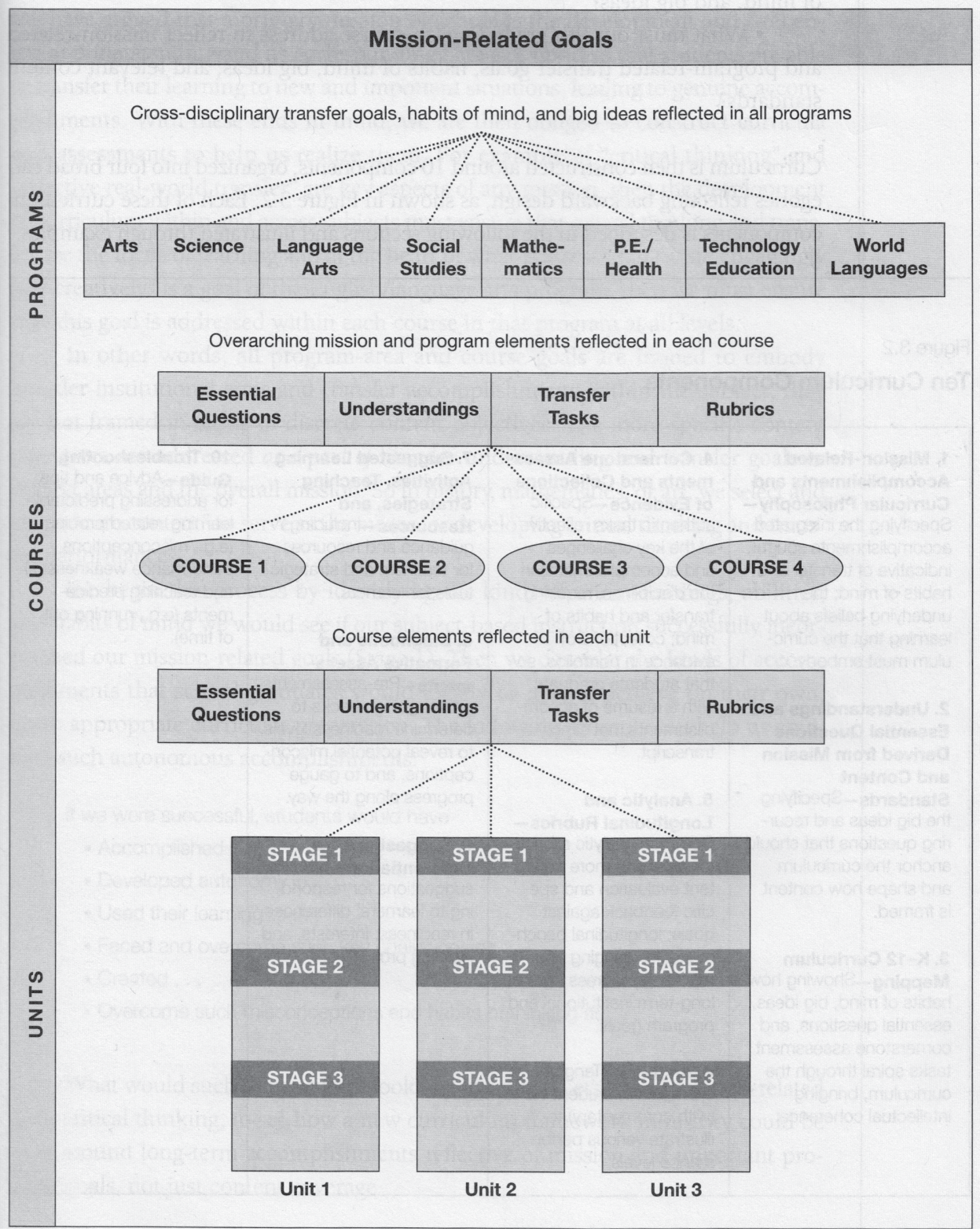


Figure 1.2 – K-12 Mission-Based Curriculum Framework *– Source: Wiggins, page 59*

as the New Bauhaus (later Illinois Institute of Technology) in Chicago from 1937 to the present, has been praised as a "revolutionary School model that contributed much to design education" (Heller, 5). The primary objective of the Bauhaus "was not the creation of coveted streamlined classics but the establishment of a new pedagogical model, one that saw the design in terms of social and material problem-solving" (Tallman). Walter Gropius, an architect and head of the Bauhaus, said that his intent of the Bauhaus School was to create "A new Guild of craftsmen without the class distinctions that raise an arrogant barrier between craftsmen and artists." The school was meant to build the future, "combine architecture, sculpture, and painting in a single form, and… one day rise towards the heavens from the hands of a million workers as a crystalline symbol of the new incoming faith" (Tallman).

Johannes Itten was a teacher by trade with an interest in painting. In 1919, through his studies in painting, he met Walter Gropius, the head of the then new Bauhaus School in Weimar. After their meeting Itten was invited to teach at the Bauhaus. The focus of the Bauhaus was to go back to the basics of handicraft, to create an artist/craftsman hybrid able to tackle many different areas of design. Soon after starting at the Bauhaus, Itten was asked to lead the Basic Course. Itten writes in Design and Form: *The Basic Course at the Bauhaus and Later*, pages 9-10:

> Three tasks were set for me in the Basic Course:
>
> 1. To free the creative powers and thereby the art talents of the students. Their own experiences and perceptions were to lead to genuine work. The students were to free themselves gradually from dead conventions and to take courage for work of their own.
> 2. To make the students' choice of career easier. Here the exercises with materials and textures proved a valuable aid. In a short time each student found out which materials appealed most to him; whether wood, metal, glass, stone, clay or yarn best stimulated him to creative activity. Unfortunately, at the time we lacked a

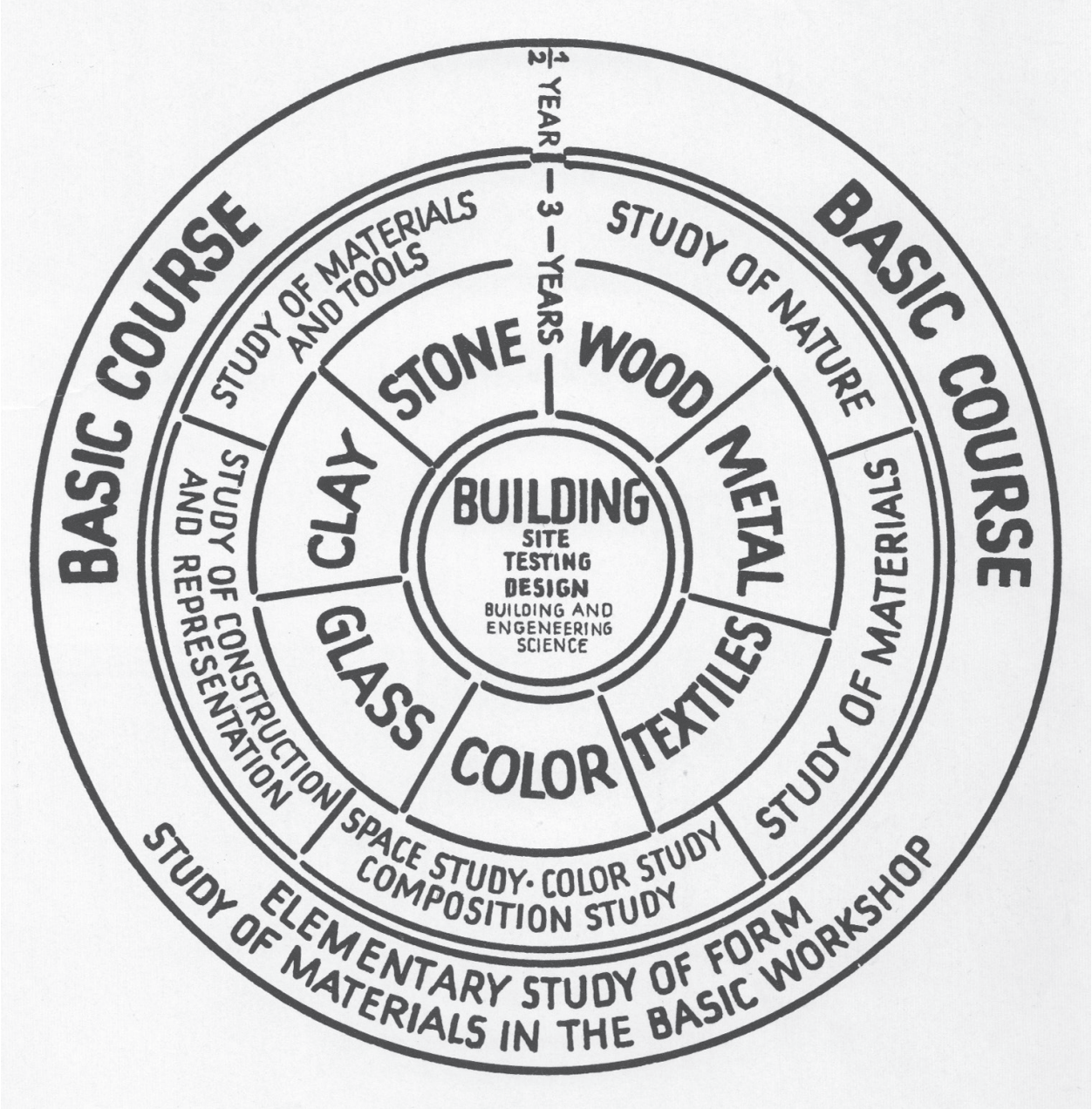


Figure 1.3 – Bauhaus Curriculum, 1923 *– Source: Itten, page 13*

workshop for the Basic Course in which all fundamental skills, such as planing [sic], filing, sawing, bending, gluing, and soldering, could be practiced.

3. To convey to the students the fundamental principles of design for their future careers. The laws of form and color opened the objective world to the students. In the course of the work the objective and subjective problems of form and color were integrated in many ways.

The basic course was to last one semester. After successful completion of the basic course the students were to learn a craft in the workshops of the Bauhaus, and at the same time they were to be trained for future cooperation with industry. Figure 1.3 on page 20 shows the curriculum for Bauhaus in 1923 (Itten, 13).

The Bauhaus also focused on studying art and design history. Itten writes, "Adolf Hölzel's penetrating lectures in Stuttgart had shown me the significance of studying the old masters. To know the work of the old Masters is useful. It sharpens the consciousness of order and structure in the picture plane and the feeling for rhythm and texture. This study can be hindering and harmful only when we do not control ourselves carefully and fall into academic imitation. After working with form, rhythm, and color fundamentals, I always made the students analyze corresponding works of the old masters to show how they had solved the same problems" (Itten, 17).

The Bauhaus provided its students with a well-rounded design education, starting with the fundamentals of design (competency-based), historical relevance to design (heritage-based), personal material/media expression (student-based), hands-on creation working both inside the classroom and locally within the community (experience-based), teaching students to discover and explore methods on their own (value-based), and career-motivated practice (career-based, future-based). Thematic-based can loosely be tied to the Bauhaus as being a product of the location and time the school existed, whereas many of their works and underlying concepts were influenced by the proximity of the Brown Coats, later to be the Nazis, and their oppression of artists and expression.

Katherine McCoy notes in her article, Education in an Adolescent Profession, published in *The Education of a Graphic Designer*, "After World War II, the Bauhaus idea had a major impact on design schools in United States. Many adopted the model and it's pure form, requiring design students in all disciplines to begin with the system. Today, if one peels away the layers in any design program, the persistent residue of this movement is evident" (Heller, 5). She praises the Bauhaus as a "revolutionary School model that contributed much to design education" (Heller, 5). McCoy suggests that the Basic Course should continue to be an underlying concept in graphic design programs, however the Bauhaus influence should end there (Heller, 5).

The Bauhaus philosophy has shaped views of teaching design. From Hank Richardson's article, How We Teach. How We Learn What is Taught, published in *The Education of a Graphic Designer*, "Exemplary schools today might seek the same goal is the Bauhaus, where the very meaning of the word Bauer, 'building [A house],' is offered in a broader sense of building, with a very extensive outlook that can prepare students for life– And not a life that is parochial, but open–where exploration and the bravery to be an explorer are the most important qualities" (Heller, 229).

Cranbrook

The Cranbrook Academy of Art, founded by George Gough Booth and first headed by Finnish architect Eliel Saarinen officially began teaching design in 1932 in Bloomfield Hills, Michigan (cranbrookart.edu). Saarinen, "strongly believed that the best learning situation was a supportive studio environment where a great diversity of philosophies and ideas could flourish" (Cranbrook, Acknowledgements). Booth's purpose for creating Cranbrook was to teach and influence craftsmanship and design in hopes of banishing "tasteless, mass-produced goods from American homes" (cranbrookart.edu). Cranbrook Academy of Art refer to themselves "as the cradle of American modernism" (cranbrookart.edu).

Cranbrook was taught under an apprenticeship model, like the Bauhaus and fine arts schools. The Katherine and Michael McCoy, both Cranbrook alumni then faculty, however,

state that Cranbrook differs from the Bauhaus that, “Cranbrook never embraced a singular teaching method or philosophy, other than Saarinen’s exhortation to each student to find his or her own way, in the company of other artists and designers who were engaged in the same search” (Cranbrook, 14). Saarinen “integrated design practices and theories from the arts and crafts movement through the international style” (eamesdesigns.com). The McCoy’s point out “the Bauhaus was about a specific methodology. Saarinen wanted simply to set up a studio where personal directions could be encouraged” (Cranbrook, 27). Cranbrook students “are for the most part usually directed individuals who come to Cranbrook with definite and distinct agendas. Students have to be self-motivated, as a department offers no conventional class schedule. In the 3-D area, a minimum of projects are assigned; most are the result of individual initiative, and ratings are also tailored to the individual” (Cranbrook, 27).

Lorraine Wild, another Cranbrook alumni, says, “A truly inventive and coherent design curriculum cannot be created overnight” (Cranbrook, 30). “Like many other young and serious designers of the late sixties, the McCoy’s combined a fascination with methodology, sociology, and process with the visual vocabulary of ‘International Style’ late Modernism influenced by the Bauhaus, Ulm, Swiss design, and radical Italian industrial designs of the sixties” (Cranbrook, 30). “...The future design advancement would result from work on the methodology and analysis of problem solving and design” (Cranbrook, 30). She goes on to discuss the independent, unassigned projects that students take upon themselves to produce. “These projects have always existed at Cranbrook; they are taken seriously and they create a kind of feedback that ends up influencing the faculty and other students, and influencing the course of the program” (Cranbrook, 36).

Paul Goldberger of the New York Times Magazine said in an article from 1984 that, “Cranbrook is like no other institution in the United States. It is part artist colony, part school, part museum and part design laboratory, and it has never allowed students to be bound by the narrow lines separating the various design disciplines… the effect of

Cranbrook and its graduates and faculty on the physical environment of this country has been profound…. For Cranbrook, surely more than any other institution, has the right to think of itself as synonymous with contemporary American design" (Cranbrook, 9).

The McCoy's, two notable Cranbrook alumni and faculty, speak of the education process at Cranbrook as, "the free flow of ideas, and the leaps from the technical to the mythical, stem from the attempts to maintain a studio platform that supports each student's search to find his or her own voice as a designer. The studio is a hot house and enable students and faculty to encounter their own visions of the world and act on them – a process that is at times chaotic, conflicting, and occasionally inspiring" (Cranbrook, 14).

Another Cranbrook alum, Hugh Aldersey-Williams, points out Cranbrook's influence on the world of design. "Product semantics or metaphorical design" concepts were embraced at Cranbrook (Cranbrook, 20). "Many found it an attractive proposition, and for a while it looked as if 'semantic products' would provide a welcome escape for designers trapped within the boundaries of expected form giving. Before long some design directors were beginning naively to think of product semantics as something they could consciously choose to incorporate into or leave out of their products" (Cranbrook, 20).

The Cranbrook Academy of Art, much like the Bauhaus, provided its students with a well-rounded design education. Students seemed to be naturally self-motivated (student-based), classes were based on the fundamentals of craft and process (competency-based), classes took from historical relevance to design, such as the art and crafts movement and International Style (heritage-based), there was emphasis on hands-on creation working both inside the classroom and in a community of artists (experience-based), the mission of the schools founder, George Booth was that, "craftsmanship would result in superior products and provide the foundation for an ethically responsible life (cranbrookart.edu)" (value-based), and because of the exceptional and ground-breaking work that was created at Cranbrook, the graduates went on to be very successful and influential (career-based, future-based).

Paul Rand - Graphic Design Program at Yale

Paul Rand, a well-known professional designer from the mid-20th century, was a student then professor at the Yale School of Art in the Graphic Design department (Kroeger, 12). Rand's branding work can still be referenced today; the ABC network logo, the Federal Express logo and the classic IBM logo. His explanations for his work were "clear, concise, and complete" and "his attitude was honest and direct" (Kroeger, 13). Rand and Hofmann worked in the same circles and Rand would frequently visit the Basel School and Basel students and faculty, such as Wolfgang Weingart, would attend courses in the Yale Summer Program in Brissago, Switzerland (Kroeger, 12).

In Michael Kroeger's book, *Paul Rand: Conversations with Students*, a transcript of two panel discussions Rand has at Arizona State University, February 5, 1995, Rand suggest that if you have not read John Dewey's *Art as Experience* (1934), "you are just not educated" (Kroeger, 20). Rand said that to start, "you have to define what design is" (Kroeger, 22). "People have to understand what the hell they are doing" (Kroeger, 22). "You talk about design and there is no definition, and everybody has different ideas about what design is" (Kroeger, 23). It was important for Rand that design was simple, based on theory, and could stand along without description.

Rand learned design "by looking at pictures" and that design can be taught by example (Kroeger, 26). "Design is a relationship between form and content. What does that mean? That is how you have to teach it. And you have to teach is until they are absolutely bored to death. You have to keep asking questions. You have to understand before you ask the questions" (Kroeger, 29). From Rand's book, *Design, Form, and Chaos*, "Design entails a part whole relationship expressed in terms of fracture, space, contrast, balance, proportion, pattern, repetition, scale, size, shape, color, value, texture, and weight" (Rand, Form & Chaos, 3). "Content is basically the idea, that is what content is. The idea is all of those things. Form is how you treat the idea, what you do with it. This is exactly the meaning of design; it is the conflict between form and content, form being the problem.

I mean how you do it, how you show something, how you think, how you speak, how you dance; choreography is the content, it is the dance itself" (Kroeger, 32). "It is not simple, but on the other hand it is simple. It is the coming together of form and content that is the realization of design. That is as good as a definition that you can get anybody to give you" (Kroeger, 32).

Rand goes on to say, "It is true that while static judgments are largely intuitive, it is the abstract (or formal) aspects of the work that takes precedence over other considerations. Yet when form (the abstract) not only predominates but is allowed to overshadow the content of the work, information goes astray, and the conflict between form and content remains unsolved. To see the abstract in the concrete in the concrete in the abstract is the essence of art making appreciation" (Rand, *Design, Form & Chaos*, 4).

In response to a question asked about what it is important for faculty to study in order to teach design, Rand says, "I think it is important to be informed. It is important to know what you are doing. It is important to define and be able to define your subject. It is important to know, in your case, the history of graphic design and history of art, which is the same history. It just goes off a little bit to the side. It is important to know the status – the study of form and content – which we also treated to design. [Aesthetics and design are] the same thing. Aesthetics is the study of design, the study relationships, and it is very complicated" (Kroeger, 43).

"Design (aesthetic) judgments are based on two kinds of values, one symbolic or associative (extrinsic), the other formal (intrinsic). Symbolic values are those most of us use but often confused with formal ones. These values are largely subjective and have little or nothing to do with design or art per se. Judgments are most often based on habits, hearsay, opinion, special meeting, prejudice, misunderstanding, conditioned learning– On social, psychological, political, financial, or even religious considerations. Intrinsic values involve the statics, the design itself (what it looks like, its visual quality), but not what it represents. Extrinsic judgments relate to content and meaning, intrinsic to beauty, which is

more difficult to fathom because talent, expertise, taste, sensitivity, experience, and visual acuity must come into play. (What is meant by beauty here is nothing to do with fidelity to nature, beautiful moods, or dazzling scenery; rather it has to do with fidelity form [aesthetics])" (Rand, *Design, Form & Chaos*, 6).

Rand suggests that while the computer is an important tool for graphic designers, it is "valuable practice and experience in the use of classical tools and material", meaning using pen, pencil, paper, rulers, etc. as to not lose that ability. At the time when *Design, Form & Chaos* (1993) was written, Rand suggests that using the computer for design is somewhat of a trend, however sees the need for designers to know how to use them. "In the school environment, they should be part of the curriculum but not the curriculum: nothing can replace the hand in early stages of design education" (Rand, *Design, Form & Chaos*, 184).

"The fact that you can use the computer and all the systems, the Quark, all that other stuff, it is very important compared with the problem of understanding what you were doing as a designer. That is because the computer will not teach you how to be a designer. NO WAY! You know that when the typewriter was invented, its greatest accomplishment was that it destroyed handwriting. Look at early handwriting manuscripts before the typewriter existed you will see what I mean – and I am not Nostradamus – but I think that something similar is going to happen to art because the computer. I think that relationship is an adverse one. I could be wrong but that is what I think" (Kroeger, 45). Rand suggests that, due to the additional time that it took to do designs before the computer, there was more reflection into what was being done, more time for design changes because of the longer process – both a time for reflection on the design as a whole and a sort of stepping away for the work that does not happen when quickly designing for the computer.

The Basel School of Design

The Basel School of Design, a five-year program in art and design (Kelly, 83), began under the direction of Armin Hofmann and Emil Ruder in the 1960s (www.fhnw.ch).

The Basel School was “supported by a faculty resolute in its opposition to the superficial and the faddish, the Basel School’s method is carried on by a new generation of serious and committed teachers” (Hofmann, 8). Paul Rand attributes Basel’s success to Armin Hofmann’s high standards of design education and drive to “not to put down the world of business but to give it real meaning” (Hofmann, 5). Rand suggests that Hofmann had the ability to motivate students” (Hofmann, 5). Kenneth Hiebert, a graduate of the Basel School, describes the Basel students drive when saying, “Students at the Basel School of Design are notably, even notoriously, serious and dedicated to their studies” (Hofmann, 8).

The Basel Program is praised for their “strong pedagogical approach to design education” citing that their faculty were highly qualified designers (Kelly, 83). The students who attended Basel were also highly motivated, working “in classes from eight o’clock in the morning through the day and often into the evening” (Kelly, 83). Keeping process books, a method of tracking the student’s methods, sketches and explorations, began in the Basel School. “At the introductory level, these books were revealing to students regarding improvement in hand skills, growth and understanding and their general advancement in the program. Learning became tangible, and students reacted with a sense of accomplishment, greater commitment and increase productivity” (Kelly, 90).

The Basel education focused concern on making a positive influence on culture (Hofmann, 9). “It is a premise of the Basel School that a significant influence for professional renewal has come and must continue to come from a return to the most basic studies-always informed, or course, by changes in technology and social context. In this the Basel School has been at the forefront” (Hofmann, 10). In addition to aesthetic social conscience, the intent of the Basel school was to positively educate society on the visual” (Hofmann, 10).

There was also a focus on the balance of design skills, design movements, and technology at Basel, balancing technology and craft (Hofmann, 9). There was little emphasis to conforming to a specific style of design, such as Swiss, “more subtly

distinguished or hand-drawn versions of modern, sans serif faces are preferred at Basel" (Kroeger, 12). Basel was known "as a leading center for typography and printing" (Hofmann, 9). Wolfgang Weingart began teaching typography at the Basel School of Design starting in 1968 (Kroeger, 12).

The Basel School program still exists today under the title, "Visual Communication Institute/The Basel School of Design" (www.fhnw.ch).

Basel Methodologies in The United States

The Basel School method and the adoption of its methods in teaching design migrated to United States graphic design schools in the late 1970s. "A number of Swiss teachers and the graduates, from Armin Hoffman's Basel school in particular, put down roots in schools including Philadelphia College of Art, University of Cincinnati, and Yale" (Heller, 9). "Under the influence of this highly structured educational method and its emphasis on the prolonged study of abstract designing typographic form, these American schools began to carefully structured curricula. Based on objectivity and rationalism, this educational system produced a codified method it was easy to communicate to students, giving them a foundation for a visual design process and composition that went far beyond the superficial emulation of their heroes" (Heller, 9). This method of teaching graphic design has pretty much gone unchanged since its introduction in the late 1970s, except for possible influence from postmodernism and new wave (Heller, 9). "These strategies encourage new wave graphic designers to work with layers of meaning and content, as well as layers of form. In addition, this new focus on audience interpretation challenges designers to tailor their visual messages to the special characteristics of each project's target audience" (Heller, 10).

Rob Roy Kelly, a design educator who spent a great deal of his life developing "some of the best graphic design programs and schools nationwide, many of which became a blueprint for programs at other schools" (Kelly, 82). "Rob had a disciplined and unflinching

vision of what constitutes excellence in teaching graphic design." In the late 1960s and early 1970s Kelly began hiring graduates of the Basel School as faculty at the Kansas City Art Institute (Kelly, 82). Kelly says, "The Basel program revealed a strong pedagogical approach to design education reflecting its highly qualified faculty" (Kelly, 83). His purpose for introducing Basel methodologies into this department was that he was seeing the upper class students being very undisciplined, stating that "they could not handle formal values as well as students from previous classes" (Kelly, 82).

The idea of keeping process books in his programs was adopted with great success. Kelly noted, as we recognize today, that "the books were an asset to the portfolio if an interviewer wanted to know how a project evolved" (Kelly, 90).

Kelly sought only to hire good instructors. "The performance of students is directly tied to standards and values of the instructor. An Instructor with high standards will demand more from students, and therefore, they perform at a higher level and learn more" (Kelly, 85). He suggests that weak teachers promote weak students; "When a majority of students do poorly, it is more of a reflection of teachers than it is of students" (Kelly, 85).

In his attempt to recreate the Basel methodology, Kelly compared students at the Basel School to American students, noting that Basel students were more likely to spend more time in studio, generally morning to evening (Kelly, 84). Also, American students differ from their European counterparts because "American students tend to view assignments as doing what the teacher wants. Consequently, their goal is to please instructors and be rewarded by receiving a high grade" (Kelly, 84). Kelly suggests that this American view is a "serious inhibitor to student learning" (Kelly, 84). Additionally, American students are impatient and want projects "defined to a point where they are less likely to fail" (Kelly, 84).

Current Practices: Stanford's d.school / Design Thinking, the IDEO Influence

Shouldn't the point of a design education be to fail and to learn from your mistakes?

This idea of 'permission to fail' is echoed in the current modern methodologies of Agile and Lean UX design and development (Gothelf, 11) as well as the IDEO design laboratory.

> *We believe that enlightened trial and error beats the planning of flawless intellects. In other words, we fail faster to succeed sooner. The reason is simple: the best solutions to most problems are rarely the most obvious. So we brainstorm lots of ideas, prototype the most promising ones, and learn from those that don't work.*
>
> – David Kelley, *founder, IDEO*
> (www.fastcompany.com/29116/they-have-better-idea-do-you)

IDEO came about in 1991, but was the contented work of Stanford graduate and professor emeritus David Kelley and had been in the works since 1978 (www.ideo.com). The focus behind the company is "unlocking the creative potential of people and organizations so they can innovate routinely (www.ideo.com). Kelley is assisted in the creation of the d.school at Stanford. Both IDEO and the d.school focus on team building, "human-centered methodology and culture of innovation" (www.ideo.com).

IDEO focuses on the concept of 'design thinking'. Tim Brown, President and CEO of IDEO says, "Design thinking is a human-centered approach to innovation that draws from the designer's toolkit to integrate the needs of people, the possibilities of technology, and the requirements for business success" (www.ideo.com). The focus is to creatively solve problems – "It relies on our ability to be intuitive, to recognize patterns, to construct ideas that are emotionally meaningful as well as functional, and to express ourselves through means beyond words or symbols" (www.ideo.com). Brown goes on to describe design thinking as "innovation powered by… direct observation of what people want and need in their lives and what they like or dislike about the way particular products are made, packaged, marketed, sold, and supported. [It's] a discipline that uses the designer's

sensibility and methods to match people's needs with what is technologically feasible and what a viable business strategy can convert into customer value and market opportunity" (Gothelf, 5-6). IDEO's framework for finding innovation, Figure 1.4, page 33.

"The design thinking process is best thought of as a system of overlapping spaces rather than a sequence of orderly steps. There are three spaces to keep in mind: inspiration, ideation, and implementation. Inspiration is the problem or opportunity that motivates the search for solutions. Ideation is the process of generating, developing, and testing ideas. Implementation is the path that leads from the project stage into people's lives" (www.ideo.com).

"Under this system, IDEO uses both analytical tools and generative techniques to help clients see how their new or existing operations could look in the future — and build road maps for getting there. Our methods include business model prototyping, data visualization, innovation strategy, organizational design, qualitative and quantitative research, and IP liberation" (www.ideo.com).

"All of IDEO's work is done in consideration of the capabilities of our clients and the needs of their customers. As we iterate toward a final solution, we assess and reassess our designs. Our goal is to deliver appropriate, actionable, and tangible strategies. The result: new, innovative avenues for growth that are grounded in business viability and market desirability" (www.ideo.com).

What design thinking boils down to is Empathy, understanding the user or client, a frequent consideration for creating an effective visual communication and/or user experience.

The article Impact: Inspiring Graphic Design to Human Behaviors, by IDEO employees Roshi Givechi, Ian Groulx, and Marc Woollard, discusses the IDEO process of the designer playing many roles to achieve to an end, namely, human-centered research, Figure 1.5, page 35 (Bennett, 306). This hands-on or immersion type of research allows for designers to become more familiar with the topic they are researching and can inspire different

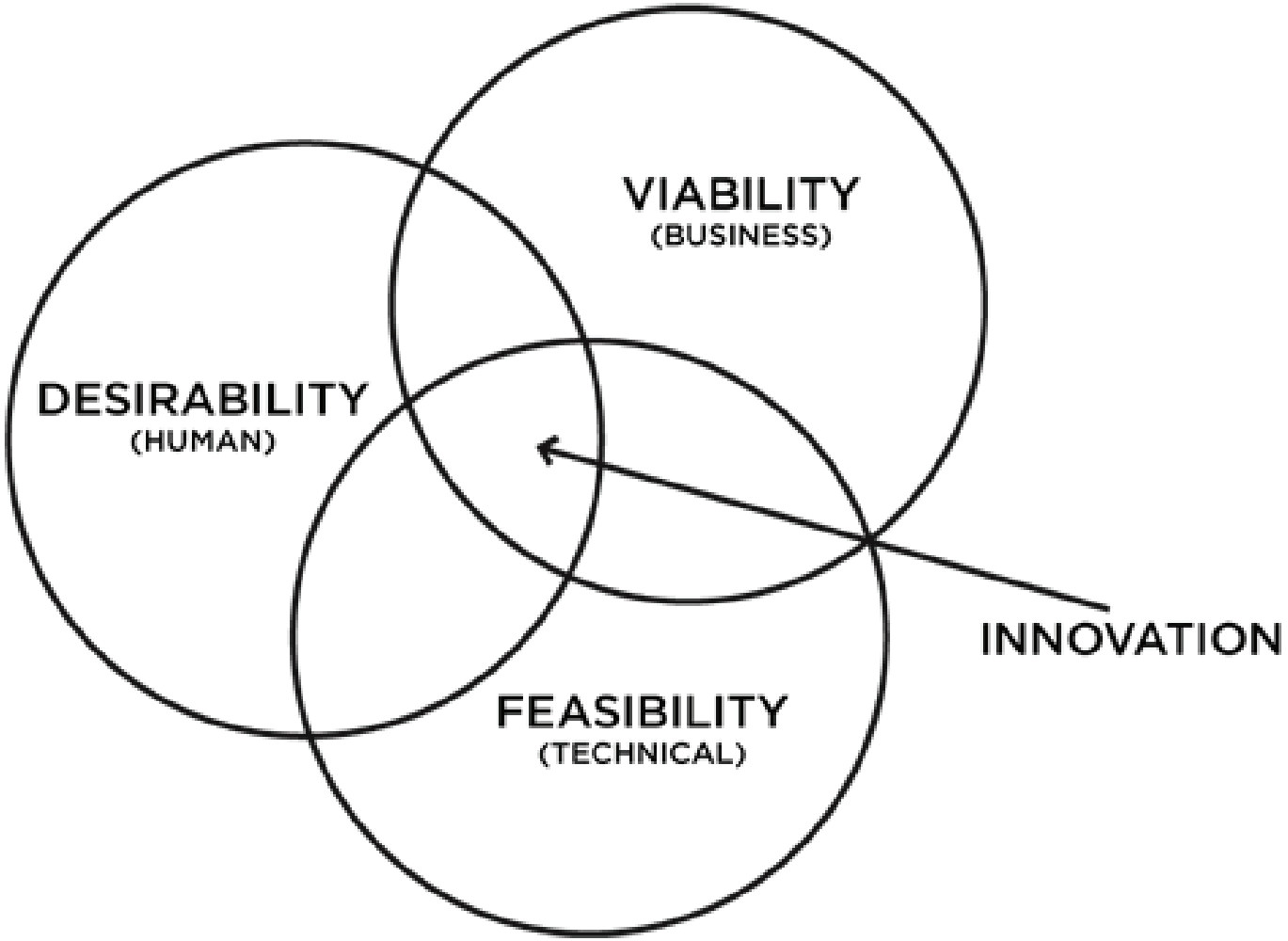


Figure 1.4 – IDEO, Where Innovation is Found *– Source: ideo.com/about*

solutions (Bennett, 310).

Allan A. Glatthorn and Jerry Jailall, education researchers, note the concept of transformed content and how learning experiences should change for new curriculum. These points are creative studies, wellness, the natural world, communication, humanness, decision-making and problem solving, mathematical reasoning, aesthetic appreciation. While Glatthorn is writing about curriculum for K-12 education systems, some of this can be adapted for higher learning. The idea of creative studies is a popular concept today in settings like IDEO and Stanford University's d.school—the Hasso Plattner Institute of Design, launched in 2005 (online.wsj.com). Higher education design students should also be familiar with decision-making and problem solving, communication, and aesthetic appreciation (Glatthorn, 117).

The d.school is focused both on team building, innovation, and experimentation as well as teach students how to understand their user through interview, observation and rapid prototyping. "What we have found in terms of teaching innovation is that it requires bringing diverse experts together who might not otherwise get along and working a process that has to be relatively human centered. [It] pays a lot of attention to people and is quite experimental has an attitude of prototyping in just about everything" (Stanford Open Office Hours).

The d.school's space is open in design. All of the assets of the studio are on wheels to easily be moved to accommodate the needs of the students. "Designed to ignite creativity and collaboration, the d.school's interior looks like a preschool playroom for grown-ups: Colorful furniture, open spaces and neon Post-it Notes abound. The school said much of the lay out is for the sake of teamwork, as hard chairs and small tables encourage student groups to remain on their toes and work more closely with each other" (online.wsj.com).

This design promotes collaboration between the students (Stanford Open Office Hours). Faculty offices are directly beside the open student space and classes are taught in teams, with faculty of different program backgrounds (Stanford Open Office Hours).

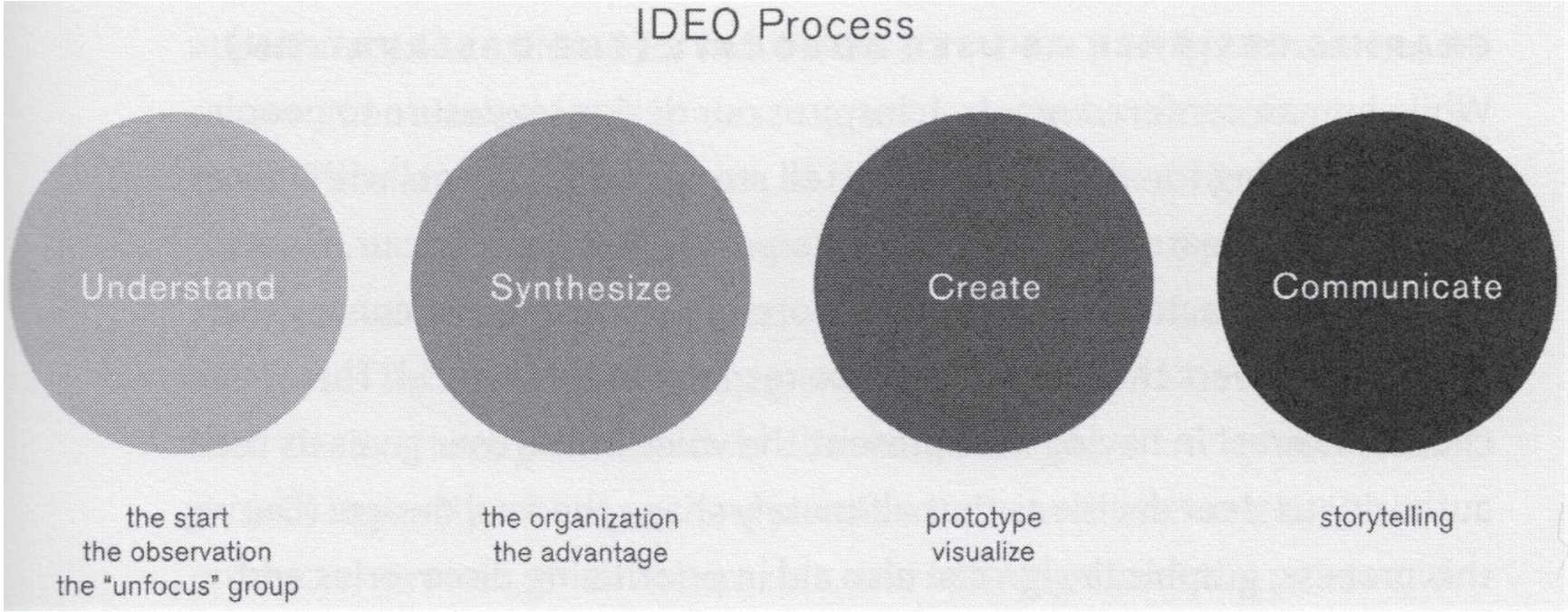


Figure 1.5 – IDEO Process *– Source: Bennett, page 307*

This team teaching effect allows the students to see how people from different educational backgrounds collaborate, facilitates collaboration of the student groups and allows the students to individually decide on which path is the correct path for their project (Stanford Open Office Hours).

"We have a wide range of projects from businesses and design to social entrepreneurship. One of the big areas that our students are quite interested in is having social impact alongside their commercial success. We work with many different countries" (Stanford Open Office Hours). Students are urged to do observations of the people they are designing for, "Instead of the students just working here and coming up with idea, they visit the countries, they spend time with the people who are challenged with either diets enrichment or irrigation issues" (Stanford Open Office Hours).

"The d.school doesn't award degrees and isn't tied to any individual department, but two to four times as many students want to take its courses than there are seats available. It now enrolls 700 students a year, up from 100 in its inaugural year" (online.wsj.com).

"University of Toronto's Rotman School of Management has taught the discipline to students and executives via elective courses and its Rotman DesignWorks center since the mid-2000s" (online.wsj.com). Other schools, like Parsons, The New School for Design and Philadelphia University are developing their own d.school-like programs to teach all students, not just designers, the ideas of collaboration and empathy" (online.wsj.com).

The concept of Lean UX, from author Jeff Gothelf, ties together the methodology of Agile software development and IDEO's concept of Design Thinking (Gothelf 5-6). "Lean UX is the practice of bringing the true nature of a product to light faster, in a collaborative, cross-functional way that reduces the emphasis on thorough documentation while increasing the focus on building a shared understanding of the actual product experience being designed" (Gothelf, 7). Lean UX brings together small teams of people from different backgrounds to create and develop a superior product (Gothelf, 7). The process is to come up with many ideas (ideation), develop those ideas into a functional and testable

product (evaluation), assess user feedback and modify the product to suite the needs of the consumer (iteration), and evaluate again (Gothelf, 7-8).

The principles of Lean UX are:

- Cross-Functional Teams: A team should bring people together from various disciplines (Gothelf, 7-8)
- Small, Dedicated, Colocated: Small teams promote "communication, focus and camaraderie" and are easier to keep up-to-date on the project (Gothelf, 8)
- Progress = Outcomes, Not Output: The goal is to make a better product, not to make a list of features and services (Gothelf, 8)
- Problem-Focused Teams: Approach the design or concept as a problem to solve (Gothelf, 8)
- Removing Waste: "Anything that doesn't contribute… is considered waste and should be removed from the team's process" (Gothelf, 9). Waste slows the team down.
- Small Batch Size: Only make what is needed to move forward (Gothelf, 9)
- Continuous Discovery: "Research is done on regular schedules… [and] involves the entire team" (Gothelf, 9).
- GOOB: The New User-Centricity: GOOB, is a term by Stanford professor Steve Blank meaning "getting out of the building (Gothelf, 9)". The idea is to test a product with users as soon as possible and in a typical user environment (Gothelf, 10)
- Shared Understanding: The team should collectively learn from the process (Gothelf, 10)
- Anti-Pattern: Rockstars, Gurus, and Ninjas: The team should function as equals, supporting collaboration (Gothelf, 10)
- Externalizing Your Work: Get ideas out of your head and into the workspace; whiteboards, notes, etc. (Gothelf, 10)

- Making over Analysis: “There is more value in creating the first version of an idea than spending half a day debating its merits in a conference room” (Gothelf, 11).
- Learning over Growth: Make sure the idea is right before scaling it (Gothelf, 11)
- Permission to Fail: The team and workspace is a safe place to experiment. There is no penalty for trying ideas that do not succeed. “Permission to fail breeds a culture of experimentation” (Gothelf, 11).
- Getting out of the Deliverables Business: The team’s focus should be to learn about your consumer and what they want from a product. “The team’s focus should be on learning which features have the biggest impact on their customers” (Gothelf, 12).

The principles of Lean UX could also be effectively applied to curriculum development and curriculum assessment as well as a process that could be introduced to design students through the course of the curriculum, teaching students to understand their audience and to gather effective user input on their designs.

Challenges of a Design Education

Paul Rand points out, “Graphic design embraces every kind of problem visual communication, from birth announcements to billboards. It embodies visual ideas, from the typography of the Shakespearean sonnet to the design and typography of the box of Kellogg’s Corn Flakes” (Rand, *Design, Form & Chaos*, 15). Design has many different specializations, such as publication (print and digital), web design and development, broadcast graphics (motion graphics, 3D animation/special effects, video editing), or three-dimensional design (packaging, signage, exhibition design) to name only a few of the many options for designers. With so many possibilities for students to specialize in, how do we develop a curriculum that offers exploration of those specialties while addressing the

current challenges of a design education?

Preparing Designers

Meredith Davis discusses preparing design students; it "makes little sense, therefore, to continue to educate tens of thousands of students each year solely in the design and production of beautiful form" (Heller, 15). Davis suggests that design students also need to become good researchers. "While many schools claim the graduates can handle the analysis and solution of large-scale or complex communication problems, rarely are their college experiences grounded in study that supports designer development of successful strategy at the levels demanded by today's design problems" (Heller, 15).

Davis also points out that most university design programs have simply tacked on digital media onto current print-based teachings. "As a result these digital media classes and frequently encourage the transfer print based values to the screen. Faculty complained that there is too much to teach, yet or unwilling to reconsider the time spent in traditional content leading to the media base work" (Davis, speech). Kelly extends this idea stating that "Each designer tends to define the profession by what he or she does. Design practices vary from studio to studio or from one segment of the profession to another. It is impossible to teach professional practice by simply doing applied problems" (Kelly, 91). In settings like this we fail to get students to practices in the digital world until later in their program. This results in students finding their niche late, or not getting a full exposure to a digital media education at all.

Direction & Retention

One of the issues with a design education is 'who is the work for' in the design equation. Rob Roy Kelly points out the issue with American design students designing projects to what the instructor wants or values rather than exploring their own solutions for the design problem (Kelly, 84). Meredith Davis, Professor emeritus at North Carolina

State and design educator says, “We defer discussions of meaning and context until later levels of the curriculum and beginning students learn these abstraction principles only through patterns in what makes their teachers smile. Nothing about these studies resembles what students know about in the real world, and as a colleague recently suggested, what the clients of design see in our work” (Davis, speech). Warren Lehrer, designer and design educator, comments, “In most design programs, the teacher is a stand-in for the clients, supplying the project/problem to the students throughout their entire undergraduate and graduate careers. Credits and grades ultimately are replaced by salaries and awards” (Heller, 74). If (American) design students are simply designing to a standard set by an Instructor, which will vary from semester to semester, college to college, are they truly expanding and exploring their ability as designers, an important journey as a student?

Evaluating Self-Thinkers

A common thread throughout these articles is that undergraduate students are not pushed very hard to be self-thinkers. Hank Richardson, a design educator, quotes Lou Dorfsman, saying, “Creativity is… the ability to reach inside yourself and drag forth from your very soul an idea” (Heller, 230-231). Richardson goes on to discuss the importance of students to find the solutions to design problems from within themselves (Heller, 231). Lehrer mimes the same frustration in his comment, “Design students have, in the main, not been encouraged to think for themselves or develop their own ideas or vision” (Heller, 74). Design walks the fine line of creativity, aesthetics, psychology and business. How do we prepare students to be freethinkers, yet stay within the goals of the course and curriculum?

Kelly, notes that “Rarely are student goals related to excellence or learning. Students objectives are frequently determined by teachers, and this is why it is so important for educational programs to be aimed at the highest levels of the profession” (Kelly, 87).

Kenneth Hiebert, designer and design Professor, who once taught at the Basel School, writes "school and student therefore [to] charge themselves with seeking new and valid aesthetics" (Hofmann, 9). If the Instructor is not or does not have the ability to push or elevate the students to a higher level, either through education or prompted self-exploration, are the students achieving the education they need for their future? Are design students really willing and able to elevate themselves?

When discussing project goals and the retention thereof, Kelly notes that it is rare that project outcomes are discussed with students (Kelly, 87). "Students acquire understanding through experience, with the process being guided by teachers who understand process and criteria" (Kelly, 86). In combination, learning objectives are seldom retained from project to project (Kelly, 81). Students will benefit from clearly outlined objectives, both for the project and for the takeaway concepts. However, as Kelly discusses, there is a fine line of providing students with enough information to develop a project on their own while they are not just simply following directions (Kelly, 86). Perhaps the solution is for a post-project recap, tying back in the concepts to take away from the project.

Evaluation Of Curriculum (Accreditation, Self-Evaluation, Etc.)

In the Eight-Year Study, Ralph Tyler's Objective Model says that curriculum evaluation "is essentially the process of determining to what extent the educational objectives are actually being realized by the program of curriculum and instruction. However, since education objectives are essentially changes in human beings, that is, that the objectives aimed at are to produce certain desirable changes in the behavior patterns of the students, and evaluation is the process for determining the degree to which these changes in behavior actually take place" (Marsh, 278).

There are many different ways to evaluate curriculum. Some focus solely on the planned curriculum, like Tyler's Objective Model, Figure 1.6, page 43. Others like the

Countenance and Illuminative Models evaluate both the planned and enacted curriculum (Marsh, 282, 287). Still others, like Eisner's Educational Connoisseurship Model take into account the experienced curriculum as well (Marsh, 291). Marsh suggests that evaluation, as well as what method of evaluation, should be considered during the curriculum planning and development stages (Marsh, 297).

Instructional objectives should be created so that they can adapt, much like how curriculum and course design should be created to easily adapt to an ever-changing industry (Gronlund, 48-49, Diamond, 9). Diamond says that the strong, clear way to develop these objectives is to ask, "If I'm your student, what do I have to do to convince you that I'm where you want me to be at the end of this lesson, unit, or course (Diamond, 155)?"

Chickering suggests that there are three ways for curriculum to become obsolete (Chickering, 37): 1. Societal need for education to change, 2. Educational need for change; change in trends in education, and 3. The things being taught become obsolete. Accreditation offers a system of checks and balances for curriculum to avoid drifting into obsolescence. Understanding the questions that accreditors ask can be valuable in comparing to the basic needs of our industry. Also with the concept of yearly accreditation, perhaps this is a time to reflect on what the industry might need and to modify our courses to meet that (Diamond, 16).

Additionally, self-evaluation can take place using surveys, opinion polls, follow-up studies and standard evaluation instruments. This type of evaluation should be built in to the curriculum, taking place "(1) within the curriculum, as in evaluation by teachers in classrooms; (2) about the curriculum, as in evaluation of the curriculum's success in reaching its goals; and (3) about the process used in improving the curriculum" (R. Doll, 257).

There are accreditation agencies, such as The National Association of Schools of Art and Design (NASAD) that set standards and evaluate institutions. NASAD specifically evaluates schools of art and design. According to their website, NASAD is responsible for

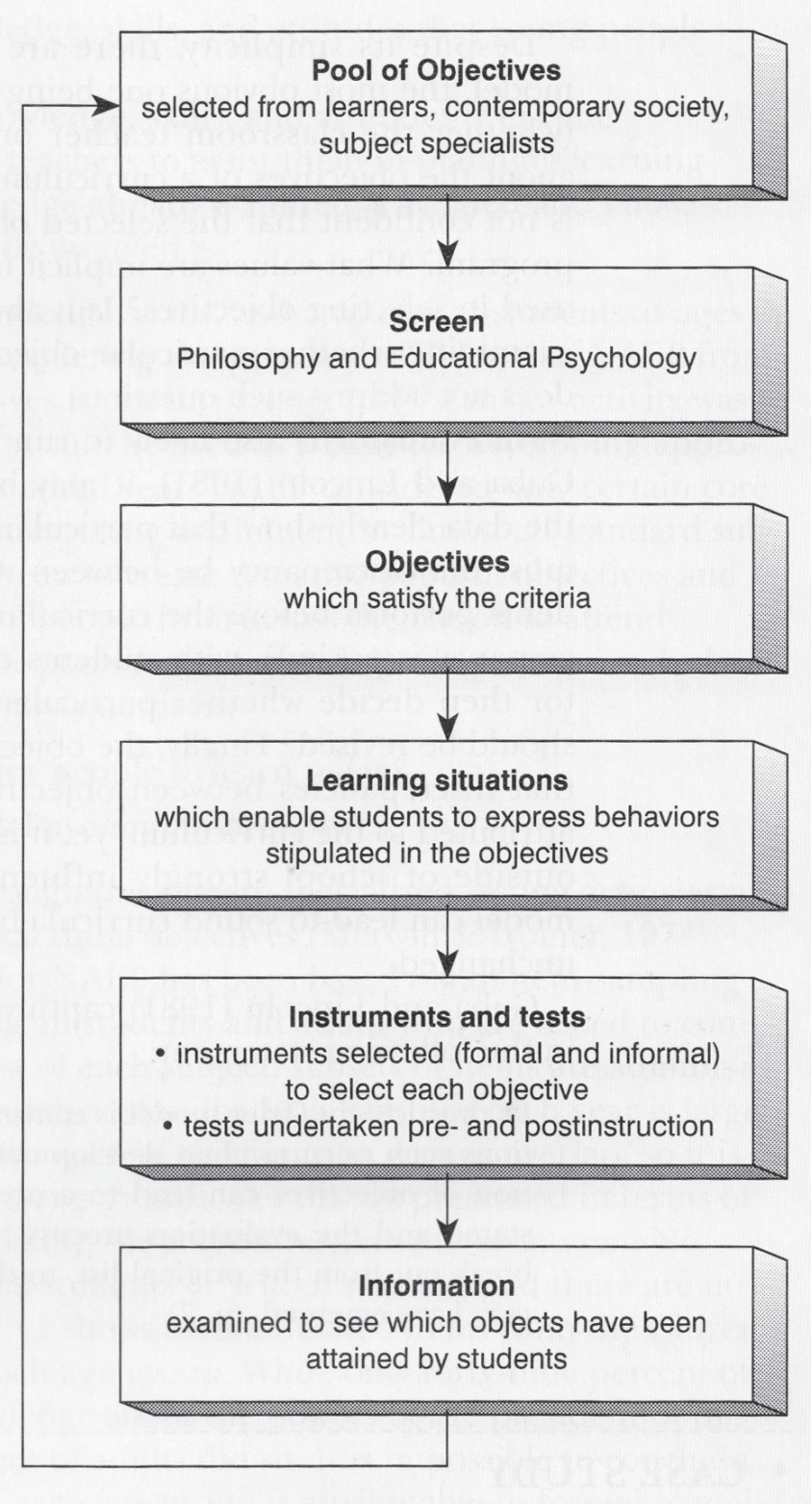


Figure 1.6 – Tyler's Objective Model of Curriculum Evaluation *– Source: Marsh, page 279*

approximately 323 schools at the time of this writing (nasad.arts-accredit.org). NASAD accreditation consists of several components, including: establishing standards for review, developing methodology for self-study, on-site review of institutions, oversight of self-study, report publication, and observation of requests for change of curricula, both new and curriculum modification (nasad.arts-accredit.org).

Reform

"Before teaching graphic design, it's helpful, every decade or so, to question the parameters of the field. It's generally understood by now that graphic designs expand it beyond a 2D and 3D design to include 4D (motion and interactive) design that the modernist/Swiss palette is too limited, that a decent design education needs to include the study of theory, and the design history has a cultural, technological, and political context. But the parameters that define graphic design activity are still constrained by an (arbitrary) economic premise that presumes graphic designers to be skilled hired hands." – Warren Lehrer

Emptying the Spoon, Enlarging the Plate *Education of a Graphic Designer*, page 75

Why Change Curriculum?

There is a common discussion of how curriculum across all programs of study is failing. Diamond notes that a "growing number of authors report that too many of our students simply do not receive the quality education that society expects and that the country needs for the years ahead. The educational experience of our college students has been described as disjointed, unstructured, and often outdated. Courses often have little relationship to the curriculum that is in place and may overlook the critical skills the students need to acquire" (Diamond, 3).

According to a 1985 Association of American Colleges and Universities report,

Integrity in the College Curriculum A Report to the Academic Community:

> *As for what passes as college curriculum, almost anything goes. We have reached a point at which we are more confident about the length of a college education and its content and purpose. Indeed, the major in most colleges is little more than a gathering of courses taken in one department, lacking structure in-depth, as is often the case in the humanities and social sciences, or emphasizing content to the neglect of the essential style of inquiry on which the content is based, as is too frequently true in the natural and physical sciences" (Diamond, 4). "The curriculum has given way to marketplace philosophy; it is a supermarket where students are shoppers and professors are merchants of learning. Fads and fashions, the demand of popularity and success, enter where wisdom and experience should prevail. Does it make sense for a college to offer a thousand courses to a student who will only take thirty-six" (Diamond, 4)?*

How do we make design programs more effective? Wiggins suggests that curriculum is not a script; that curriculum must allow for changes adjustments and tweaks (Wiggins, 54). When creating both curriculum and designing courses a feedback system should be built in to allow for adjustments to be made, both by teachers as well as students (Wiggins, 54). Figure 1.7, PAGE 47, is from Wiggins' book *Schooling by Design*, depicting why neither students nor faculty actively call for change in curriculum (Wiggins, 54).

Kelly says, "It was necessary to devise terms and criteria that would lead to the desired level of student performance" (Kelly, 86). "Learning is not an automatic consequence of teaching. Effective teaching entails identifying what students gain by doing problems, and using content, process and the criteria directed towards learning" (Kelly, 81). Diamond agrees with this suggestion, that the learning outcomes of the curriculum should be the underpinning of each course, that all faculty and students should be aware of these competencies, and that the competencies should be taught and reinforced throughout the course of a student's education (Diamond, 85). "The effectiveness of an institution or

program and individual faculty members is then determined by the ability of students to meet these goals. At the same time it must be recognized that not all students will reach these goals, because their attitudes, willingness to work, and ability also play an important role in determining success. Our responsibility is to do all we can to facilitate the learning that is required and to give each student a fair opportunity to succeed" (Diamond, 91). Kelly calls for a strict screening process, to limit the number of design students accepted into a program based on potential, ability and drive (Kelly, 84). He also suggests the importance of dropping students from the design program that are unmotivated or underperforming, noting that those students do more to hold back the entire class (Kelly, 85). Both of these ideas have potential to increase instructor-student interaction due to the smaller class sizes. Additionally, dropping students from the program would serve as a motivational tool if students understood that there were serious repercussions to not fulfilling potential.

Potential can only be measured if there are objectives in place. Meredith Davis discusses that the intent for a design class should be to make concepts and ideas clear and meaningful as well as understanding and managing complexity (Davis, speech). Kelly reflects this idea in that there are objectives for both the instructor and student; "Objectives are defined by the learning goals set for students. However, objectives can be set at more than one level. Some are specific and others are implied. For example, student objectives are specifically stated within the problem. Students should always be told at the beginning of each problem exactly what the educational goals are, and what criteria will be applied to grading their work. The teacher can have general objectives related to formal values, process or craft. Student learning should be the first concern of teachers, and all other objectives are aimed at achieving that end" (Kelly, 87).

Diamond discusses designing and assessing courses and curricula, "Institutions, departments, or faculty often recognize significant problems in the content and design of their curricular courses, but their efforts to change are hampered by uncertainty about

Information	Resources	Motivation
(1) FEEDBACK: Don't let people know how well they are performing. Hide from people what is expected of them. Give people little or no guidance about how to perform well.	(2) TOOLS: Design resources without ever consulting the intended users [or without reference to the goals of the learning].	(3) INCENTIVES: Provide no intrinsic rewards; poor performers get rewarded as well as good ones.
(4) KNOW-HOW: Leave training to chance; make it irrelevant to mission.	(5) MAXIMIZED CAPACITY: [Schedule and organize learning in classes in a way that is convenient for the scheduler and teacher.]	(6) MOTIVES: Give pep talks rather than incentives.

Figure 1.7 – Why Students and Teachers Don't Improve Performance – *Source: Wiggins, page 54*

how to make orderly changes, where to begin, what outcomes at target, and what roles faculty, curriculum committees, and administrators should play" (Diamond, xiv). In his practice, Kelly implemented a tiered curriculum, where first year students were introduced to "criteria are based on formal values and craft" and second year and above where based that first year understanding and adds design concepts (Kelly, 87). "Articulating criteria helps students critically analyze their work, relying less on intuition and more on rational evaluation. If critical examination can be verbalized and incorporated into the thinking process, it is more consistently applied and students work at a higher level. If students learn how to evaluate their own work, it becomes possible for them to learn more within the shorter period of time allotted to their major. Most importantly, students have the tools to continue professional growth after leaving school, and especially that pertaining to theoretical or basic design. A glossary of relevant terms for each exercise should be handed out at the time of the exercises presented student should be encouraged to use the terms when discussing their work" (Kelly, 85).

Better Prepared for Industry

Students are graduating from their programs and entering the industry unprepared for what awaits them, in fields of research, professionalism and time management. Giloi notes, "The relationship between industry and higher education is not always satisfactory" (Giloi, 260). Meredith Davis, in her article, Raising the Bar for Higher Education, suggests that, "Despite the fact that the number and background of faculty, curricular offerings, facilities, and resources greatly influence the quality of education experience in these two thousand two- and four-year [design] programs, college catalogs present convincing arguments that there are no professional limits and on what their graduates know and can do in design" (Heller, 14).

If students are unprepared, what should be taught to design students to better prepare them for what awaits after graduation? "Design faculty have to mutually establish

priorities for what will be taught, and at what level specified coursework will be given. Once priorities are set and sequenced, then it is a matter of teachers devising problems to fulfill objectives" (Kelly, 93). Glatthorn would agree with Kelly, "In contrast to figuring out the new curriculum structure, which can be determined by turning to research, decisions about content depend upon the values of the developers. Thus, debates about whether the curriculum should stress the basics or respond to student concerns are simply matters of values. Two major factors influenced how we envision the new curriculums content: society and its future, and the needs of youth" (Glatthorn, 111). Richardson reinforces that "The best curriculum needs constant observation, and, it must change to respect the future" (Heller, 229). Pamela Bolotin Joseph's book, Cultures of Curriculum (2012) discusses the importance of a flexible curriculum to be able to "take advantage of the differences that inevitably arise between what is initially planned for the classroom what actually happens there" (Joseph, 3). With this conflict between the mission of design programs and the actuality, how can educators better work with the industry to develop a responsive curriculum, allowing for flexibility to new innovations and practices in the industry?

Another common complaint is that design students are unable to think on their own and develop their own projects. Loepp notes that we can better prepare students by, "Rather than asking students to follow the steps of procedure, memorize facts, or verify given principles of laws, students work together to discover knowledge, applying their knowledge as they solve real-world problems" (Loepp, 5). William Lehrer suggests that, "In most design programs, the teacher is a stand-in for the client, supplying the project/ problem to the students throughout the entire undergraduate and graduate careers. Credits and grades are ultimately replaced by salaries and awards. Often, when it comes to senior or graduate thesis projects, design educators find themselves frustrated by the design students' inability to define their own projects" (Heller, 74). Students not being able to think on their own could be due to the lack of encouragement from educators. Without

modifications to curriculum and courses, classes tend to become standardized. Creativity and freethinking are very both important assets in design and necessary for the student to be successful in the industry after graduation.

Developing a New Curriculum

Glatthorn states the general principles for a new curriculum (Glatthorn, 114-116):

- The curriculum should be meaningful
- The curriculum should have both unity and diversity
- The curriculum should make connections
- The curriculum should reflect human values
- The curriculum should emphasize responsibility

The two most important points for a design curriculum here are emphasizing responsibility and the making connections. By emphasizing responsibility in a design curriculum we can start to think about things like plagiarism and design ethics as well as considering how a project may affect its audience. By making connections in the design curriculum we can build upon applied knowledge or best practices in the industry (Glatthorn, 114).

In Meredith Davis's article entitled, What is 'Professional' About Professional Education, Davis discusses that "a curriculum is not a job description" (Heller, 67). The intent is to teach students "in both the discipline and the profession of graphic design" and to provide "a deep understanding of the discipline" preparing the student for professional practice "for the career lifetime of the individual" (Heller, 67). The purpose of education to the industry is to make "an informed guess about what will serve the profession well into the future" (Heller, 67).

The American Institute of Graphic Arts (AIGA) and the National Association of Schools of Art and Design (NASAD) have been working together to revise guidelines and criteria for graphic design programs "in hope that more comprehensive definitions of

standards and review processes for professional design curricula will improve the overall quality of academic offerings" (Heller, 15). Their program is called 'Defining the Designer of 2015'. In addition, AIGA and Adobe have been trying to predict the future for graphic design since 2006. "The initial phase of the research involved translating the expectations of participants into essential competencies that will be needed, in various combinations, by tomorrow's designer" (aiga.org). These competencies uncover the challenges for educational institutions, in developing curricula, and for studios, in recruiting their teams. The competencies are listed below in order of their ranked importance in the online survey (aiga.org):

1. Ability to create and develop visual response to communication problems, including understanding of hierarchy, typography, aesthetics, composition and construction of meaningful images
2. Ability to solve communication problems including identifying the problem, researching, analysis, solution generating, prototyping, user testing and outcome evaluation
3. Broad understanding of issues related to the cognitive, social, cultural, technological and economic contexts for design
4. Ability to respond to audience contexts recognizing physical, cognitive, cultural and social human factors that shape design decisions
5. Understanding of and ability to utilize tools and technology
6. Ability to be flexible, nimble and dynamic in practice
7. Management and communication skills necessary to function productively in large interdisciplinary teams and 'flat' organizational structures
8. Understanding of how systems behave and aspects that contribute to sustainable products, strategies and practices
9. Ability to construct verbal arguments for solutions that address diverse users/ audiences; lifespan issues; and business/organizational operations

10. Ability to work in a global environment with understanding of cultural preservation
11. Ability to collaborate productively in large interdisciplinary teams
12. Understanding of ethics in practice
13. Understanding of nested items including cause and effect; ability to develop project evaluation criteria that account for audience and context

The Designers Accord, "a global coalition of designers, educators, and business leaders, working together to create positive environmental and social impact (edutoolkit.designersaccord.org)", has examined design education through research and discussion. Their findings are similar to AIGA's 'Defining the Designer of 2015'. The Designers Accord states, "The purpose of design education is to graduate skillful designers with a fundamental understanding of sustainability principles, in theory and in application, capable of working in multidisciplinary teams, and aware of the context and systems, which design addresses. This may be accomplished by evolving a curriculum, which focuses on design and sustainability in the context of systems literacy, skills, and experiential learning" (edutoolkit.designersaccord.org). The Designers Accord goes on to say, "The future of design education requires that students learn within multi-disciplinary and experiential frameworks, act collaboratively, and think broadly, deeply, and critically. Sustainability is a natural characteristic of this systems approach" (edutoolkit.designersaccord.org). This is similar to the above-mentioned educational methods of the Stanford d.school and the practices of IDEO, both focused on understanding the user and creating ethically- and socially-based design decisions through research and collaboration.

Many sources comment on the common needs for design students to exhibit the ability to learn to learn, the ability to write in a professional manner, how to communicate and to tell stories (narratives), understand the history of design, and work together in teams (aiga.org; edutoolkit.designersaccord.org; Davis, speech; Giloi, 257; Heller, 20; Heller, 46; Heller, 74; Loepp, 5).

Basic Learning Outcomes

Wiggins says that "The point of education can be captured in a single phrase: worthy accomplishment, achieved by causing thoughtful and effective understanding that enables transfer. Any education, regardless of content or philosophy, should help learners, right from the start, to 'come to understanding' into two senses: (1) to enable them to constantly make meaning from their schoolwork and (2) to equip them to apply their learning to new situations not only in school but beyond it — that is, to transfer" (Wiggins, 2).

Kelly suggests that the limitations of design projects should be stressed in design courses, relating "to size, materials, media, tools, color, elements or other restrictions. Adhering to limitations is basic to all design solutions in or out of school" (Kelly, 87). Additionally, "Understanding design semantics is essential to criticism as it is necessary to verbalizing criteria. It is also an introduction for students to professional language" (Kelly, 87).

"In design schools we tend to review curriculum as a collection of content categories: we find courses by the objects made (motion graphics), segments of practice served (web design), or technical processes employed (Photoshop), not by the students developing awareness of concepts that transcend these categories, by critical or problem-solving frameworks, or by the intended mediation design" (Davis, speech). Davis is concerned with programs teaching just how to do things, but not also coupled with why to do things.

Curriculum should be designed for the 'why' and the 'so what' and students should get knowledge by practice (Wiggins, 16). The focus should be on introducing students to real-world problems and helping them to become critical thinkers allowing for transfer of information (Wiggins, 16):

1. Begin with an essential question related to real-world issues or problems (needing consideration across many topics)
2. Ask students to brainstorm and do preliminary research related to the question or issue. Introduce the content as a potentially helpful resource for solving

problems. Lecture and drill only as needed to equip students to address the challenge

3. Frame the unit around a culminating assessment task requiring transfer. Use quizzes only to provide supplementary evidence related to discrete knowledge and skill. Then design the lessons backward from what students will need in order to do well at the task
4. Frame additional units around other essential questions

Keeping Up With Technology

Leslie Becker, designer and design educator, in her article, Catching Up With the Past: Shifting the Pedagogical Paradigm, suggests that design education has not kept up with technology the way that industry has done (Heller, 55). Becker suggests four points for a modern functional pedagogical model (Heller, 55-56):

1. *Computers need to be in the classroom*
2. *Students need to bring the latest iteration of their work to class, viewable on the screen and as printouts*
3. *Design faculty need to sit beside students and suggest, direct, and help them metamorphose projects right on the screen*. Becker notes that this involves thinking out loud for the student's benefit to both learn the process of design and achieving an end but also learning how to verbalize thought.
4. *Eliminate thrash-around-and-print designing by teaching on the screen and in the moment*. Becker suggest that this method promotes digital iterations, rather than students designing on their own, getting frustrated or deciding the revision is complete without much consideration, printing, and waiting for class for instructor feedback.

Teaching Through Critique

Becker's important basic changes to modern pedagogy call for less wasted resources and time and more educating students on "design reasoning, thinking, and decision making" (Heller, 56). She stresses the importance of instructors thinking out loud and creating a running commentary with the students as to promote an active critique (Heller, 56).

"Criticism is based on factors such as limitations, mistakes, inconsistencies or weaknesses that can be pointed out in the work. Options or corrective measures can be demonstrated by the teacher. Rational criticism is always superior to imprecise or intuitive judgments when dealing with students" (Kelly, 87).

Developing Empathy: User-Centered Design

Davis sites and a Metropolis magazine poll about the importance of designers knowing how to research, noting that professional designers use research on a regular basis and that recent graduates should be trained in research methodologies as so they can tap into this market. This research extends into the realm of user-centered design, typical in most Human Computer Interaction, Usability and User Experience settings today. Giloi notes, "Design is not created in a vacuum, each piece that a student creates relates to the end goal of satisfying client. Student work should be contextually effective as it exists within history and theory of design, and for assessment purposes would be compared to current or past examples of this type of work and for last text design theory" (Giloi, 262). It is important to have "thinking behind their designs" showing an understanding of why the student is creating what they do (Giloi, 261).

The article From Formalism to Social Significance in Communication Design by Jodi Forlizzi and Cherie Lebbon discusses what the authors call "a new view of user-centered research", "Designers can no longer be concerned with the interaction of word and image; they must also be concerned with the interaction between the audience, the content of the communication, and the outcome of the design. In order to create dialogs that effectively

persuade the viewer to adopt a new belief or change behavior, the communication designer can no longer rely solely on intuition" (Bennett, 54).

We designers are taught that designing for simplicity is essential rather than designing for complex systems, future use, the user, and usability (Davis, speech). Davis calls for a shift from individual performance, ownership, and the belief in control in design education to becoming a design advocate (Davis, speech). The students have to learn to think through how to communicate every aspect of a project. A good way to get students to start thinking about this communication is to incorporate them into early projects in the role of both designer and audience (Davis, speech). In their article, From Formalism to Social Significance in Communication Design, Jodi Forlizzi and Cherie Lebbon note that "Designers have to devise methods for creating empathy with the viewer will play a part in constructing meaning from the message. This may mean gathering data directly from the audience for whom the message is designed" (Bennett, 54). Davis argues that "design is the mediation of interaction and that we can begin teaching the concept of the earliest levels of curriculum" (Davis, speech). The more students understand about what they are designing, and whom they are designing for, the better their work should be.

CHAPTER III

REFORMING DESIGN EDUCATION, A DISCUSSION

The following section is a discussion of the topic of reforming a design education. The following section includes a discussion of seven major themes: defining curriculum; the current state of a design education; current feedback from the industry discussing their needs; the influences of the industry and society on a design education; contemplation of where and under what school design programs belong; how to evaluate the needs of the industry and assess the design curriculum to incorporate professional and best practices, current trends, and current technologies; how to keep design educators knowledge current with current design and industry practices; and how and when to conceptually and recursively reform design curriculum.

The really interesting thing about design education is the impact educators have on the students and on the industry. We, as educators, help to shape their idea of what employment in this field means and try to prepare them with the skills they will need to succeed when they leave school. How do we define 'prepared'? If we define 'preparation' as the curriculum we have put in to place, how can we accommodate for the education, lessons, or learning that is 'in-between the lines' or not said at all?

Curriculum expert Elliot Eisner, in his book, *The Educational Imagination* (1985), considers the *Explicit*, *Implicit* and *Null* aspects of curriculum. Explicit curriculum is the "publicly stated goals of education" (Joseph, 5), or rather, the printed mission statement, methods and goals that a school or department may produce, publish or post on their website.

Implicit curriculum is all of the learning that goes on outside of the stated curriculum, encompassing both the positive and negative aspects of a school or a program (Eisner, 88-97). This includes the emphasis we as instructors put on certain topics, the expectations we set for students, or our reactions to their work during review.

Null curriculum, as defined by Eisner (97-107), is the information that is not taught or not included. This includes teaching a limited view of a topic, only presenting the popular or influential view. An example of null curriculum in the field of design would be teaching to one specific style, artist or method of craft without mentioning or promoting other avenues of thought or possibilities relevant to design and its history.

Current State of a Design Education

The design industry offers a diverse range of jobs and outlets for the talents the modern designer to find their focus in. Currently, a designer can find professional work in print, application, or web design. A designer can earn a living creating motion graphics for television, the film industry, or promotions. A designer can work in advertising, or branding, or even return to education to teach and train new designers. Social media users and usage have grown exponentially in the past ten years, including a wide age demographic. People are spending more time on their computers, tablets and smart phones than ever before. As we as a society continue to grow as a media-hungry, internet-based society there becomes more of a need for designers in the industry and thus a need for a design education that provides current, relevant training for students. In addition, a growing economy and decline in unemployment rates ensures plenty of design jobs for graduating seniors (www.bls.gov/eag/eag.us.htm).

These are the current factors that drive growth in the field of design. The question then is are we as educators providing the skills needed for these design positions? Entry-level designers need to prepare for roles in new media, such as interactive mobile design, and old media, such as print design, or both, such as in the case of a designer who prepares both print layouts and digital tablet layouts for both editions of a magazine. With so many options for what a designer can do working in the industry, how can educators

appropriately prepare students for any number of fields they may find themselves in?

Transfer & Permission to Fail

An important question to examine is how do educators change students, or even if educators can illicit a change in students? In this case, 'change' differs from 'education'; students can learn from lecture, readings, or class projects, but when and how does learning lead to a desired outcome? In Jerome Bruner's report, *The Process of Education*, this change in behavior is enacted through the process he referrers to as 'transfer'. Bruner's three principles, noted below, directly lead to this process of transfer:

1. Students "will learn more effectively if they discover ideas for themselves" rather than being told (Flinders, 66)
2. Students "are capable of engaging in authentic intellectual activity from an early age (Flinders, 66)"
3. Students should "focus on the structure of disciplines, how things are related, rather than on acquisition of mere information (Flinders, 66)"

Transfer happens when students are asked to perform tasks that are similar to tasks they have preformed previously. While Bruner's principles relate directly to young learners, K through 12, this concept of transfer can be associated with college-level learners.

An example of this transfer can be conveyed through the following example. A first year design studio class may begin by introducing students to the design principle of hierarchy. This lesson would be accompanied with lectures showing visual examples of hierarchy, readings for students to complete discussing theory of hierarchy, and a project where students are expected to demonstrate what they have learned from the lectures and readings. This initial demonstration may demonstrate understanding of the lectures and the readings; however, students have not effectively learned how to use hierarchy in their own work. This first project shows that they understand what hierarchy is and how

to mimic what was taught through lecture and research. A second project incorporating the same principles as the first, yet differing from the original project enough to allow for student expression would follow for the student to again demonstrate that they have transferred the learned knowledge, in this case hierarchy, from the first project. If the student does not understand the concept, the instructor should express this as a 'failure', allowing for the student to learn from mistakes. It should be noted that 'failing' is intended to provide evidence that concepts are not clearly understood and not in the traditional negative sense of 'not passing'. Point values for each project should increase over the course of the class to allow for failing to demonstrate ability or understanding early, for the student to reflect and learn from those failures, allowing the student to recover from early failures and to receive a passing grade for the overall course. For example, if a class offered five projects over the course of a semester totaling 100 points, the first project would be valued the lowest, possibly at 5 points, and each project would increase in value; perhaps the second project would be worth 10 points, the third 20 points, the fourth 25, and the last project valued at 40 points. This progressive scale would help students to examine what they have learned and the explore ways to implement that knowledge, emphasizing the act of 'trying'. Through this process mistakes can be made, learned from, and that knowledge can be transferred to the next project at a lower cost to the student's final grade in the class.

This progressive grading process is important as to not discourage the student and cause undue stress on the learning process. American students want to achieve good grades, are impatient about the learning process, and prefer for projects to be rigidly defined as to limit potential for failures (Kelly, 84)." The process of students completing projects to achieve grades inhibits the intended learning process (Kelly, 84). Creating an environment where failing is seen as a method of learning can promote a more complete understanding of the intended learning outcome and a transfer of that knowledge to future projects, future classes, and future professional endeavors.

Returning to the conversation of students obtaining professional skills desired in the industry; this skill set can be introduced through the process of transfer, such as, requiring professionally composed emails written to accompany project submissions. Transfer, in this sense, can be closely related to "getting into the habit of…" doing whatever is required to properly prepare students for the industry.

Feedback From Industry

In discussions with staff members of Gorilla Group, a smaller Chicago design agency focused mostly on local clients, VSA Partners, a medium-sized, national design agency located in Chicago, and Leo Burnett, a large, international design agency all agreed on three issues they find in entry-level employees. These areas are: Professionalism and Communication Skills; Understanding the Design Process; and preparing students for Short-term Deadlines (Schreiber, 2/14/14, Smith 2/13/14, Stojakovic 2/13/14).

The industry defines skills of Professionalism as the ability to effectively present to a group, be it in-house or directly to a client. Curt Schreiber, Client Engagement Practice Lead at VSA Partners noted that it is not enough to be able to give a stunning presentation; it is also the ability to respond to questions about the project or presentation. Ethan Smith, Creative Director at Gorilla Group, said that it is understandable to be nervous, but communication is what designers sell; it is important to be able to look someone in the eye and present or discuss a design concept (Smith 2/13/14).

Tied into the concept of Professionalism is both verbal and written Communication Skills. Representatives from all three agencies discussed the need to be able to communicate effectively with both the in-house team as well as with a client. Smith said that a designer who cannot also write a professional email to a client fails to be an effective member of the team (Smith 2/13/14). Additionally, being able to communicate within the company is important in being a productive and effective team member.

Each design agency interviewed has a different environment, meaning each has a

different method of communication. Leo Burnett has several floors where designers are separated by titles such as Creative and Motion Designer, which are then separated by different floors of the company and different areas of each floor. Additionally, employees are assigned to project teams. Employees frequently change teams and move desks. To be an effective team member, communication with your team as well as the community of the designers they work around is important.

At Gorilla Group, a smaller agency, the company is divided up on one floor by the job of the employee; designer, developer, support staff, etc. In this smaller setting, each employee is in more direct contact. An introverted designer still needs to be able to get along with teammates and hold discussions with clients.

All three agencies also commented on the need to understand and communicate the process of design. Gorilla Group noted the importance of being able to show work and describing how the design took form, what considerations were made for each part of the design, and what role the designer had in development and implementation. Both Gorilla Group's Smith and VSA Partners' Schreiber mentioned the value of a candidate interviewing for a position at either company needing to understand and discuss what thoughts and considerations went into a design (Schreiber, 2/14/14). Edward Stojakovic, Experience Design Director at Leo Burnett, mentioned that a crucial part of the design process is that designers need to understand for whom they are designing and for this understanding to direct and drive the design (Stojakovic 2/13/14).

If the industry influences what we teach, how can design educators reinforce the desirable traits of Professionalism, Communication Skills, and Understanding the Design Process with their students to help to make them better candidates for entry-level positions?

Teaching Professionalism

First, we, as design educators, need to introduce professional writing into design

projects from the beginning. This means educating students on what constitutes a professional email and how to write an effective project brief. Each project from that point on should require a professionally written project brief and that all email correspondence between the student and the instructor to be professionally composed. Rubrics and participation grades must reward professionalism sufficiently to motivate students to get into the habit of, or transfer this ability.

Next, we can enhance a student's Communication Skills by requiring and evaluating classroom presentations, both to peers and to other instructors. Communication skills can be built upon through presentation and critique of their work, however students will require direct feedback on their communication skills for each critique as to improve and transfer behavior.

Understanding and Communicating the Design Process

Understanding the Design Process is requiring students to keep up-to-date, detailed process documentation, as mentioned by Rob Roy Kelly and implemented at the Basel School (Kelly, 90) as well as in programs like Iowa State University's Graphic Design program. Process documentation should include the student's professionally written project brief; detailed research of who the audience is for each project, potentially going so far as to define personas to fully understand the audience/user; explicit detail citing why specific decisions were made, including versioning examples showing attempted concepts and discussion of how the student transitioned from version to version.

From experience, students have the tendency to wait until the project is complete before creating their process books. It this practice, part of their process can be overlooked or forgotten when detailed in their document. This practice can be alleviated by requiring and checking for current process documentation, assisting in the student's understanding of the design process and allowing them to understand and communicate the design process in their own words. These process documents can then be included in the student's

portfolio, accompanying the project to clearly communicate to any potential employer their understanding of the design process.

Speed of Practice: Professional Timelines

Another area all three agencies discussed was that of teaching to the speed of design, or rather, teaching students realistic turn-around times for projects. While first-year students new to the design program can be allowed longer deadlines to accommodate for transfer, as each new project is introduced deadlines should be shortened to simulate the turn-around times of the industry. For example, it should not be unreasonable for a senior, if a poster design is assigned on a Monday, to have fully researched, sketched, and mocked up the concept by Wednesday; and to be ready to present several iterations and the final product by Friday. This fast-paced process would allow students to prepare for professional practice as well as create a wide body of work for the student's portfolio.

Learning How to Learn

An additional concept that needs to be taught to students is the ability to learn on their own. The internet is full of resources for designers to learn new tricks, such as Lynda.com, Code Academy, and Tuts+. The most important part of a design student's education is learning how to effectively learn. Design professionals are constantly keeping up with the current trends in design and technology.

Students also need to learn how to think creatively and to think on their own. The professional world has little time for handholding. The greatest tools an entry-level designer can bring to a company are ambition and the ability to think creatively without being asked. The response when your creative director asks you to jump is no longer "how high?" but "I thought of that and mocked that up yesterday, what do you think?"

Industry as Influence: Industry Expectations of Education

Another interesting way to look at the topic of educating designers is the industry's impact on education. What are the new technologies being adopted by the industry? What new technologies is society adopting? How do we incorporate these new technologies into what we are teaching? Should we teach to these new technologies? And how soon is too soon to adopt? With the student course and project cycle, how do we modify what the students are learning when the industry is no longer using a technology?

If the industry's expectation of a design education is to prepare students for post-graduation employment, how can we as educators, curriculum and course designers, chairs and other decision-makers keep pace with a dynamic industry? Or, should we? It is given that the industry environment allows for more flexibility than that of higher education, which is why the industry can easily adopt the "new thing"; as defined by whatever modern design practice, program, medium or digital outcome, with little discussion within a company or department, and usually with the ease of filling out an expense report.

Higher Education, or education in general for that matter, has a need to wait to adopt new practices, programs, mediums or outcomes for several reasons. The first of those is financial. Budgets in education typically do not allow programs to change on a whim. Another factor is adoption rate; the time needed to determine if the new industry practice is going to become a standard. Additionally, there is the student course and project cycle of education.

A current example of student course and project cycle can be seen through the program Adobe (formerly Macromedia) Flash. For a period of about twelve years, Flash was the program designers used for interactive trade show displays, interesting and entertaining moving website design, linear animation, and online games and video delivery. If you knew Flash and its accompanying coding language ActionScript, you could easily find work and make a good living.

During this time Smart Phones were becoming more widely used. An open letter from Steve Jobs in April of 2010 listed six reasons why iOS devices would never support Flash. Some of the reasons included Flash being proprietary, lack of performance on mobile devices, and security and concern for battery life (http://mashable.com/2010/04/29/steve-jobs-flash-is-no-longer-necessary). Some suggest that this was a move by Apple to promote both HTML5 and the video codec H.264 – both projects that Steve Jobs had stakes in. Regardless of reasons, by November 2011 there was a notable decline in people using Flash causing Adobe to announce the end of their Flash support for mobile devices (blogs.adobe.com/conversations/2011/11/flash-focus.html).

How does this effect a student's education? If a student entered a program that taught Flash in August of 2011 – before Adobe stopped supporting mobile – there is a good chance that they would have been introduced to Flash in their first year. Courses are developed on the transfer of knowledge from one class to another. Projects for their future classes would most likely have Flash-based interactive animation projects included. Assuming the program is a four-year program, with a foundations year, this student would have used Flash to create projects in their sophomore classes for the 2012/13-year and junior classes for the current school year, 2013/14. What this means for the industry is, when the student graduates next year, 2015, they will have a portfolio of Flash work to show to future employers, who will probably question why the student has been using a program that they themselves stopped using four years prior. For the most part, the industry has moved on from Flash. Employers today are more interested in whether the student can offer the same level of design, interaction or animation using HTML5 and CSS3.

A late holdout due to content was PBSKids.org, a website devoted to providing educational and entertaining online games for children, in 2012, was primarily (approximately 90-95%) Flash-based both in interface, games, and media (Eiler, 02/11/14). In 2013 PBSKids.org completed a full HTML5 redesign. As of this writing, 99% of all new content for PBSKids.org is non-Flash based (Eiler, 02/11/14). Less than 1% of the

new games are Flash-based games on their website; specifically games that require Flash mechanics to function correctly (Eiler, 02/11/14).

If the expectation of a design education is to prepare students for entry-level positions, shouldn't we, as Elliot Eisner suggests, be "framing curriculum around performance goals" creating an experience for undergraduate design students where a "desired performance" is defined by both industry and educators (Wiggins, 44)? This type of curriculum theory is commonly related to athletics, comparing coursework to practice and "drills", and "the game" to immersive learning (Wiggins, 46). While both are important in the learning process, "do"-ing a subject has more benefit than simply learning how to "do" (Wiggins, 46-47).

Society as Influence (and how this translates to design education)

How does the career of design fit into our current society? As noted by the American Institute for Graphic Design (AIGA), "Graphic design is part of your daily life. From humble things like gum wrappers to huge things like billboards to the T-shirt you're wearing, graphic design informs, persuades, organizes, stimulates, locates, identifies, attracts attention and provides pleasure (www.aiga.org/guide-whatisgraphicdesign)."

One major motivator for the field of design, as with anything, is the economy. A career in design can ebb and flow with the viability of the economy. What this means for designers is that when the economy is good, work for designers is in abundance. Conversely, when the economy is bad, work for designers is difficult to find. For design students, depending on the state of the economy at the time of graduation, it means that employment may be in abundance, or a job in design may be very difficult to find.

A common belief of non-designers is that the role of designers is to "make pretty things". While this may in part be true, visual appeal is only a fraction of the overall function of design. As discussed many times throughout this paper, the modern idea of design is that of IDEO's 'Design Thinking'. The modern function of a designer is the ability

to work professionally; the ability to collaborate with people who have backgrounds that may not traditionally be thought of as 'creative'; to work collectively in a group; and, most importantly, to consider the audience, also known as 'the user', of the product or concept being developed.

The modern designer must be able to create things that are both aesthetically pleasing but also functional in the eyes of the end user. Some titles of these roles in industry are human factors engineer, usability designer, user experience (UX) designer, user interface (UI) designer, and User Centered Designer (UCD) (www.google.com/about/jobs/teams/engineering/ux, www.humanfactors.com/home/careers.asp). UX/UI design couples both the concepts of design and the scientific practice of observing, understanding the needs of a specific audience, or rather, the needs of society as a part or as a whole, and knowing how to design a system to function well within those specific needs.

Trends in the Tools of Design

Increased Functionality, Updating Interfaces, Developing New Workflows

Each new release of a program or operating system offers more features to support current industry practices, differences in interface, and potential for depreciation of old practices and/or methods. For example, the current January 2014 update for Photoshop CC, a highly valued program in the industry, included support for 3D manipulation and 3D printing that was not included in versions prior to this release (http://helpx.adobe.com/photoshop/using/whats-new.html).

An example of the frequency of change in technology and the tools of the industry can be seen in Table 3.1, Cycle of Major Program Releases from Adobe Systems on page 70. Another example of the frequency of change in technology and the tools of the industry can be seen in Table 3.2, Cycle of Major System Releases from Apple, Inc., on page 71.

Cycle of Major Program Releases from Adobe Systems

VERSION	ANNOUNCEMENT DATE	SOURCE
Adobe acquires Macromedia	April 18, 2005	www.adobe.com/aboutadobe/invrelations/adobeandmacromedia.html
Adobe Creative Suite 3 (CS3)	March 27, 2007	http://www.adobe.com/aboutadobe/pressroom/pressreleases/200703/032707CreativeSuite.html
Adobe Creative Suite 4 (CS4)	September 23, 2008	https://www.adobe.com/aboutadobe/pressroom/pressreleases/200809/092308AdobeCS4Family.html
Adobe Creative Suite 5 (CS5)	April 12, 2010	www.adobe.com/aboutadobe/pressroom/pressreleases/201004/041210AdobeMasterCollectionCS5.html
Adobe Creative Suite 5.5 (CS5.5)	April 11, 2011	www.adobe.com/aboutadobe/pressroom/pressreleases/201104/041111AdobeCreativeSuite5.5.html
Adobe Creative Suite 6 (CS6)	May 7, 2012	www.adobe.com/aboutadobe/pressroom/pressreleases/201205/050712AdobeCS6Ship.html
Adobe Creative Cloud (CC)	May 14, 2012	www.adobe.com/news-room/news.html

Table 3.1 – Cycle of Major Program Releases from Adobe Systems

Cycle of Major Operating System Releases from Apple, Inc.

VERSION	ANNOUNCEMENT DATE	SOURCE
OS X 10.1 Puma	July 18, 2001	www.apple.com/pr/library/2001/07/18Apple-Previews-Next-Version-of-Mac-OS-X.html
OS X 10.2 Jaguar	May 6, 2002	www.apple.com/pr/library/2002/05/06Apple-Previews-Jaguar-the-Next-Major-Release-of-Mac-OS-X.html
OS X 10.3 Panther	June 23, 2003	www.apple.com/pr/library/2003/06/23Apple-Previews-Mac-OS-X-Panther.html
OS X 10.4 Tiger	May 4, 2004	www.apple.com/pr/library/2004/05/04Steve-Jobs-to-Kick-Off-Apples-Worldwide-Developers-Conference-2004-with-Preview-of-Mac-OS-X-Tiger.html
OS X 10.5 Leopard	June 26, 2006	www.apple.com/pr/library/2006/06/26Apple-Executives-to-Preview-Mac-OS-X-Leopard-at-WWDC-2006-Keynote.html
OS X 10.6 Snow Leopard	June 9, 2008	www.apple.com/pr/library/2008/06/09Apple-Previews-Mac-OS-X-Snow-Leopard-to-Developers.html
OS X 10.7 Lion	Oct 20, 2010	www.apple.com/pr/library/2010/10/20Apple-Gives-Sneak-Peek-of-Mac-OS-X-Lion.html
OS X 10.8 Mountain Lion	Feb 16, 2012	www.apple.com/pr/library/2012/02/16Apple-Releases-OS-X-Mountain-Lion-Developer-Preview-with-Over-100-New-Features.html
OS X 10.9 Mavericks	June 10, 2013	techcrunch.com/2013/06/10/live-blog-wwdc-2013-keynote/#liveblog-entry-514917

Table 3.2 – Cycle of Major Operating System Releases Releases from Apple, Inc.

While it is not necessary to adopt each new technology as it comes out, there is value in understanding current functionality of the major programs and what this means to the design process. That said, the existence of more than one version, or in the case of Adobe CC, more than a few updates, increases the potential that students will be trained on outdated practices and workflows. While educators may become comfortable with certain versions of programs, there is a need to stay current with the tools of the trade in preparing students for the industry.

Paul Rand discusses the differentiation between a designer and a computer operator. "You have to decide which is more important. If the computer is more important, you'll wind up – if you are very good computer operator – in an advertising agency sitting at the computer for the rest of your life. That is because you will be getting better at it everyday. You get more useful to your boss, so you will never do any designing" (Kroeger, 44). Rand's comment was made in a lecture to design students in 1995. Today, there is value in both the designer and the computer operator. Some students gravitate towards being better designers and some towards being better with design programs. While both will find their value in the industry post-graduation, each should be required to demonstrate competency in the core goals of the curriculum set out by the department. Today, being both a good designer and understanding the technology behind the design are equally important talents to have.

In addition to the technological tools of the trade, the industry itself is constantly evolving as are the needs of the client. For example, print practices of about ten years ago required designers to package typography and images and create 4-color separation plates. The designer often had to visit the printer to check prepress proofs to ensure accuracy and attempt to catch shifts in registration. Modern printing practices now only require the designer to supply the printer with a PDF of the layout and proofs are typically shown digitally.

Web design ten years ago involved using HTML4.0 or XHTML. It was common

practice to use images or image slices to build the design of the website, and commonly entire website designs would rely on table tags for structure. Using any typography that was not supported by all browsers could lead to problems. Attempting to design a website that looked similar on every major browser was a frustrating task. The most commonly used browser of the time was Internet Explorer holding 84.7% of the users in January of 2004 (http://www.w3schools.com/browsers/browsers_stats.asp). Modern practices have added new supporting tags to HTML5 allowing for websites to look up to 99% similar on every browser. Use of Internet Explorer has dropped to 10.2% in January of with Chrome holding 55.7% of the market 2014 (http://www.w3schools.com/browsers/browsers_stats.asp). Designs are created using Cascading Style Sheets (CSS). Video and audio are easier to add to a website than they were 10 years ago, which required the use of FlashPlayer, and are expected on most visited websites. Current use of most any typeface is simple to add to a website. Unique type no longer has to be an image, allowing for better Search Engine Optimization meaning that users can find the content easier.

Both web and print design have been with us for a while now. Other big concepts have been introduced in the industry in the past ten years, like the advent of the SmartPhone creating the need for app design for mobile technology. The next unknown big thing could come any day. Without understanding the needs of the industry how can a design education evolve?

CHAPTER IV
PROPOSED ASSESSMENT TOOL FOR EXAMINING INDUSTRY AND EDUCATIONAL NEEDS

There is a need for design curriculum and course design to be reviewed and revised in a recursive method. This arises from the need for design education to stay current with the needs and practices of the industry. If a design education is to prepare students for professional practice, the education, both the curriculum and course design, needs to be flexible to accommodate changes in technology, updated design practices, and changing mediums.

The positive outcomes of a recursive curriculum and course design are to provide students with a refined, current design education. Through touch points set up with the industry, through both this proposed assessment tool and feedback from advisory boards comprised of representatives of the industry, this recursive curriculum and course design can also meet the needs of the industry where most students will find themselves working after graduation.

Potential negative outcomes for a recursive curriculum and course design could include: increased learning requirements for faculty, increased budgetary needs for continued learning education (CLEs), lifelong learning, and other training, and additional time spent for both faculty and the department to arrange and track these requirements. As with any modification of current practice, asking educators to continue or keep current their training could have potential to be unpopular. If proper groundwork is laid prior to imposing this requirement and any opposition is met with understanding and reaffirming that these methods will better for the department, program, and student, this fear or dislike of change will be overcome with time. The benefits of a well-educated design faculty outweigh the short-term discomfort of having to take part in continued, lifelong learning. Reflecting on Rob Roy Kelly's comment from the literature review section of

this paper, “The performance of students is directly tied to standards and values of the instructor. An Instructor with high standards will demand more from students, and therefore, they perform at a higher level and learn more” (Kelly, 85).

The role of Advisory Boards is to inform education of the current needs of the industry. The proposed role of an assessment tool is to alleviate some of the burden on the Advisory Board and to cast a wider net on the industry. Feedback from the proposed assessment tool will collect information from recent graduates of the design program as well as insight from managers of the recent graduates, or those in similar roles. Advisory Boards should remain in place to assist in critiquing suggested changes as well as continuing their role of suggesting modifications to the program.

How do we measure a student’s success? Is it a personal measure of the student’s happiness in what they do post-graduation? Is it the measure of if the student effectively learned how to learn on their own, providing them the ability to succeed in problems they will be confronted with throughout their professional career? Is it the measure of the graduate’s performance at the company at which they are hired?

This research looks in to the development of an assessment tool to regularly survey the needs of the industry, the needs of recent graduates, and the needs of society to provide a recursive method for refining curriculum and course design more frequently. The proposed purpose for this assessment tool will provide a method to review the feedback mentioned above and compare how prepared graduates in entry-level positions feel and what information they feel they missed in their education. Feedback from those in management roles of recent graduates can also be collected, comparing how prepared they feel design graduates are from their perspective and in what areas design graduates still need to grow. Feedback from both groups can then be compared to see if it relates. If it does relate, how can we address this data and appropriately modify our design program? Is curriculum modification necessary? Can these missing skills be learned through experiential education?

Survey Overview

A survey was created to test the effectiveness of this proposed assessment tool and to consider what questions might be asked, how the tool might change depending on the role of the reviewer, and to see what type of feedback might be captured. The survey was created using Qualtrics Survey Software, licensed through Iowa State University. The raw version of survey, downloaded from Qualtrics, can be viewed in its entirety in Appendix A.

The purpose of this survey was to observe and review the current needs of the Design Industry. The survey was designed to capture results from three specific audiences:

- Recent Graduates of Design Programs: How recent graduates of these programs evaluate their skill set upon entering the industry (within the first three years) and if they feel they lacked specific, or needed any additional training
- Faculty Members of Design Programs: How faculty of American design programs evaluate their performance in preparing students for the industry
- People Working in the Design Industry: How members of the design industry, who have recent direct contact with entry-level employees, evaluate the recent graduates' skill set and performance and if they feel the entry-level employees are lacking any specific training

If the user held multiple roles, for example they are both an educator and work in the industry with recent graduates, they were asked to please choose a single point of view (e.g. design educator) from which to answer the questions. If they wanted to, they had the ability to take the survey a second time from the point of view of their other role.

There are four sections of the survey; General Information, Preparation and Preparedness, Skills (design, technical, professional), and Educational Curriculum and Course Design. The survey's intent was to capture both qualitative and quantitative data from the defined audience. Quantitative date was collected using a five-point Likert scale. Qualitative data was collected through optional user input.

There was no direct benefit to the survey taker. Users were notified both through email and the first screen of the survey that the results of this survey, along with curriculum and course design research will be applied to a new method for developing curriculum to better prepare undergraduate design students with the skills they will need in industry. The above information can be found in Appendix B, 'Survey Purpose' and 'How the Survey Will Be Distributed'.

An Institutional Review Board (IRB) application was submitted for review and approved on November 22, 2013. The approved IRB can be found in Appendix C, 'IRB Application and Approval'.

To assist in refining the results to only the desired audience, there are two types of conditional 'if' statements included in the survey. The first type, shown in Figure 3.1, page 77, examines a users response and directs the user to a certain part of the survey, typically to the end of the survey, thanking the user for their time.

The second type of conditional statement, shown in Fig 3.2, page 77, displays a question based on the user's response to a previous question. The purpose of this method is to capture only the responses of the three specific audiences using a single survey as opposed to creating three separate surveys, targeting and distributing them to a specific audience. Because of the conditional statements, in the following sections, survey questions are referred to in order of the results, not in order of how they were displayed to the respondent.

The survey was distributed using the following methods/media:

- Career Services, send out to alumni of ISU's Design Program
- LinkedIn
- Personal Contacts at other Colleges and Universities

In addition, with help from Debra Satterfield, Major Professor and Supervising Faculty on this paper, the survey was sent out to Iowa State University's Graphic Design Program's Advisory Board and Internship Providers.

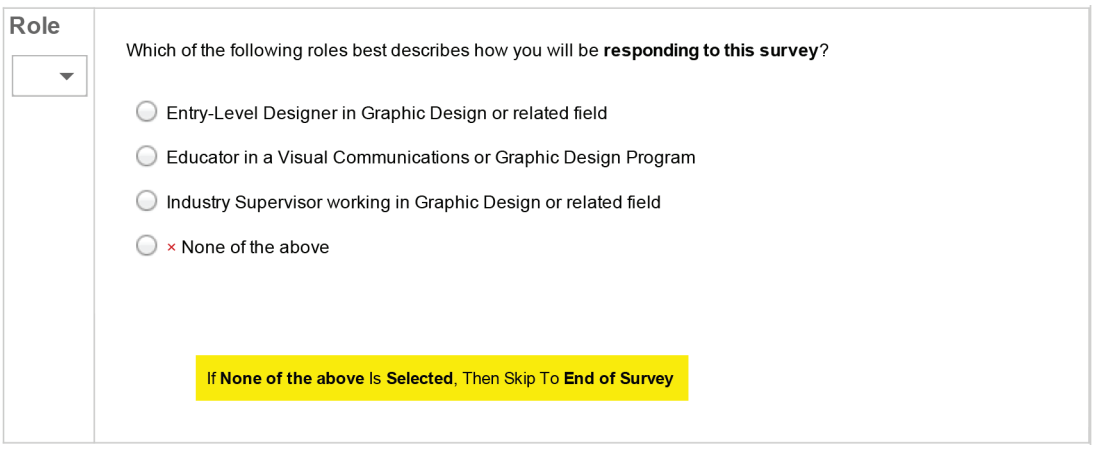


Figure 3.1 – First type of conditional statement used in survey

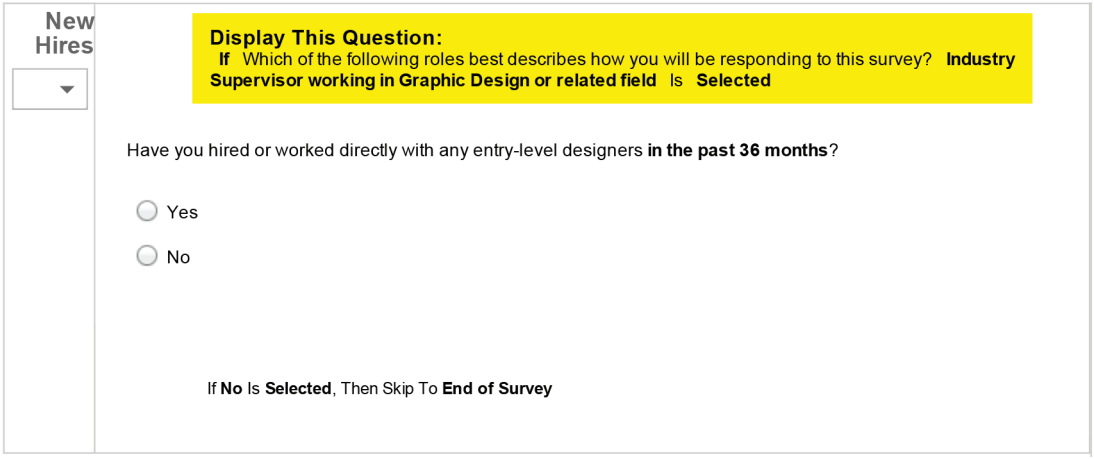


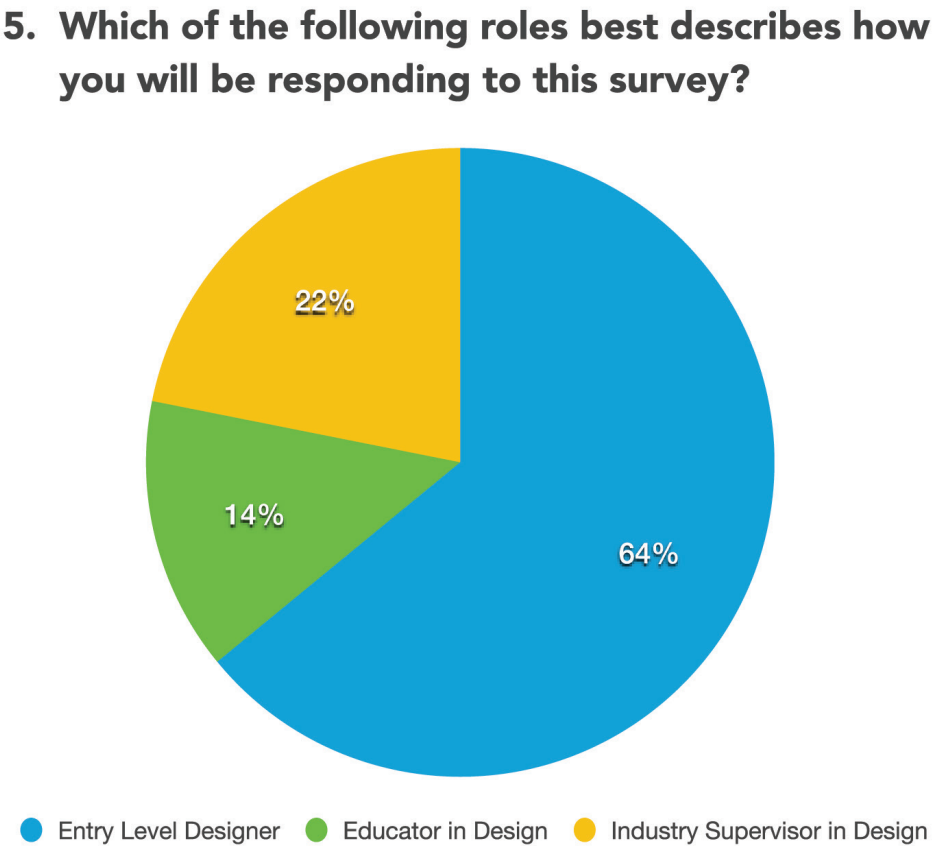
Figure 3.2 – Second type of conditional statement used in survey

Results

The survey was distributed on December 5, 2013 and remained open until February 27, 2014. Seventy-two respondents attempted the survey; two did not agree to participate in the survey. Of the remaining 70 respondents, ~68 successfully completed the survey. The raw data for the survey can be found in Appendix D, 'Survey Data From Qualtrics'.

From the data collected it can be ascertained that the survey use as a proposed assessment tool was successful. This success can be seen in the results of Question 5, "Which of the following roles best describes how you will be responding to this survey?" As visualized in Figure 3.3, page 79, 41 individuals, or 64% responded, "Entry-Level Designer in Graphic Design or related field"; 14 individuals, or 22% "Industry Supervisor working in Graphic Design or related field"; and 9 individuals, or 14% "Educator in a Visual Communications or Graphic Design Program". While not an even distribution, there are enough results in each section to yield usable feedback.

We can further examine each of the roles separately. Starting with "Entry-Level Designer in Graphic Design", the highest responded category, out of 39 responses the mean in response to Question 8, "Please rate how prepared you were for working in the industry" was 3.1 out of 5 (Figure 3.4, page 80). Fifteen of the respondents rated their preparedness at a 4/5 and only one individual rated himself or herself completely prepared, 5/5. With 3/5 being the average, recent graduates are finding themselves slightly over average in being prepared for the industry. On Question 11, 87%, or 33 out of 38 thirty-eight recent graduates answered, "Yes" when asked, "Do you feel that you needed additional training when entering the industry" (Figure 3.5, page 81). This result speaks more to not being prepared when entering the workforce than the previous question. The last question specifically for entry-level designers, Question 14, asked, "In what specific areas do you feel that you needed additional training". Respondents were able to select multiple answers. Thirty of thirty-three respondents, or 91% responded that they needed



VALUE	RESPONSE
Entry Level Designer	41
Educator in Design	9
Industry Supervisor in Design	14

Figure 3.3 – Question 5, Choice of Role in Survey

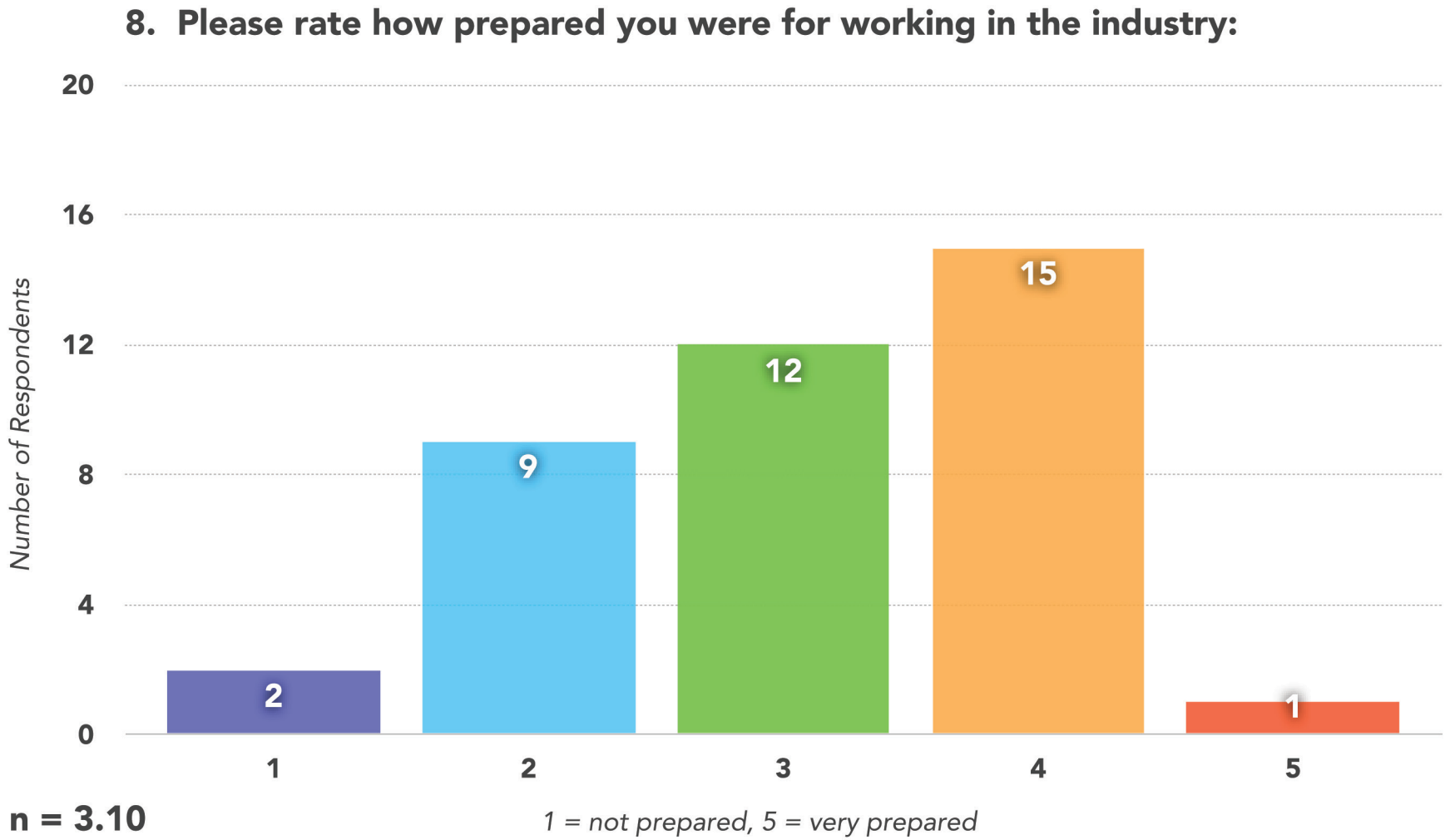
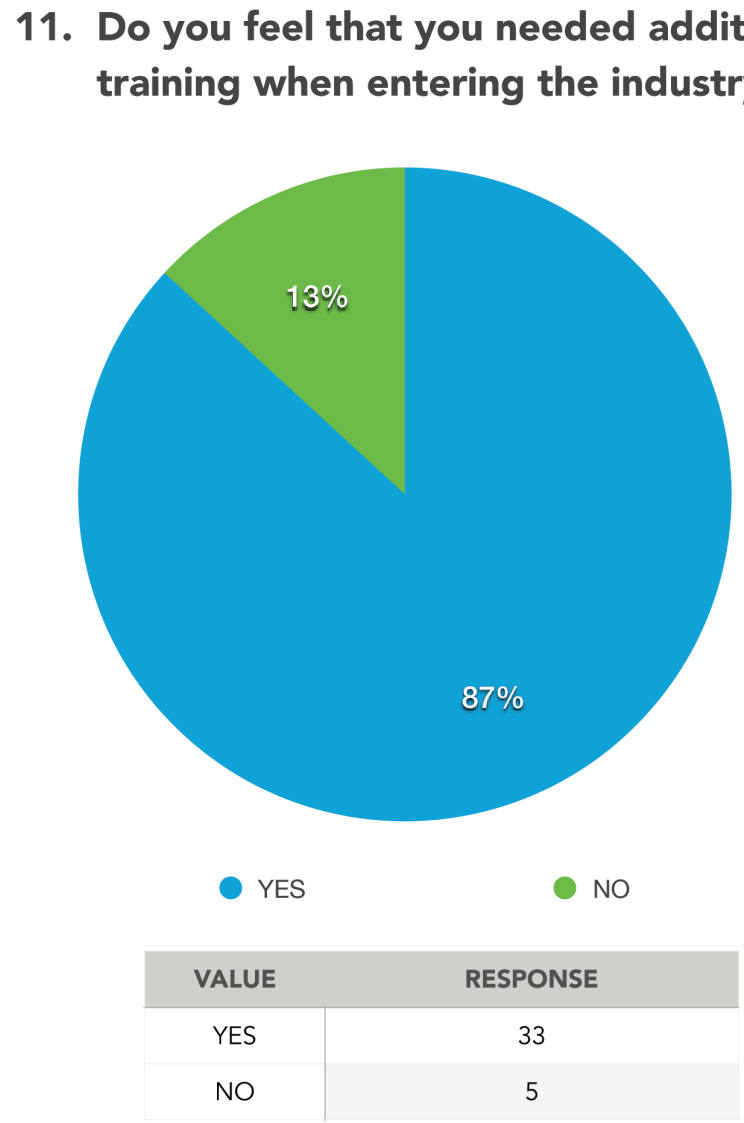


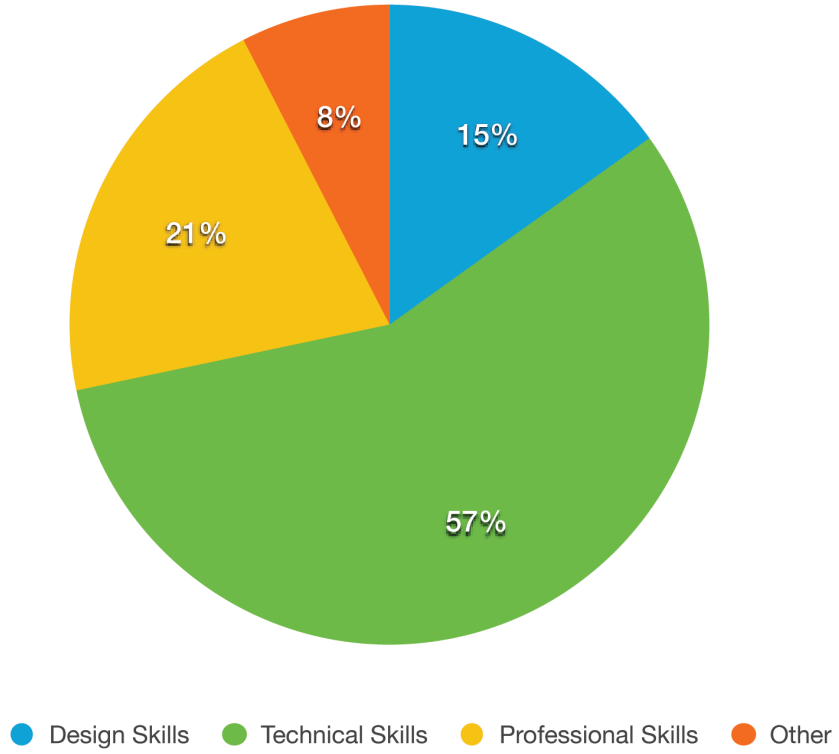
Figure 3.4 – Question 8, Entry-Level Designer in Graphic Design Response



VALUE	RESPONSE
YES	33
NO	5

Figure 3.5 – Question 11, Entry-Level Designer in Graphic Design Response

14. In what specific areas do you feel that you needed additional training (select as many as you see fit)



OTHER
Research and Marketing Strategy
drawing
Personal skills: speed, efficiency
Professional practice skills, business skills, finance skills

Figure 3.6 – Question 14, Entry-Level Designer in Graphic Design Response

additional training in “Technical Skills (i.e., programs, computer, coding, etc.)”, 33% in “Professional Skills (i.e., written communication, oral presentations, critiques, etc.)”, and 24% in “Design Skills (i.e., theory, principles, methods, craft, etc.)”. Respondents were given the option of entering their own input for “Other” (Figure 3.6, page 82). Four respondents replied separately with “Research and Marketing Strategy”, “drawing”, “Personal skills: speed, efficiency”, and “Professional practice skills, business skills, finance skills”. The last two responses could be classified under “Professional Skills”. The data suggests that recent graduates are leaving school feeling unprepared mostly in technical skills.

When looking at the results from “Industry Supervisor working in Graphic Design or related field”, on Question 10, “Please rate how prepared recent graduates are for working in the industry” the mean is also 3.1, Seven of the ten responses rated recent graduates preparedness to be 3/5, in the middle, one responded 2/5, and two responded 4/5 (Figure 3.7, page 84). However, in comparison to Question 13, “Do you feel that recent graduates need additional training when entering the industry” 100% of 10 respondents said “Yes” recent graduates need additional training when entering the industry (Figure 3.8, page 85). Question 16 asked industry supervisors, “In what specific areas do you feel that recent graduates need additional training”. Respondents were able to select multiple answers. 70%, or seven out of ten responded, “Professional Skills”, 60% “Technical Skills”, 50% “Design Skills”, and two respondents added their own response for “Other” (Figure 3.9, page 86). The “Other” responses collected were, “Understanding design, is NOT layout. Design is solving problems, not just making it pretty” and “Concepting [sic] and art history”.

The results collected from “Educator in a Visual Communications or Graphic Design Program”, on Question 9, “Please rate how prepared your students are for working in the industry”, of eight responses, five rated 4/5 and three rated 5/5, with a mean of 4.38 (Figure 3.10, page 87). Educators appear to think that students are getting a better education than both students and their supervisors believe they are. On Question 12, “Do

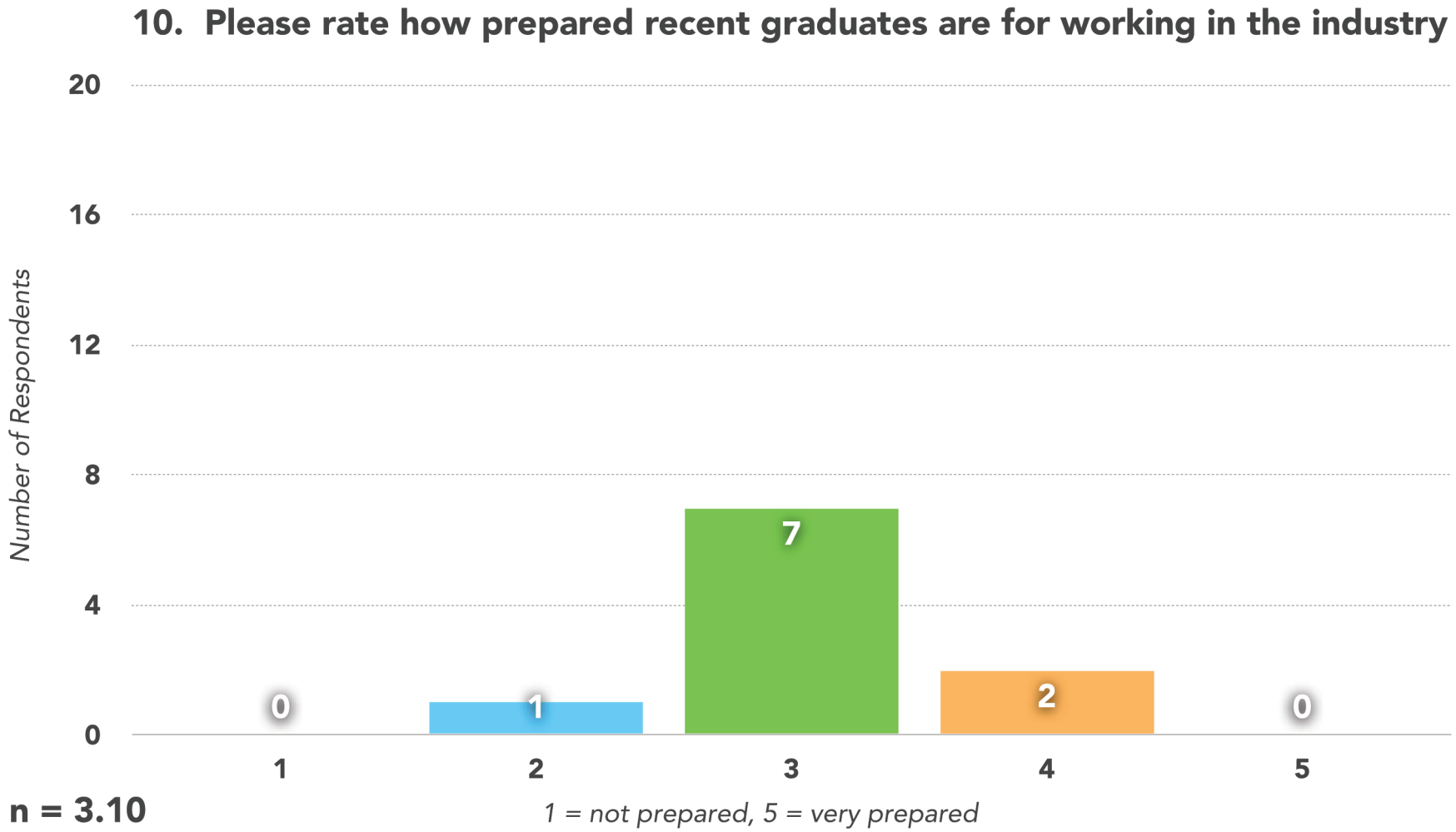
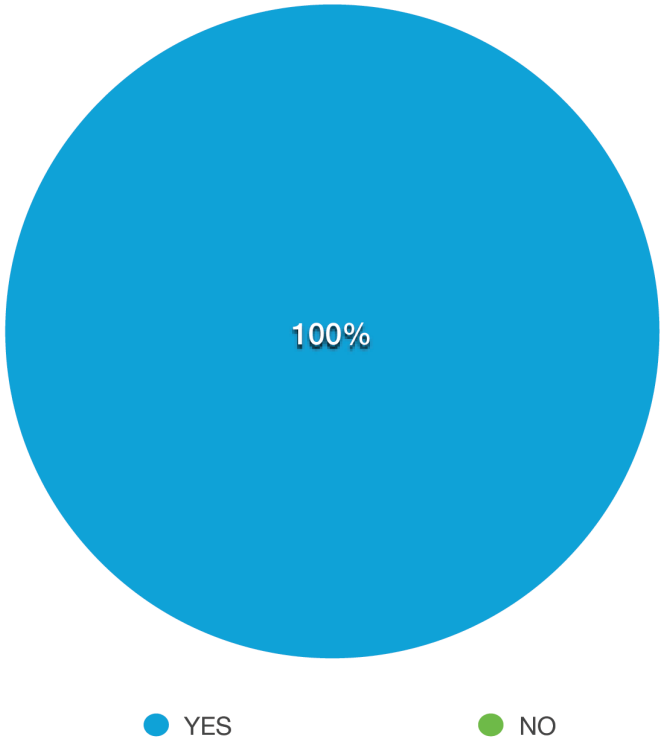


Figure 3.7 – Question 10, Industry Supervisor in Graphic Design Response

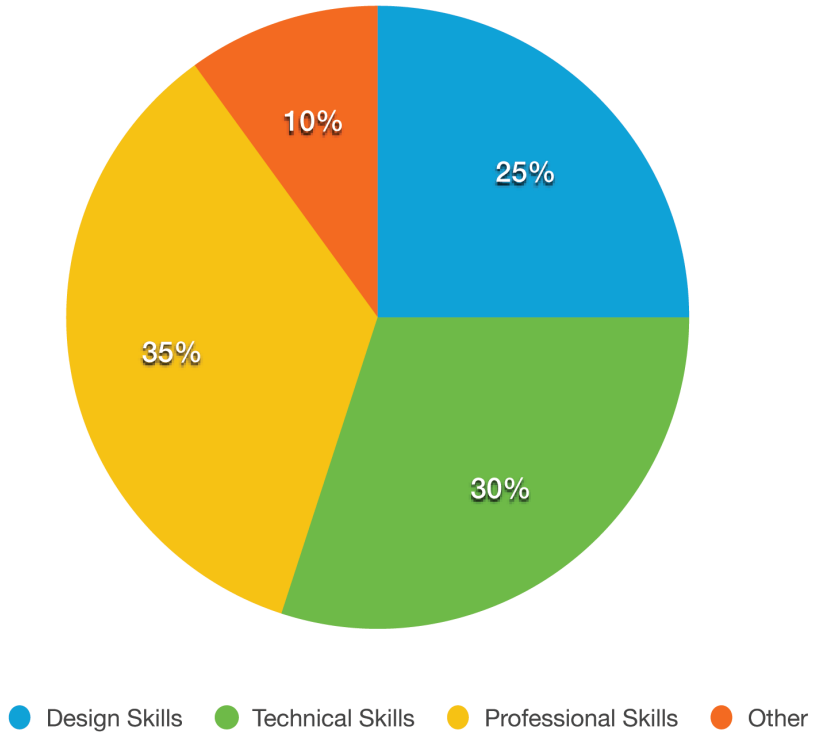
13. Do you feel that recent graduates need additional training when entering the industry?



VALUE	RESPONSE
YES	10
NO	0

Figure 3.8 – Question 13, Industry Supervisor in Graphic Design Response

16. In what specific areas do you feel that recent graduates need additional training (select as many as you see fit)



OTHER
understanding design, is NOT layout. design is solving problems, not just making it pretty.
concepting (sic) and art history

Figure 3.9 – Question 16, Industry Supervisor in Graphic Design Response

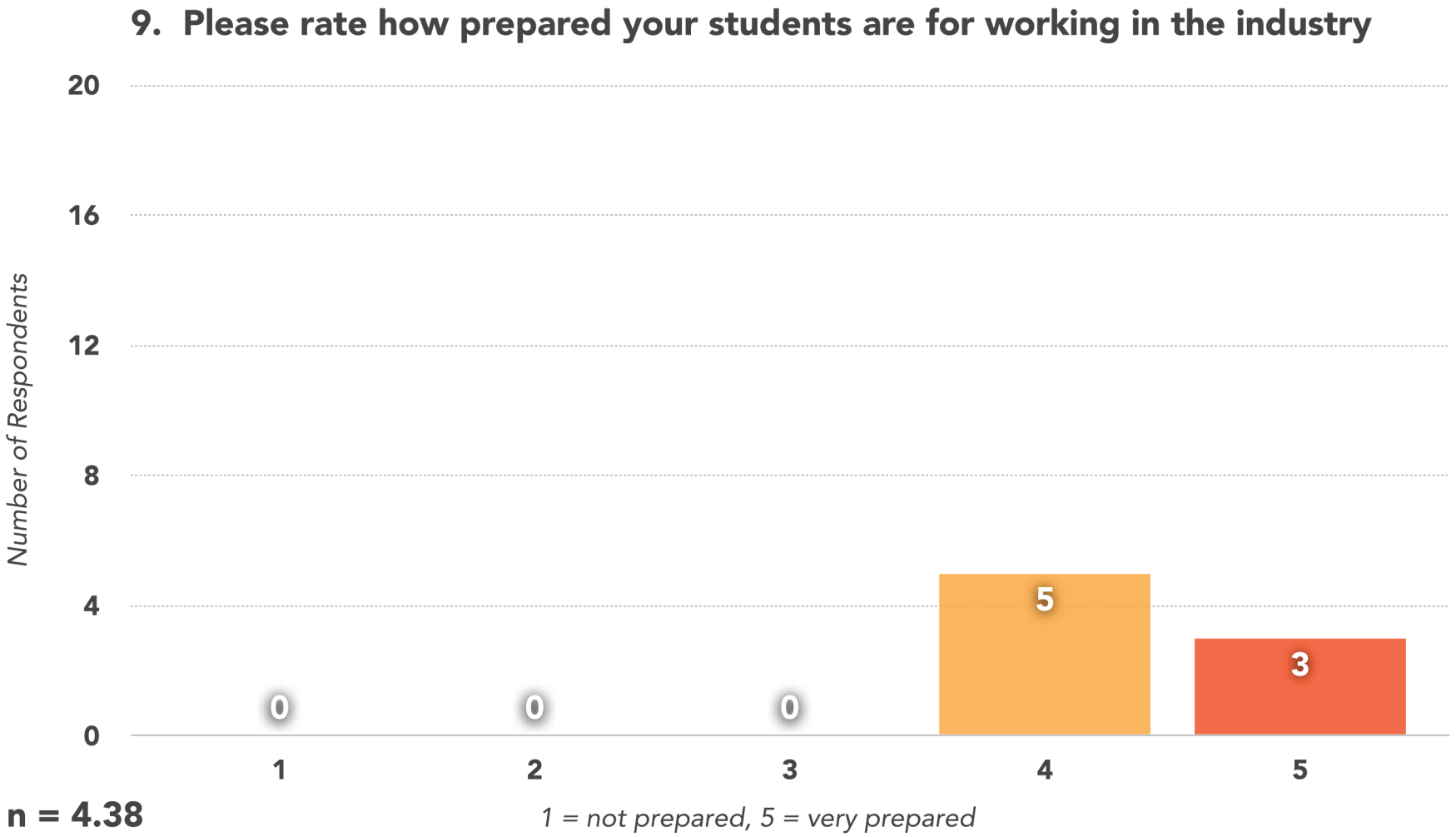
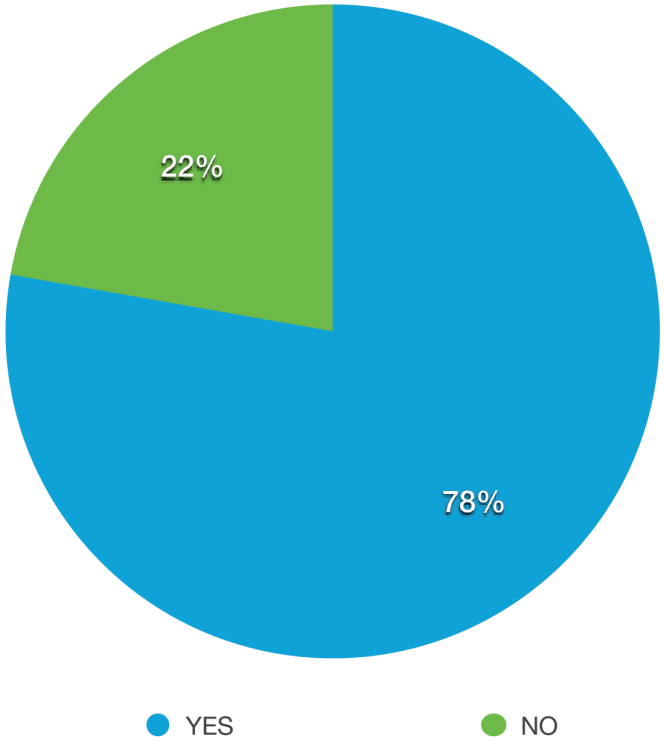


Figure 3.10 – Question 9, Educator in Graphic Design Response

you feel that your students will need additional training when entering the industry" 78% or 7 of 9 responded "Yes" (Figure 3.11, page 89). Question 15, "In what specific areas do you feel that your students will need additional training" 86%, or six of seven respondents listed "Technical Skills", 71%, or five of seven respondents listed "Professional Skills", and 14%, or one of seven responded "Other", "Practical application and growth as software and industry progresses". 0% of educators who responded selected the option "Design Skills" (Figure 3.12, page 90). Respondents were able to select multiple answers.

The qualitative data collected, of which between twenty-eight and thirty-five responses were contributed, calls to attention many of the areas where a design education should consider improvement. This information can be seen in Tables 3.3, page 91; 3.4, page 92; 3.5, page 93; 3.6, page 94; and 3.7, page 95. The results of this prototype assessment offers evidence of a discrepancy between the self-assessment on the part of educators with respect to the completeness of a design education and the perceptions of their customers: students and their future employers. If we consider a motto in the business world, "the customer is always right", shouldn't we then be listening to the "customer" of a design education? This would include both providing the student seeking a design education with a better education and the industry with better employees.

12. Do you feel that your students will need additional training when entering the industry?



VALUE	RESPONSE
YES	7
NO	2

Figure 3.11 – Question 12, Educator in Graphic Design Response

15. In what specific areas do you feel that your students will need additional training (select as many as you see fit

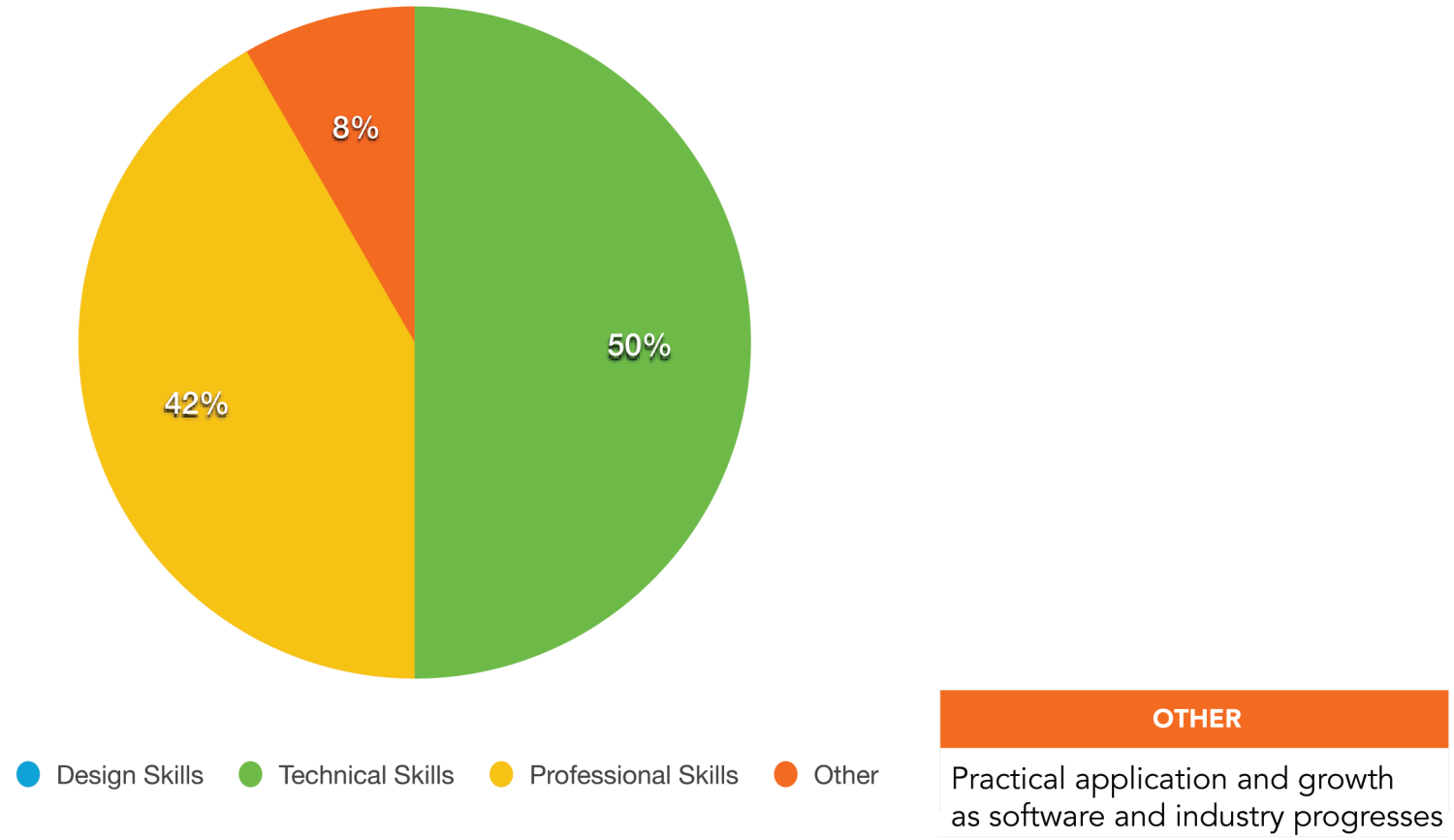


Figure 3.12 – Question 15, Educator in Graphic Design Response

19. Please list any design skills (i.e., theory, principles, methods, craft, etc) that you feel students of graphic design or visual communication programs will need for working in the industry:

- How to contribute in brainstorming exercises, gauging the end user and coming up with the style perfect for them.
- methods
- Design ideation and collaboration, story mapping, design thinking, rapid prototyping, sketching.
- formal organizational skills (the prep for this begins with hierarchy projects which introduces them to the design principles; they need to learn hand skills such as how to comp books and packages and 3D models because it rounds out the way they can submit or show work to a client in addition to generating images or designs on the computer. It also forces them to think ion another way. They learn compositional skills in all classes as well as the digital photography class. The students often do not realize that they need to apply what they are exposed to in these classes when it comes time to create applied design projects in the upper level classes.
- Theory, practical, busines, legal, code, print production, digital imaging
- not understanding what design really is. they think layout is design.
- The ability to communicate theory, principles, methods and craft to non-design professionals.
- designing for a business (ie clear communication of logo/brand to audience) as opposed to designing for artistic purposes is one challenge we have experienced
- methods are the most important. What are agency's using to complete tasks.
- Photoshop mastery, an eye for good/clean/modern design, typography (web & print), the grid
- art history/ geometry (math)/ production (printing standards)
- CRAP principles, grid based design, thoughtful communication
- Craft and attention to detail is extremely important; Design principle foundation is a must-have, but Senior Designers will also help hone that skill;
- interactive, web, hand drawing
- Typography, grid systems/layout, photo editing, appropriate use of color, understanding of CMYK/RGB/PMS, understanding of pixel dimensions vs. dpi vs. ppi, unity across multiple design pieces in a system (branding), ability to create scale or to-size mock ups
- how to use reference efficiently and properly, formal theory, methodology (generate ideas quickly)
- Design skills are far more important than knowing how to use a program. Composition, grid systems, typography are very important.
- typography, composition, color, etc
- rule of thirds, complimentary colors, designing systems/identities, grids
- Client communication, flexibility, ability to meet deadlines, juggling multiple projects simultaneously
- Ability to meet deadline and deliver quality
- Principles, Method and Craft.
- color theory, design principles, coding, craft
- composition, understanding of indesign, photoshop, and illustrator, typography
- Web Layouts and Coding
- theory and principles, along with experience working with clients
- knowing how to completely use AI ID and PS
- i believe graphic design students should have a firm grip on drawing and sketching.
- mocking design solutions

Table 3.3 – Question 19, Additional Design Skills Needed

22. Please list any technology skills (i.e., programs, computer, coding, etc) that you feel students of graphic design or visual communication programs will need for working in the industry:

- I feel the student needs to be an intermediate to master of the "pencil" hes putting to "paper" So that the design skills they used are perfectly translated from the mind to the medium.
- max, maya, softimage, java, opengl, python
- I believe theory, craft, and design ideation trumps tech skills. Anyone can learn Photoshop or coding, but few know what to do with it.
- Our students are often hired based on their excellent portfolios that show a well ropunded exposure to many aspects of design needed in industry. If these good desin=gners
- do not have a strong ability to code or design for the web, employers train them further. We try to prep our students to think and design as well as prep them technologically for
- entry level emplpyment. You cannot underestimate how diffficult it is to teach both design skills in addition to technological skills in a 4-year program to students of varying inate
- abilities and maturity levels. Technological skills alone could be a two-year focus and that does not necessarily include digital media animation training which is another twoyear
- focus. As much as we prep the students even 4 years is a good solid introduction to a profession getting them ready to start a lifetime of study as they continue to learn and developon the job.
- CSS, HTML5, java, print to digital production
- true understanding of web tools, hierarchy, information flow, messaging
- Demonstrate ability in those skills through some type of production.
- we have experienced challenges with entry level people not having good coding skills, being unable to redesign a simple website on their own, not understanding the back end of a website or enewsletter, not knowing the best practices of enewsletters/can-spam act
- Dreamweaver/Coda experience, HTML5/CSS3, Jquery, Wordpress/Drupal
- Keeping up with the latest programs is important but also being able to use older versions, being able to switch between a pc and a mac
- Good knowledge of HTML/CSS and CMS, along with advanced skills in Adobe programs
- Adobe AIR, Away3D,
- HTML, CSS, Javascript, understanding of how technology interacts
- The more the merrier, honestly. But, knowing some basic HTML and CSS would definitely be a plus.
- learn basic HTML, CSS, etc—web is the future, and if you don't have that, then you're kind of screwed; PS, AI, ID are the bare-minimum to know when entering work field
- Web based language (HTML, CSS, etc)
- HTML/CSS, Adobe Creative Suite, Microsoft Outlook, PowerPoint, Word, Excel, FTP protocol (how to send/receive large files or upload a webpage to the internet), understanding dpi/ppi/pixel dimensions, running mail merges, packaging InDesign files
- Unless you are a web designer, I don't feel like knowing how to use programs is as important as knowing design principles. As a retail designer, I need to have excellent design
- principle knowledge and not so much knowledge of technology, like how to code or use Photoshop.
- Illustrator, Photoshop, InDesign, After Effects, Cinema 4D or other 3D software, Premier Pro, Final Cut, basic HTML, CSS, & PHP
- Coding and software training (all adobe creative suite), basic HTML (CSS is also helpful), offset and digital printing, social media and blogging platforms
- HTML, CSS, Adobe suite, Microsoft, Mac & pc
- HTML coding! Web, knowledge of mobile friendly practices for email and web. Coding trends ie. responsive
- Mainly the Adobe Creative Suite foundation
- Computer skill as well as program knowledge
- program tutorials or classes, coding classes/tutorials
- Photoshop, InDesign, Illustrator, Dreamweaver
- Web layout design
- programs, computer, coding
- coding, web design
- everything you can get your hands on.
- DSLR and Video Knowledge

Table 3.4 – Question 22, Additional Technology Skills Needed

25. Please list any professionalism skills (i.e., written communication, oral presentations, critiques, etc) that you feel students of graphic design or visual communication programs will need for working in the industry:

- The person just needs communication skills. I feel the word "professional" is very broad.
- Critiques: how to give them and more importantly how to receive them.
- We try to imcorporate these skills into our curriculum especially the writing, the presentations and even critiques. However, all of these aspects apparently need the same kind
- of time and interaction from the instructor as do their design projects. It is almost impossible to do it all effectively so for me the focus is the design skill and the critiques which
- go with that on a daily basis. I can read, write and correct as an English teacher would but this is one more thing piled onto an already full curriculum and many of the students are treading water to keep up as it is.
- public speaking or persuasion (both).
- a lot of students can't take or give critiques. they think their personal art and satisfaction is what matters. they forget it is a business and they also need to be efficient and understand how to best use tools
- In general, today's graduates are less aware of business norms and professionalism, etiquette, etc.
- oral presentation, strategy analysis, critique
- Oral presentations in a client atmosphere
- Students definitely need to be able to present themselves and write emails in a professional manner. Must take and dish out criticism well. Should be detail oriented.
- Understanding how to take criticism and how to communicate your ideas with out being hostel
- Written communication is very important, but also learning to articulate during oral presentations is essential. Basics like eye contact and speaking loud and clear are typically not taught to the extent they are needed in industry.
- Oral presentation!
- Being able to defend your work, present eloquently, and communicate with teammates are big things.
- Concise written communication (i.e. emails); Oral presentations and crits are crucial—you're gonna have to defend your reasoning against a Creative manager, Senior
- Creatives, clients, etc., and you're also going to have to learn to take criticism.
- managing your own workflow, communicating effectively with "clients" who may be internal (What is the priority of this thing you're asking for? What is the due date/timeline?
- What do you want/need it to do/accomplish?)
- Written communication, defending and explaining work, organizational skills, interpersonal skills
- Know how to write professional emails, talk about your work (why you did what you did and why it is important), and know how to listen and apply feedback.
- Communicating design ideas or criticisms, defending choices
- written communication and basic inter-office communication
- interview questions, practicing a "filter" (IE appropriate workplace small talk), learning from more experienced coworkers, email etiquette
- up-to-date technical skills
- Communication with clients and team members both written and verbal. Ability to self-critique
- All the above mentioned skills are important since you must convey ideas, get respect and collaborate on the same level as other professionals.
- Oral and written presentation
- oral presentations, written communication, writing skills, visual presentations
- ability to critique other's works, presentation of your own work, explanation of works.
- how to professionaly present design
- oral presentations, writing skills, ability to critique
- written communications, oral presentation, professionalism
- Speech

Table 3.5 – Question 25, Additional Professionalism Skills Needed

26. Please list any additional skills not listed above that you feel that would be helpful for recent graduates to have:

- Communication skills; adaptive skills
- Cross-discipline collaboration. It is ideal that a graduate can work in a team of not just designers.
- Confidence in their ability to continue to be able to learn without having it handed to them as it has been when they are in school.
- Practicum and/or studio production in a team environment.
- Demonstrated ability to work in the industry through some type of work coop or internship opportunity. Proven ability to work in the field.
- More concepts of what else is out there. UX and product design are huge and hire web designers. Looking outside of the box web design isnt just for web anymore there are many more industries out that that need deign for their technology.
- Basic knowledge of server setup/maintenance.
- at least basic html, css, and some php
- Really working collaboratively. We talk/hear a lot about this... but students are NOT taught conflict resolution and tend to complain about group work. All projects in industry are
- "group" projects.
- Time Management, Organization Skills,
- Ability to give and receive thoughtful and supportive critique; business
- For ISU specifically, more emphasis on the digital world would be helpful. More and more, brands revolve around their websites. Those websites need to work on a multitude of devices. I felt pretty unprepared for that upon entering the professional world.
- Professional experience is something that can't be taught. Although, a course mimicking a professional, fast-paced environment would be extremely useful.
- be personable—if you're not interesting, people don't want to hire you. Also be humble. No one wants to work with an asshole. Also this: http://learnthesecrethandshake.com
- How to ask questions when you don't understand something/asking for clarification. Organizing multiple concurrent projects that are all "highest priority". Interactions with a
- boss/manager, especially being able to say "I am overwhelmed and need help" or "I will not be able to complete all of these tasks because of [solid reason for why thing can't be completed]".
- ability to work quickly and efficiently, hunger/ambition/enthusiasm
- Writing (some of your survey's sentences were a little difficult to understand)
- Art Direction, Advertising.
- Professional practices, business, finance, etc
- HTML, CSS, JAVA, After Effects
- ISU is great at theory/principle education but I was wildly unprepared in terms of software knowledge and technical items. Teach students some basic HTML and how important it is to find a mentor.
- life in generally easier the more attractive you are, so be attractive.
- Ability to do whatever it takes to meet deadline and step up into leadership roles.
- Better understanding of user experience, lifecycle and user testing. Know how to test and improve with iterations and repeat.
- leadership skills
- ability to maintain simple business skills, ability to efficiently search for jobs
- learn how to sell yourself.
- Reading other stuff other than design related content

Table 3.6 – Question 26, Additional Additional Skills Needed

28. Do you have any suggestions or recommendations for current undergraduates in graphic design or visual communication programs to be better prepared for the industry?

- Make contacts, Make contacts, Make contacts. Feed off your peers, apply to internships. Be open to everything and anything. AND be respectful to the progression of technology, don't get left behind, KEEP LEARNING!
- Take online classes through PXPHD, and network, network, network
- More theory, more practice in idea generation, more collaboration.
- Be prepared to think fast and work fast with no excuses. Be prepared to take classes on your own time to learn ever-changing software.
- Always stay on top of your skills and technology. These are the tools you will be using for the rest of your life. Also, have a professional attitude and understanding of how the industry's production pipeline functions.
- professional practice classes - understanding the business side. and again, understanding design is solving problems, not just making pretty layout.
- Don't overthink projects and do not be afraid to take risks. You're developing your design instinct right now, trust it. If something doesn't work, don't be afraid to explore another solution.
- I think a basic marketing or business 101 type class would be useful, so they can connect the artistic/design aspect of their job to the bottom line/needs of the company.
- Utilize the resources and peers around you, but never underestimate the power you have as an individual. The classroom is only the first step to becoming a professional in this
- industry; outside research, time, projects, and communication are the difference between a hobby and a career.
- Go to a big city (NYC, Chicago, etc) for a summer or semester and intern. It should be a requirement to have more than one even if it takes longer to graduate.
- Do work outside of the classroom. Find a client and build them an identity and/or website. The more client facing experience and the more work you have in your portfolio the
- better you'll look to an employer.
- practice verbally communicating and being able to show why you chose a given path and why another didn't work
- Do internships! Bring that knowledge into the classrooom and share with others. Western culture is individualistic, so more cultural awareness is essential and learning to build
- community within and outside of design.
- travel
- Connect with what is being done out there in the profession.
- Know your design principles, first and foremost. Those translate to every medium you may have to work in. Working for someone other than yourself is a big adjustment, as well.
- Any way you can better prepare yourself for that, the better.
- know your principles and be able to apply them. know your design history and be able to appreciate it. we're in an age where media and mediums are rapidly evolving, but the
- principles, theory, and history are still relevant (i mean, we say "above the fold" in web design…you know that come from newspapers, right?)
- Be prepared to have crappy jobs for awhile.
- Stay up to date on current trends. It's good to know principles of good design, but it's equally important to know what is popular and then try to figure out what is making it so
- popular so you can apply those techniques to your work in a similar way. Be prepared to find the answers to your own questions, especially through Google searches and other
- online resources. If you don't know how to do a certain thing in a program, consult the internet - chances are there are others that have the same question. It saves time from
- bouncing emails back and forth and chances are you may be the most knowledgable person on the topic of graphic design in your workplace. On that same note, don't be afraid to chime in and speak up when it comes to design or your design decisions - your education has trained you to know the basics of design principles, theories and effective layouts. Don't be afraid of what you know!

Table 3.7 – Question 28, Suggestions for Undergraduate Design Students

28. Do you have any suggestions or recommendations for current undergraduates in graphic design or visual communication programs to be better prepared for the industry?

- It's important to put together a solid portfolio, but more important is to be able to communicate effectively and be polite but hungry. A well-written email tends to be most effective for getting your foot in the door, and being nice, personable and professional does the rest for determining a good fit. Design and technical skills are increased rapidly once you start working.
- Weird question. Not every employee should have a visual communication education unless it's their degree.
- Keep track of your hours. Know how long it takes to do a project. Talk to a professional in your desired industry - ask questions.
- Learn how to work quickly, Learn to take criticism and know that many decisions about your design will be made by others who do not have a background in design.
- See previous answer. Also, understand that it is our responsibility as designers to educate our clients - they don't do this everyday - we do.
- The industry is moving towards web deign, videography, high end photography. Designing for social media is also important.
- be realistic about the available jobs in the area you're searching - I know a lot of people who did not expect to be in-house that now are
- Learn HTML coding, it's not going anywhere soon. Coding trends, web design. Freelance and get experience working with real clients and learning how to communicate
- clearly and be able to set expectations.
- Figure out what you want to do while in school and look for ways/classes to improve those skills
- Do more than expected. Do tutorials without being asked. Treat job search and personal branding as a job.
- pay close attention in class, take everything seriously, take constructive criticism well
- work ahead and do many rough drafts and brainstorm as often as possible
- work in upper division classes as though they are clients to prepare for future work environment and load
- learn as much as possible in your field and closely related fields such as web design and coding
- make friends, advertise and sell yourself.
- Stay updated in every aspect of design

Table 3.7, continued – Question 28, Suggestions for Undergraduate Design Students

Evaluation of the Assessment Tool

Potential for Bias in the Assessment Tool

There is room for improvement of the assessment tool. In actual use, the assessment tool could find a larger distribution if taken by and distributed by an advisory board, ideally getting a larger response from industry supervisors. A surprising result from the survey is that only 14%, or 9 respondents were from the field of education even with the survey being distributed to three separate design schools. If used, faculty should be required to take part in the assessment tool. This could suggest potential for sampling error; a larger population sample from both of the two lower response samples, Design Educators, 14% and Industry Supervisors, 22%. The highest response group, recent graduates of design programs, represented 64% of the respondents. This can possibly be due to potential eagerness in refining the program they recently left to improve the education of those who come after them, as well as the Recent Graduates proximity in time to reflect on their educational experience.

The sample survey had difficulty with selection bias, specifically nonresponse bias. To lower the potential for this bias in the future, the audience will need to be further defined. Would feedback from the direct supervisors of the entry-level design graduates be helpful for the results? Or, is the feedback from any supervisor of any entry-level designer worthwhile? How would initial contact be made with the supervisor and how would the evaluator stay in contact with that individual? Can we use information from general supervisors of entry-level designers to improve the education of designers nationally? Or does a program need to specifically focus on those supervisors of the program being reviewed? If we were looking at refining a specific design program, direct feedback of the graduates from that specific program and their direct supervisors would probably be most desirable. If that level of refinement is desired, how do we make and retain connections with those supervisors, not to mention the upkeep necessary if there is promotion or

turnover from either recent graduate or supervisor. It then makes more sense for the role of supervisor to be defined as "someone who supervises recent design graduates (who have graduated within the past 36 months)" to allow for more contacts and less upkeep of databases.

To further lower the potential of nonresponse bias in future versions of this survey, there is a need to create a draw or interest in using the survey. Perhaps future testing may offer a drawing for a gift card for each section of the survey population – Recent Graduates, Design Educators, and Industry Supervisors – to attract more responses. This would ultimately depend on the budget of the department or group performing the survey.

The questions in the sample survey also need to be considered when taking the assessment tool forward. Some of the questions, such as Question 13 for Industry Supervisors, "Do you feel that recent graduates need additional training when entering the industry?" have the potential for being too broad when considering the audience. There is a need to lower the potential for a generalization of the demographic in question. The audience should be defined for Industry Supervisors to draw from recent graduates they work directly with, also defining "recent" as within the past 36 months. Similarly, questions for Recent Graduates should allow for them to reflect on their own specific experiences, avoiding potential of being informed by another recent graduate they work with, know about, or have heard about. Similar considerations will need to be made when revising the question set for Design Educators.

Improvements and Modifications

Another facet the assessment tool worthy of consideration would be, how to create motivation to repeatedly fill out an assessment tool of this type on a yearly basis. If we collect this information on a yearly cycle, how do we make the assessment tool appealing to fill out each time it is offered annually, as to not burn out the audience? If the distribution of the assessment tool is wide enough, there are plenty of supervisory roles that, even if

someone chose not to or was too busy to respond one year, we would still collect sufficient data for reasonable feedback. In the previously discussed survey test there were 14 industry respondents, or ~22% of the respondents. It could be assumed that, with wider distribution, the process would capture more results. It would also need to be considered that, after repeated use, the number of regular respondents number could begin to decline. As mentioned in the last section, perhaps adding a reward system, such as a drawing for a gift card, may create renewed or continued use of the assessment tool in addition to refining the educational experience for design students.

Continued modifications of the assessment tool will need to be scheduled to keep it current and effective. This is where the qualitative feedback from each assessment can come in to play. For those reviewing the feedback, reviewing the information captured through the assessment can help to provide potential room for improvement for the following cycle. For example, if the feedback from one cycle yielded several comments about the need for design students to understand business practices, perhaps in the next cycle a section to capture more information on 'students understanding of business practices' should be included alongside of 'technology skills', 'professionalism skills', and 'graphic design education'.

The evaluation tool should remain relatively short in length to not dissuade people from providing feedback. Response time should aim to be between 5 and 10 minutes. Additional data in Appendix E shows the duration of time users spent on the proposed survey (IP addresses have been redacted). Time spent completing the survey ranged from 16 seconds to 5 hours 9 minutes and 18 seconds. It can be assumed that the responses on the longer end were either loaded or started and then completed later when more time was available to the respondent. 57 of 68 responses, or ~84% of responses took less than 15 minutes.

Proposed Distribution and Modification Cycle

The use of the survey could be timed to support the curriculum and course design process that takes place each summer. The assessment tool could be distributed around winter break, sometime between Thanksgiving and the beginning of winter semester. It could remain open until spring break, allowing for approximately three months for the survey to be open and collect information. Reminder emails or other messages would need to be sent out at some regularity during the time the assessment tool is open for responses. The assessment tool would close during spring break. The responses would be reviewed and an assessment would be made between that time and the end of spring semester. Suggestions for modification of the curriculum and supporting courses could be implemented starting at the beginning of summer break/session.

The cycle for evaluating the assessment tool should be relatively frequent. If the tool will be used on a yearly cycle, after curriculum and course modification takes place, a review of the assessment tool should take place. This would consider the quality of the information collected and potential bias in survey questions. The assessment tool would then be modified for distribution as suggested in the last paragraph.

If the assessment tool was to be used individually by design schools in order for them to refine themselves and their programs, the questions would need to be tailored to each program, but may yield different results depending on the program. However, the process of collecting and analyzing this data on a yearly cycle may not sound appealing or even possible for some design programs.

Conceptually, the assessment tool would best serve an accreditation council or other governing body able to collect large amounts of data, review feedback, and implement and/or recommend changes/modifications to design programs. If implemented by an accrediting body, feedback would represent either state or national opinions of a design education.

CHAPTER V

PROPOSED REFORM

From the results of the proposed assessment tool, the feedback can drive regular, recursive changes in both curriculum and course design. With this comes new problems for departments like how to keep faculty current with the changing classes and class projects and will there be enough time for adding new requirements to the curriculum? As Meredith Davis discusses in her speech, 'Toto, I've got a feeling we're not in Kansas anymore…', design programs must take the initiative to remove the unnecessary lessons and projects to make way for the new (Davis, speech). It is not the author's place here to identify unnecessary projects and perhaps an additional assessment tool could be built to review the non-functioning lessons of a design program. There has been a call for more time to be added to a design education, finding both place for old and new. A good quote speaking to this topic came from the survey, "Be open to everything and anything. AND be respectful to the progression of technology, don't get left behind, KEEP LEARNING" [capitalization for emphasis from original quote] (anonymous, thesis survey).

Continued Design Education for Educators

Diamond reminds faculty that, "One of the greatest challenges you face as a faculty member or administrator will be in keeping up-to-date so that the teaching-related decisions you make are (1) based on the latest research on teaching and learning, (2) take the advantage of the resources and options that are available to you, and (3) are sensitive to important issues that impact your program, your discipline, and your institution" (Diamond, 21).

In *Designing and Assessing Courses and Curricula*, Diamond discusses Ernest Boyer's

suggestion that universities should move on from the debate of teaching versus research and "that the definition of scholarship be expanded to include not only original research but also the synthesis and regeneration of knowledge, professional practice, and the transformation of knowledge through teaching" (Diamond, 27). Burner says, "Education must concentrate more on the unknown and the speculative, using the known and established as a basis for extrapolation. This will create two problems immediately. One is that the shift in emphasis will shake the traditional role of the teacher as the one who knows, contrasting with the student who does not" (Bruner, 116). However, issues may arise when the student is more familiar than the instructor, most likely to happen related to technology and design programs. The idea of Continued Learning Education, continuing education, or lifelong learning, common in other professions like medicine, legal, and even K-12 teachers, would be applied towards a faculty member's tenure application. In addition, Boyer's idea of professional practice could also include freelance or contract work to a faculty member's tenure application. Diamond also discusses the importance of adding curriculum and course development to a tenure-track candidate's work (Diamond, 29).

A good curriculum should include teaching resources (Wiggins, 101). It is important for an effective course and for student achievement to get quick and detailed feedback. Any good curriculum or course design considers learning differentiation to accommodate different backgrounds and different prior knowledge (Wiggins, 103). Teacher preparation is going to be an issue with both advancing technology and an advancing industry (Glatthorn, 101). "More experienced teachers have been indoctrinated into the practices of traditional instruction and find using new instructional approaches…difficult" (Glatthorn, 101). With the current teacher workload, such as teaching multiple classes, advising and performing their own research, how can teachers be expected to keep up with current trends and current technology?

Wiggins suggests that teachers should continue to learn about the subjects they are teaching, their students and to continue to learn how to learn and how to teach the

information they are trying to convey (Wiggins, 166). Kelly reflects this sentiment, noting that "it is extremely important that teachers also be constantly learning. Problems given to students should be equally as challenging to teachers. The worst possible situation is when teachers repeat the same problem so often that all the responses and evaluations become automatic" (Kelly, 86).

Wiggins suggests that "too many teachers end up coasting on comfortable habits and routines (Wiggins, 166)" and that it is important to stay up-to-date on the topics one is teaching, rather than just teaching the same thing over and over again into obsolescence, again reflected by Kelly. Wiggins suggests "on-the-job learning for all teachers" to aid in continuous learning and staying current with best practices (Wiggins, 166-167).

Wiggins also suggests "all teachers should engage in ongoing professional development to expand their knowledge and skills" (Wiggins, 167). Dr. Franzie L. Loepp notes, "An extensive amount of professional development is needed for teachers. This includes a significant intervention of two or three weeks of knowledge development in curriculum areas other than the one they are certified to teach" (Loepp, 5). Wiggins also notes this, saying that simply reading about a new topic or attending a conference does not allow for transfer of information (Wiggins, 167). "In addition to traditional professional growth activities such as taking graduate coursework and participating in school/district staff development experiences, teachers have an array of ongoing methods for enhancing their learning, including professional reading, peer-to-peer coaching and mentoring arrangements, and personalized growth plans" (Wiggins, 168). Peer-to-peer collaboration is echoed by Loepp, recommending, "Teachers need to become members of learning communities. At one level this means working with one's peers to improve education" (Loepp, 5).

Continued learning is directly related to how instructors evaluate their students, as suggested by Kelly, "Performance of students is directly tied to the standards and values of the instructor. An instructor with high standards will demand more from students, and

therefore, they perform at a higher level and learn more. Conversely, weak teachers tend to graduate a higher percentage of weak students" (Kelly, 85). "To have a sound program in Graphic Design, teachers must have high standards, understand them, and be able to communicate them to students and demand that students meet the standards. When the majority of students do poorly, it is more of a reflection of teachers than it is of students. Standards for faculty determine the level of student performance" (Kelly, 85).

If design educators were required to continue their education through Continued Design Education or lifelong learning programs, as other professions like doctors, lawyers, and K-12 educators are required to we could raise the bar of what is expected out of design educators and higher education educators in general. Much like Continued Legal Education (CLE), there is no Federal governing body for the CLE accreditation process (www.americanbar.org/cle/mandatory_cle.html). Similar to CLEs, these proposed Continued Design Education classes, or seminars, could be offered in single one to two hour sessions taught by certified technology professionals, like Apple or Adobe, both who have their own internal training certifications. Current best practices classes could also be taught by certified industry professionals, or much like New York State's CLE process for attorneys, experienced educators could gain credit by speaking or teaching at an accredited course (www.courts.state.ny.us/attorneys/cle/attorney_faqs.shtml#s2_q5). Accreditation and standards would need to be put into place to define 'experienced' in relation to the classes offered. Yearly classes could be offered in the summer session and this proposed assessment tool would aid in refining what topics would be required.

Considering More Time For a Design Education

Steven Heller, designer and graphic design writer, suggests that two to four years is not enough time to instill all the knowledge needed in a graphic design degree. Heller's

article, What This Country Needs is a Good Five-Year Design Program, discusses how graphic design would benefit from an extended undergraduate design education, citing that there is "Not enough quality time" to accomplish all that is needed for a proper design education (Heller, 128). The following paragraph notes most of the proficiencies that Heller sees as being needed in an undergraduate design education:

> *Proficiency in requisite technologies, not to mention a slew of optional techniques, easily takes a year or more to master in a rudimentary way. Acquiring fluency in the design language(s), most notably type, is an ongoing process. Then there is instruction and practice in a variety old and new media–print and Web, editorial and advertising, static and motion, not to mention drawing and photography. These take time to learn, no less to master. And what about the liberal arts: writing, history, and criticism? Theory is also a useful foundation if taught correctly, but it is often perfunctorily shoehorned into studio classes. How can a design student function without verbal expertise, let alone the ability to read and research? This must also be taught in an efficient manner that takes time. And then there is basic business acumen; every designer must understand fundamental business procedures, which are virtually ignored in the ultimate pursuit of the marketable portfolio.* (Heller, 128)

A five-year program will also offer extra time for students to hold internships to gain real-world experience in addition to the traditional first-year foundation class. In another Heller article, The Case for Critical History, he discusses the importance for extending MFA graduate programs to 3-year programs; year one – Immersion, year two – Analysis, year three – Critique (Heller, 96-97).

A five-year program would allow more skill building, as covered by Jerome Bruner in the History section. "One learns something in order to learn something next. One major function of human pedagogy is develop and provide a means that allow a learner swiftly and surely to run through various prerequisite series and thus to achieve a full and early

use of the culture in this technology" (Bruner, 121). A five-year program could also allow for student self-discovery, as mentioned by Kelly in his article, Pedagogy: Teaching and Learning as well as others design professionals. "A major part of the learning process was through problem definition and student self-discovery. This requires more time for students to assimilate understanding than is generally allocated by most programs in this country" (Kelly, 83).

In Ann McDonald's article, In Between: Challenging the Role of Graphic Design by Situating it in a Collaborative, Interdisciplinary Class, she discusses design education as being "maximized". "Many programs have added time-based design and interactive or web design classes within graphic design programs, but these classes often do not adequately address the collaborative, boundary crossing nature of experience design" (Bennett, 355). Diamond suggests, "the primary justification for any new course is to fill a gap in the present list of offerings" (Diamond, 70). Meredith Davis notes that programs are simply adding modern design classes to fill the need, but are not eliminating the dated or now unnecessary classes adding to the amount of coursework a student must take (Davis, speech). A five-year program would allow for both new methodology and technique as well as redesigned and redeveloped classes that could function as parallels or prerequisites.

Katherine McCoy's article Education in an Adolescent Profession, suggests that there is a current need for designers to be highly trained in many areas, "especially in time based interactive media, computer interfaces, and software then incorporate new dimensions of sound, motion, time, and virtual space. We need graphic designers who are literate in computer science, and we need far more designers literate in cognitive theory and perceptual processes who can give comprehensible form to electronic virtual environments" (Heller, 12). McCoy goes on to echo the aforementioned comments by Heller; "This expanded knowledge base points to the possibility that four-year degree programs may not provide a sufficient grounding for this incredibly wide complex field. Educators are beginning to consider a new model based out of four-year pre-design

program followed by a two or three-year professional degree, similar to law or medicine" (Heller, 12). Kelly also agrees that "There is insufficient time in most graphic design programs to teach everything the graduate should know for a professional career. Within a three-year period, American students usually do approximately 60 to 80 projects as preparation for professional practice. In state universities, because of reduced credits in the major, graphic design students may do as few as 20 to 40 problems in preparation for career" (Kelly, 93).

Davis suggests that, without an extended program, a design education "may no longer be possible to provide a 'general' education in design and expect graduates of these programs to excel in practice" (Heller, 18). Frascara's article, Graphic Design: Fine Art of Social Science?, discusses how no one school could the able to teach everything that encompasses graphic design, that curricular decisions have to be made on what the emphasis for their program will be (Bennett, 33). However, as Davis suggests, schools that shift focus to specific, emerging areas of design may produce "less creative problem solvers (Heller, 18)" calling for the industry to partner with education to "set high standards for both the field and education" (Heller, 18).

Steven Heller notes "Five years of dedicated design pedagogy will better prepare students to enter the workforce, where doubtless they will learn more. Undergraduate design education is not the last word in creating the good designer; work experience is essential. Yet more education accelerates professional growth" (Heller, 130).

Differentiation Between Design and Fine Art

"Real competence in the field of visual communication is something that only dedication experience and performance can validate. The roots of good design lie in aesthetics: painting, drawing, and architecture, while those of business and market

research are in demographic and statistics; statistics and business are traditionally incompatible disciplines" (Rand, Design, Form & Chaos, 20).

A current issue in design is 'where does a design education belong?' Many design programs are now being shifted or incorporated into Communications schools, while other find homes in Cognitive Psychology or other related departments. Still others remain where they have been, nested under Fine Art.

Jorge Frascara, in his article From Graphic Design: Fine Art or Social Science?, discusses the cross-discipline practice that is design; "Graphic design is both rational and artistic activity. Decision-making processing graphic design alternates between the consideration of objective information and intuitively the goal of practice should be to base their decisions as much as possible and objective information, but the nature of the field always requires a certain degree of artistic intuition – that is, of decisions made by designers on the basis of experience that is difficult to quantify or explain rationally" (Bennett, 32). He goes on to say, "The balance between artistic and rational elements in the practice of graphic design poses an interesting challenge to design educators, when the calls for the development of visual sophistication and intuitive abilities to express concepts visually along with a rational capacity for processes analysis and synthesis. In addition, graphic designers need skills to listen to and interpret the needs of people in other fields and enough flexibility mining resources to produce sufficient communications" (Bennett, 32). Frascara comments that no graphic design education can be truly complete; there have to be limitations put on a program, such as choosing or choosing not to focus a specific professional area of graphic design, such as broadcast or three-dimensional design (Bennett, 33).

Lehrer notes that a design education is relatively new (Heller, 75). He discusses the difference between a fine art education and a graphic design education: "The standard 'fine art' educational model evolves from the Renaissance notion of the individual genius artist, who, having learned the fundamentals through an apprenticeship with the master, works

alone in his studio communing with his muse making works of genius for the aristocracy" (Heller, 74). "The standard contemporary model for teaching 'design' involves from the notion of the artisan/craftsperson who serves the needs of the client" (Heller, 74). While Lehrer comes off sounding opposed to basing design curriculum on preparing students for "the corporate service model", no matter how you look at it – from the point of view of going into corporate design or solely working on entrepreneurial endeavors – design is a collaborative process between a designer and a wide field of clients to achieve and promote a message, something that needs to be taught in design programs.

Where Does a Design Education Belong?

If there is a difference between a Fine Art education and a Design education, in what academic environment does design belong? In an article by Gunnar Swanson, titled Liberal Arts and Graphic Design: Six Cautionary Questions, Swanson suggests the importance of designers working with people from other disciplines to achieve their goal (Heller, 36). In Dr. Franzie L. Loepp's article, Models of Curriculum Integration, he discusses how an integrated curriculum improves learning and interest. While Loepp's focus was in mathematics, science and technology (advancement.illinoisstate.edu), this concept can be extended out to design.

Integrated Curriculum, Liberal Arts

Paul Rand once said, "A student whose mind is cluttered with matters that have nothing directly to do with design… is a bewildered student." Rand was obviously not secretive about his opposition to a Liberal Arts education. Any additional education that was not a design education was "time stolen from their true purpose" (Heller, 27). However, Frank Baseman, in his article, Liberal Arts is Old News, discussed the importance

of designers knowing a "little bit about a lot of things" (Heller, 20). He goes on to clarify, "They don't necessarily need to become experts on the relevant subject matter, but they must be able to achieve at least a working knowledge. A strong foundation in the liberal arts will help utilize communication skills and strengthen these information gathering and research skills" (Heller, 20). It is important for designers to understand who, what and why they are creating. A well-rounded education can assist in this, however, as discussed earlier, so can an integrated design environment like IDEO or Stanford's d.school.

Preparation for the Industry

It is important to consider getting students to collaborate, experiment, communicate and work with non-designers, similar to what students will face post-graduation. Robert M. Diamond, author and President of The National Academy for Academic Leadership (www.thenationalacademy.org) notes that when you are designing courses and curriculum you must think about the needs of future employers. "For example, we must anticipate the skills that will be required by the time today's first-year students graduate and look for employment. All too often we have designed our curricula and programs to meet immediate needs without giving enough attention to long-range requirements. A study by one professional group, which chose not to publish its findings for political reasons, concluded that the faculty in the field had 'lost touch' with what was happening in the workplace. As a result, many graduates were unprepared for jobs for which they were applying" (Diamond, 65).

Diamond goes on to say, "Business and industry leaders increasingly call for graduates who can speak and write effectively, have high-quality interpersonal and creative thinking skills, have some understanding of the rest of the world, and can work effectively with individuals from different cultures and backgrounds" (Diamond, x). This unpreparedness is echoed in Susan Giloi and Pieter du Toit's article Current Approaches to the Assessment of Graphic Design in a Higher Education Context. Giloi comments that the

"design and advertising industries has [sic] a tenuous relationship with design education; very few professional designers are involved in design education except for the odd moderator or advisory committee member. As employers they are often very critical of the skills the graduates have or do not have" (Giloi, 257).

Giloi suggests what skills graphic design educators should include, "Skills relating to entrepreneurship, communication and teamwork" (Giloi, 260). Design should also consider teaching, "formal aspects of design such as use of colour [sic], layout and typography, and mastering various mediums that designers have access to, which can include handwork, photography, computer software and production techniques" (Giloi, 260).

Kelly suggests that, "professionalism can be reinforced in student attitudes, punctuality, reliability, demeanor and work habits rather than by problem content" (Kelly, 91). He also cites that, being that it is a learning environment, the learning process is equally as important as the outcome (Kelly, 91).

It should be pointed out that some designers and design educators disagree about the need to prepare students for the industry. In Swanson's article, Graphic Design Education as a Liberal Art; Design and Knowledge in the University and the 'Real World', he questions the need for graphic design education if the purpose for graphic design education is just prepare students for the 'real world' (Heller, 26). The article What's Right With Design Education and Wrong With the 'Real World'?, by Susan Agre-Kippenhan and Mike Kippenhan, presents an opposing view to why graphic design education should be less like the real world, sharing quips with the downfalls of the industry and working with clients (Heller, 133). This last example is more of a light-hearted sentiment that a design education should not be filled with the foibles and frustrations of working with clients. However, the comments before are not to be taken lightly. Focusing a design education solely on design could be due to the short amount of time of a design education program.

This leads to the discussion of where graphic programs should reside in the university setting. Aesthetics are not the only factor in design. Design is communication;

more specifically, design is intended communication. This author's personal opinion of the field of design is to (typically) create projects that are functional solutions for an external audience. This is a continually debated topic in the field. Design is to communicate a concept while art, or fine art, is created more for personal representation or reflection and that a message does not have to be the intent or clearly communicated through art – though it may be – and the overall concept is left up to the user/audience to decide or project upon the art. This is where the gray area of art and design overlaps; the intent of design is to clearly communicate a message that, ideally, the intended audience will understand. Design is also intended to be aesthetically pleasing, or visually interesting in a way that the design insights a reaction. That reaction differs as to the overall intent for the design; for example, advertising's goals are to create interest in a product and to cause people to purchase the product. Informational design has the goals of drawing people in and easily communicating the intended information. Design has to both communicate a message and, overlapping with the goal of art, be aesthetically pleasing/visually interesting/visually reactionary.

If not under a Fine Arts college, where does a design program belong? Would a design program be better suited under a Communications program? If we are to follow that design differs from Fine Art through the intent of explicitly communicating a message, perhaps design better fits in a communication school, alongside print and broadcast journalism, and media arts and entertainment. These fields currently parallel the needs of the industry in content creation, web design, and motion graphics.

What about design under a Human Factors/Human Computer Interaction discipline? The concepts of UCD and human factors are currently being adopted into design education. Many schools offering Master's programs in Human Computer Interaction, such as Iowa State University and DePaul University offer cross-listed classes with design classes. The concepts of UX, UI, and UCD should to be introduced to undergraduate design education in parallel with the base design curriculum to help students understand the need for their

work to be specifically tailored to the intended user, or audience as well as considerations for secondary audiences.

Perhaps, rather than finding a location under another discipline, design would be better suited to stand alone as its own school for the time being. Design classes could be cross-listed with applicable classes in other departments, like creative writing, engineering, human factors, cognitive psychology and others.

Conclusion

We prepare students for careers and opportunities that we can't even imagine. The students we are teaching now will help to shape the industry ten to twenty years from now. The success of a student's education relies on a responsive curriculum and course design to allow for iteration, or recursive changes that arise from feedback from both graduates and the industry they work in. It is important that programs and faculty be aware of the changing needs of professional practice and implement those needs into both course design and curriculum as responsively as possible. Without the ability to know what the industry will need in the future, it is important to stay up-to-date with their current needs.

What Might the Design Program of the Future Look Like?

Ideally, the design program of the future would consider the needs of the students, some of that need being what role the student would perform after they finish their education. If that consideration were made, educators would put more focus on current knowledge of practice. This knowledge can be conveyed through giving students permission to fail; trying early and learning from mistakes and allowing students to transfer that knowledge to the next project. It is important to reiterate the need for

grading to be restructured to allow for failures and mistakes, but to not detract from the overall grading of the student. If more projects are introduced and early projects are valued less towards a students overall grade, experimentation becomes more of an option, rather than falling back on a basic understanding of what works, or worse, as Rob Roy Kelly mentions, designing projects to the instructors tastes to achieve a good grade.

Looking to professional practice to question where entry-level designers are lacking in skill and comparing this to feedback to recent graduates of the program can give us some basis as to where we need to improve design pedagogy. In brief discussions with managers working with entry-level designers, they unanimously listed the three top skills lacking in new hires as being; professionalism, in both demeanor, writing, and presentation; the ability to talk and answer questions about the process of their work; and, the ability to work towards realistic deadlines. While some of this education can come directly from experiential learning while working in the industry, if a student's education can at least introduce young designers to these types of expectations, students of that program will become a greater asset to the industry.

Through using an assessment tool to keep current with the needs of the industry combined with a recursive curriculum and course design, and open communication with an Advisory Board, educators can also start to offer classes tuned to the technological and best practices needs of the industry. Projects based on programs like Adobe Flash that are no longer being used in the industry can be phased out and replaced with with the latest technology and best practices. And through continued or lifelong learning classes, those teaching can also stay current on the practices of the industry.

Further Research

After tackling “How to Provide a Better Design Education for Undergraduate Design Students”, the next question to be considered is the gender difference in a design education. In this author’s personal observation in the classroom and through discussions with other instructors, it is somewhat defeating to hear students present their work, starting off their presentation with, “this isn’t good, but…” Experience has shown this to be typically a reaction of female students, who either feel threatened by male peers in the classroom, have low self-esteem, or, more sadly, do not want to appear more intelligent or better designers than others in the classroom. This behavior has mostly been observed in sophomore level classes and in comparison to junior design classes, may be less prevalent due to a comfort level of working with the same group of students for a duration of time. Of greater concern is if the undesirable behavior may return when the student is no longer among the group of their peers when entering the industry; a time when professionalism and standing behind your work is of greater importance.

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APPENDIX A

QUALTRICS SURVEY

Default Question Block

Block Options

Overview

The procedure involves filling an online survey that will take **approximately 10 minutes**. Your responses will be confidential and no identifying information such as your name, email address or IP address will be collected.

The purpose of this survey is to look specifically at the current needs of the Visual Communications and Graphic Design Industry. This information will be gathered through a survey of three main demographics:
How faculty of American Visual Communications and Graphic Design programs evaluate their own performance in preparing students for the industry How recent graduates of these programs evaluate their skill set upon entering the industry (within the first three years) and if they feel they are well-prepared and/or lacking specific skills or in need of any additional training How members of the Visual Communications and Graphic Design industry, who have recent direct contact with entry-level employees, evaluate the recent graduates' skill set and performance and if they feel the entry-lev employees are prepared for the work they are given or are lacking specific training

For the purpose of this survey, please choose a primary role (e.g. design educator, entry-level employee, industry professional) to answer the questions. There will be specific questions targeted towards each of the roles as well as general information collected.

There are five (5) sections of this evaluation:
Consent General Information Preparation and Preparedness Skills (design, technical, professional) Educational Curriculum and Course Design

There is no direct benefit to you, the survey taker. However, the results of this survey, along with curriculum and course design research will be applied to a new method for developing curriculum to better prepare undergraduate Visual Communications and Graphic Design students with the skills they will need in industry. The results of this study will be used for scholarly purposes only. You may choose to skip any questions you do not feel comfortable answering.
.

Page Break

Consent

Do you agree to participate in this survey?

- ○ Yes - I agree to the above consent
- ○ No - I do not agree to the above consent

If **No - I do not agree to the ...** Is **Selected**, Then Skip To **End of Survey**

Page Break

Gender

Please select your **gender**:

- ○ Male
- ○ Female
- ○ Prefer to not specify

Age

What is your **age**?

- 18-24 years old
- 25-34 years old
- 35-44 years old
- 45-54 years old
- 55-64 years old
- 65-74 years old
- 75 years or older
- Prefer to not specify

Education

What is the highest degree or level of school you have **completed**?

- No schooling completed
- Nursery school to 8th grade
- Some high school, no diploma
- High school graduate, diploma or the equivalent (for example: GED)
- Some college credit, no degree
- Trade/technical/vocational training
- Associate degree
- Bachelor's degree
- Master's degree
- Professional degree
- Doctorate degree

If **Some high school, no diploma** Is **Selected**, Then Skip To **End of Survey**

If **Nursery school to 8th grade** Is **Selected**, Then Skip To **End of Survey**

Role

Which of the following roles best describes how you will be **responding to this survey**?

- Entry-Level Designer in Graphic Design or related field
- Educator in a Visual Communications or Graphic Design Program
- Industry Supervisor working in Graphic Design or related field
- × None of the above

If **None of the above** Is **Selected**, Then Skip To **End of Survey**

New Hires

Display This Question:
If Which of the following roles best describes how you will be responding to this survey? **Industry Supervisor working in Graphic Design or related field** Is **Selected**

Have you hired or worked directly with any entry-level designers **in the past 36 months**?

- Yes
- No

If **No** Is **Selected**, Then Skip To **End of Survey**

Specifics

What are the specifics of your industry?

- Graphic Design
- Interactive Design
- Visual Communication
- Motion Graphics
- Print/Publication Design
- Web Design
- Other

Page Break

S3-1A

Display This Question:
If Which of the following roles best describes how you will be responding to this survey? **Entry-Level Designer in Graphic Design or related field** Is **Selected**

Please rate how **prepared** you were for working in the industry:

	1	2	3	4	5
1 = not prepared, 5 = very prepared					

S3-1B

Display This Question:
If Which of the following roles best describes how you will be responding to this survey? **Educator in a Visual Communications or Graphic Design Program** Is **Selected**

Please rate how **prepared** your students are for working in the industry:

	1	2	3	4	5
1 = not prepared, 5 = very prepared					

S3-1C

Display This Question:
If Which of the following roles best describes how you will be responding to this survey? **Industry Supervisor working in Graphic Design or related field** Is **Selected**

Please rate how **prepared** recent graduates are for working in the industry:

	1	2	3	4	5
1 = not prepared, 5 = very prepared	○	○	○	○	○

S3-2A

Display This Question:
If Which of the following roles best describes how you will be responding to this survey? **Entry-Level Designer in Graphic Design or related field** Is **Selected**

Do you feel that you needed **additional training** when **entering the industry**?

- ○ Yes
- ○ No

S3-2B

Display This Question:
If Which of the following roles best describes how you will be responding to this survey? **Educator in a Visual Communications or Graphic Design Program** Is **Selected**

Do you feel that your students **will need additional training** when **entering the industry**?

- ○ Yes
- ○ No

S3-2C

Display This Question:
If Which of the following roles best describes how you will be responding to this survey? **Industry Supervisor working in Graphic Design or related field** Is **Selected**

Do you feel that recent graduates **need additional training** when **entering the industry**?

- ○ Yes
- ○ No

S3-3A

Display This Question:
If Which of the following roles best describes how you will be responding to this survey? **Entry-Level Designer in Graphic Design or related field** Is **Selected**
And Do you feel that you needed additional training when entering the industry? **Yes** Is **Selected**

In what **specific areas** do you feel that **you needed additional training** (select as many as you see fit):

- ☐ Design Skills (i.e., theory, principles, methods, craft, etc)
- ☐ Technical Skills (i.e., programs, computer, coding, etc)
- ☐ Professional Skills (i.e., written communication, oral presentations, critiques, etc)
- ☐ Other

S3-3B

Display This Question:
If Which of the following roles best describes how you will be responding to this survey? **Educator in a Visual Communications or Graphic Design Program** Is **Selected**
And Do you feel that your students will need additional training when entering the industry? **Yes** Is **Selected**

In what **specific areas** do you feel that your students **will need additional training** (select as many as you see fit):

- [ ] Design Skills (i.e., theory, principles, methods, craft, etc)
- [ ] Technical Skills (i.e., programs, computer, coding, etc)
- [ ] Professional Skills (i.e., written communication, oral presentations, critiques, etc)
- [ ] Other

S3-3C

Display This Question:
If Which of the following roles best describes how you will be responding to this survey? **Industry Supervisor working in Graphic Design or related field** Is **Selected**
And Do you feel that recent graduates need additional training when entering the industry? **Yes** Is **Selected**

In what **specific areas** do you feel that recent graduates **need additional training** (select as many as you see fit):

- [ ] Design Skills (i.e., theory, principles, methods, craft, etc)
- [ ] Technical Skills (i.e., programs, computer, coding, etc)
- [ ] Professional Skills (i.e., written communication, oral presentations, critiques, etc)
- [ ] Other

Page Break

S4-1

Please rate how important you feel graphic design or visual communication programs include a **design skill education** (i.e., theory, principles, methods, craft, etc):

	1	2	3	4	5
1 = not important, 5 = very important	○	○	○	○	○

S4-2

Please rate how important you feel a **design skill education** (i.e., theory, principles, methods, craft, etc) is for recent graduates when working in the industry:

	1	2	3	4	5
1 = not important, 5 = very important	○	○	○	○	○

S4-3

Please list any **design skills** (i.e., theory, principles, methods, craft, etc) that you feel students of graphic design or visual communication programs will need for working in the industry:

S4-4

Please rate how important you feel graphic design or visual communication programs include **technology skills** (i.e., programs, computer, coding, etc):

	1	2	3	4	5
1 = not important, 5 = very important	○	○	○	○	○

S4-5

Please rate how important you feel **technology skill education** (i.e., programs, computer, coding, etc) is for recent graduates when working in the industry:

	1	2	3	4	5
1 = not important, 5 = very important	○	○	○	○	○

S4-6

Please list any **technology skills** (i.e., programs, computer, coding, etc) that you feel students of graphic design or visual communication programs will need for working in the industry:

S4-7

Please rate how important you feel graphic design or visual communication programs include **professionalism skills** (i.e written communication, oral presentations, critiques, etc):

	1	2	3	4	5
1 = not important, 5 = very important	○	○	○	○	○

S4-8

Please rate how important you feel **professionalism skill education** (i.e., written communication, oral presentations, critiques, etc) is for recent graduates when working in the industry:

	1	2	3	4	5
1 = not important, 5 = very important	○	○	○	○	○

S4-9

Please list any **professionalism skills** (i.e., written communication, oral presentations, critiques, etc) that you feel students of graphic design or visual communication programs will need for working in the industry:

S4-10

Please list any **additional skills** not listed above that you feel that would be helpful for recent graduates to have:

Page Break

S5-1

Please rate how important it is for a new employee to have a **graphic design** or **visual communication education**:

	1	2	3	4	5
1 = not important, 5 = very important	○	○	○	○	○

S5-2

Do you have any suggestions or recommendations **for current undergraduates** in graphic design or visual communication programs **to be better prepared for the industry**?

S5-3B

Display This Question:
If Which of the following roles best describes how you will be responding to this survey? **Educator in a Visual Communications or Graphic Design Program** Is **Selected**

Does your department, have an **Advisory Board**?

- Yes
- No

S5-4B

Display This Question:
If Which of the following roles best describes how you will be responding to this survey? **Educator in a Visual Communications or Graphic Design Program** Is **Selected**

In your department, is **curriculum/course design** counted towards your **tenure review**?

- Yes
- No

S5-5B

Display This Question:
If Which of the following roles best describes how you will be responding to this survey? **Educator in a Visual Communications or Graphic Design Program** Is **Selected**

In your department, is **contract/freelance work** counted as **research**?

- Yes
- No

S5-6B

Display This Question:
If Which of the following roles best describes how you will be responding to this survey? **Educator in a Visual Communications or Graphic Design Program** Is **Selected**

In your department, is there **continued education for educators**?

- Yes
- No

S5-7C

Display This Question:
If Which of the following roles best describes how you will be responding to this survey? **Industry Supervisor working in Graphic Design or related field** Is **Selected**

Would you be willing to work with educators in graphic design or visual communication higher education to develop curriculum/coursework to better prepare their students for the industry?

- Yes
- No

APPENDIX B

SURVEY PURPOSE & HOW THE SURVEY WILL BE DISTRIBUTED

How the Survey Will Be Distributed

To Recent Graduates of Visual Communications and Graphic Design Programs:

- Career Services, send out to alumni of Graphic Design
- LinkedIn
- Personal Contacts at other Colleges and Universities
- and using online participant recruitment services such as FindParticipants.com

To Faculty Members of Visual Communications and Graphic Design Programs:

- Target Colleges and Universities
- LinkedIn
- Personal Contacts at other Colleges and Universities
- and using online participant recruitment services such as FindParticipants.com

To People Working in the Visual Communications and Graphic Design Industry:

- Advisory Board
- Internship Providers
- LinkedIn
- Personal Contacts at other Colleges and Universities
- and using online participant recruitment services such as FindParticipants.com

Survey Purpose and Procedure

The procedure involves filling an online survey that will take approximately 10 minutes. Your responses will be confidential and no identifying information such as your name, email address or IP address will be collected.

The purpose of this survey is to look specifically at the current needs of the Visual Communications and Graphic Design Industry. This information will be gathered through a survey of three main demographics:

1. How faculty of American Visual Communications and Graphic Design Programs evaluate their own performance in preparing students for the industry
2. How recent graduates of these programs evaluate their skill set upon entering the industry (within the first three years) and if they feel they are well-prepared and/or lacking specific skills or in need of any additional training
3. How members of the Visual Communications and Graphic Design industry, who have recent direct contact with entry-level employees, evaluate the recent graduates' skill set and performance and if they feel the entry-level employees are prepared for the work they are given or are lacking specific training

For the purpose of this survey, please choose a primary role (e.g. design educator, entry-level employee, industry professional) to answer the questions. There will be specific questions targeted towards each of the roles as well as general information collected.

There are five (5) sections of this evaluation:

1. Consent
2. General Information
3. Preparation and Preparedness
4. Skills (design, technical, professional)
5. Educational Curriculum and Course Design

There is no direct benefit to you, the survey taker. However, the results of this survey, along with curriculum and course design research will be applied to a new method for developing curriculum to better prepare undergraduate Visual Communications and Graphic Design students with the skills they will need in industry. The results of this study will be used for scholarly purposes only.

Survey

Section I, Consent

1. Do you agree to participate in this survey?
    a. Yes - I agree to the above consent
    b. No - I do not agree to the above consent *–EXIT SURVEY–*

Section II, General Questions

1. Gender: Please select your gender:
    a. Male
    b. Female
    c. Prefer to not specify

2. Age: What is your age?
    a. 18-24 years old
    b. 25-34 years old
    c. 35-44 years old
    d. 45-54 years old
    e. 55-64 years old
    f. 65-74 years old
    g. 75 years or older
    h. Prefer to not specify

3. Education: What is the highest degree or level of school you have completed?
    a. No schooling completed *–EXIT SURVEY–*
    b. Nursery school to 8th grade *–EXIT SURVEY–*
    c. Some high school, no diploma
    d. High school graduate, diploma or the equivalent (for example: GED)
    e. Some college credit, no degree
    f. Trade/technical/vocational training

g. Associate degree
h. Bachelor's degree
i. Master's degree
j. Professional degree
k. Doctorate degree

4. Role: Which of the following roles best describes how you will be responding to this survey?
    a. Entry-Level Designer in Graphic Design or related field
    b. Educator in a Visual Communications or Graphic Design Program
    c. Industry Supervisor working in Graphic Design or related field
    d. None of the above *–EXIT SURVEY–*

5. Specifics: What are the specifics of your industry?
    a. Graphic Design
    b. Interactive Design
    c. Visual Communication
    d. Motion Graphics
    e. Print/Publication Design
    f. Web Design
    g. Other _____

6. (for those who answered #4 with 'c') New Hires: Have you hired or worked directly with any entry-level designers in the past 36 months?
    a. Yes
    b. No *–EXIT SURVEY–*

Section III, Preparation and Preparedness

You are answering questions about your experience as...

a. Section I, 4a - a recent graduate of
b. Section I, 4b - an educator working in
c. Section I, 4c - industry professional who, within the past 36 months, has worked directly with a graduate of

...a graphic design or Visual Communications program.

1. Please rate how prepared [4a - you were | 4b - your students are | 4c - recent graduates are] for working in the industry [1 = not prepared, 5 = very prepared]:
    a. 1 - - - - - 2 - - - - - 3 - - - - - 4 - - - - - 5

2. Do you feel that [4a - you needed | 4b - your students will need | 4c - recent graduates need] additional training when entering the industry?
    a. Yes - - - - - No

3. (If 'Yes' to #3) In what specific areas do you feel that [4a - you needed | 4b - your students will need | 4c - recent graduates need] additional training (select as many as you see fit):
    a. Design Skills *(i.e., theory, principles, methods, craft, etc)*
    b. Technical Skills *(i.e., programs, computer, coding, etc)*
    c. Professional Skills *(i.e., written communication, oral presentations, critiques, etc)*
    d. Other _____

Section IV, Desired Skill Set

1. Please rate how important you feel graphic design or visual communication programs include a **design skill education** *(i.e., theory, principles, methods, craft, etc)* [1 = not important, 5 = very important]:
    a. 1 - - - - - 2 - - - - - 3 - - - - - 4 - - - - - 5

2. Please rate how important you feel a **design skill education** *(i.e., theory, principles, methods, craft, etc)* is for recent graduates when working in the industry [1 = not important, 5 = very important]:
    a. 1 - - - - - 2 - - - - - 3 - - - - - 4 - - - - - 5

3. Please list any **design skills** *(i.e., theory, principles, methods, craft, etc)* that you feel students of graphic design or visual communication programs will need for working in the industry:
    a. _____

4. Please rate how important you feel graphic design or visual communication programs include **technology skills** *(i.e., programs, computer, coding, etc)* [1 = not important, 5 = very important]:
    a. 1 - - - - - 2 - - - - - 3 - - - - - 4 - - - - - 5

5. Please rate how important you feel **technology skill education** *(i.e., programs, computer, coding, etc)* is for recent graduates when working in the industry [1 = not important, 5 = very important]:
    a. 1 - - - - - 2 - - - - - 3 - - - - - 4 - - - - - 5

6. Please list any **technology skills** *(i.e., programs, computer, coding, etc)* that you feel students of graphic design or visual communication programs will need for working in the industry:
    a. _____

7. Please rate how important you feel graphic design or visual communication programs

include **professionalism skills** *(i.e., written communication, oral presentations, critiques, etc)* [1 = not important, 5 = very important]:
   a. 1 - - - - - 2 - - - - - 3 - - - - - 4 - - - - - 5

8. Please rate how important you feel **professionalism skill education** *(i.e., written communication, oral presentations, critiques, etc)* is for recent graduates when working in the industry [1 = not important, 5 = very important]:
   a. 1 - - - - - 2 - - - - - 3 - - - - - 4 - - - - - 5

9. Please list any **professionalism skills** *(i.e., written communication, oral presentations, critiques, etc)* that you feel students of graphic design or visual communication programs will need for working in the industry:
   a. _____

10. Please list any **additional skills not listed above** that you feel that would be helpful for recent graduates to have:
   a. _____

Section V, Curriculum and Course Design

1. Please rate how important it is for a new employee to have a graphic design or visual communication education [1 = not important, 5 = very important]:
   a. 1 - - - - - 2 - - - - - 3 - - - - - 4 - - - - - 5

2. Do you have any suggestions or recommendations for current undergraduates in graphic design or visual communication programs to be better prepared for the industry?
   a. _____

3. *(Section I, 4b: For Educators)* Does your department, have an Advisory Board?
   a. Yes - - - - - No

4. *(Section I, 4b: For Educators)* In your department, is curriculum/course design counted towards your tenure review?
   a. Yes - - - - - No

5. *(Section I, 4b: For Educators)* In your department, is contract/freelance work counted as research?
   a. Yes - - - - - No

6. *(Section I, 4b: For Educators)* In your department, is there continued education for educators?

a. Yes - - - - - No

7. *(Section I, 4c: For Industry Professionals)* Would you be willing to work with educators in graphic design or visual communication higher education to develop curriculum/coursework to better prepare their students for the industry?
    a. Yes - - - - - No

APPENDIX C

IRB APPLICATION AND APPROVAL

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Institutional Review Board
Office for Responsible Research
Vice President for Research
1138 Pearson Hall
Ames, Iowa 50011-2207
515 294-4566
FAX 515 294-4267

Date: 11/22/2013

To: Ryan G Wilson
1005 13th St
Ames, IA 50010

From: Office for Responsible Research

Title: How to better pepare graphic design undergraduates for work in the industry, post-graduation

IRB ID: 13-520

Study Review Date: 11/22/2013

The project referenced above has been declared exempt from the requirements of the human subject protections regulations as described in 45 CFR 46.101(b) because it meets the following federal requirements for exemption:

- (2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey or interview procedures with adults or observation of public behavior where
  - Information obtained is recorded in such a manner that human subjects cannot be identified directly or through identifiers linked to the subjects; or
  - Any disclosure of the human subjects' responses outside the research could not reasonably place the subject at risk of criminal or civil liability or be damaging to their financial standing, employability, or reputation.

The determination of exemption means that:

- **You do not need to submit an application for annual continuing review.**
- **You must carry out the research as described in the IRB application.** Review by IRB staff is required prior to implementing modifications that may change the exempt status of the research. In general, review is required for any modifications to the research procedures (e.g., method of data collection, nature or scope of information to be collected, changes in confidentiality measures, etc.), modifications that result in the inclusion of participants from vulnerable populations, and/or any change that may increase the risk or discomfort to participants. Changes to key personnel must also be approved. The purpose of review is to determine if the project still meets the federal criteria for exemption.

  Non-exempt research is subject to many regulatory requirements that must be addressed prior to implementation of the study. Conducting non-exempt research without IRB review and approval may constitute non-compliance with federal regulations and/or academic misconduct according to ISU policy.

  Detailed information about requirements for submission of modifications can be found on the Exempt Study Modification Form. A Personnel Change Form may be submitted when the only modification involves changes in study staff. If it is determined that exemption is no longer warranted, then an Application for Approval of Research Involving Humans Form will need to be submitted and approved before proceeding with data collection.

Please note that you must submit all research involving human participants for review. **Only the IRB or designees may make the determination of exemption**, even if you conduct a study in the future that is exactly like this study.

Please be aware that **approval from other entities may also be needed.** For example, access to data from private records (e.g. student, medical, or employment records, etc.) that are protected by FERPA, HIPAA, or other confidentiality policies requires permission from the holders of those records. Similarly, for research conducted in institutions other than ISU (e.g., schools, other colleges or universities, medical facilities, companies, etc.), investigators must obtain permission from the institution(s) as required by their policies. **An IRB determination of exemption in no way implies or guarantees that permission from these other entities will be granted.**

Please don't hesitate to contact us if you have questions or concerns at 515-294-4566 or IRB@iastate.edu.

IRB ID: 13-520

INSTITUTIONAL REVIEW BOARD (IRB)
Application for Approval of Research Involving Humans

Title of Project: How to better prepare graphic design undergraduates for work in the industry, post-graduation

RECEIVED
OCT 30 2013
By IRB

Principal Investigator (PI): Ryan G Wilson			Degrees: MFA
University ID: 599043445 17	Phone: 312-208-9784	Email Address: rgwilson@iastate.edu	
Correspondence Address: 1005 13th Street, Ames, Iowa 50010			
Department: Graphic Design		College/Center/Institute: College of Design	

PI Level: ☐ Tenured, Tenure-Eligible, & NTER Faculty ☐ Adjunct/Affiliate Faculty ☐ Collaborator Faculty ☐ Emeritus Faculty ☐ Visiting Faculty/Scientist ☐ Senior Lecturer/Clinician ☐ Lecturer/Clinician, w/Ph.D. or DVM ☐ P&S Employee, P37 & above ☐ Extension to Families/Youth Specialist ☐ Field Specialist III ☐ Postdoctoral Associate ☒ Graduate/Undergrad Student ☐ Other (specify:)

FOR STUDENT PROJECTS (*Required when the principal investigator is a student*)		
Name of Major Professor/Supervising Faculty: Debra Satterfield		
University ID:	Phone:	Email Address: debra815@iastate.edu
Campus Address:		Department: Graphic Design
Type of Project (check all that apply): ☒ Thesis/Dissertation	☐ Class Project	☐ Other (specify:)

Alternate Contact Person:	Email Address:
Correspondence Address:	Phone:

ASSURANCE

- I certify that the information provided in this application is complete and accurate and consistent with any proposal(s) submitted to external funding agencies. Misrepresentation of the research described in this or any other IRB application may constitute non-compliance with federal regulations and/or academic misconduct.
- I agree to provide proper surveillance of this project to ensure that the rights and welfare of the human subjects are protected. I will report any problems to the IRB. See Reporting Adverse Events and Unanticipated Problems for details.
- I agree that modifications to the approved project will not take place without prior review and approval by the IRB.
- I agree that the research will not take place without the receipt of permission from any cooperating institutions when applicable.
- I agree to obtain approval from other appropriate committees as needed for this project, such as the IACUC (if the research includes animals), the IBC (if the research involves biohazards), the Radiation Safety Committee (if the research involves x-rays or other radiation producing devices or procedures), etc., and to obtain background checks for staff when necessary.
- I understand that IRB approval of this project does not grant access to any facilities, materials, or data on which this research may depend. Such access must be granted by the unit with the relevant custodial authority.
- I agree that all activities will be performed in accordance with all applicable federal, state, local, and Iowa State University policies.

[redacted] 10/29/13
Signature of Principal Investigator Date

[redacted] 10/30/13
Signature of Major Professor/Supervising Faculty Date
(*Required when the principal investigator is a student*)

- I have reviewed this application and determined that departmental requirements are met, the investigator(s) has/have adequate resources to conduct the research, and the research design is scientifically sound and has scientific merit.

Kevin Kane
Printed Name of Department Chair/Head/Director

[redacted] 10/30/13
Signature of Department Chair/Head/Director Date

For IRB Use Only			
	Full Committee Review: ☐		Review Date: 11/22/13
	EXPEDITED per 45 CFR 46.110(b): Category Letter		Approval/Determination Date: 11/22/13
Approval Not Required: ☐			Approval Expiration Date: N/A
Not Research: ☐	EXEMPT per 45 CFR 46.101(b): 2		
No Human Subjects: ☐	Not Approved: ☐		Risk: Minimal ☑ More than Minimal ☐
IRB Reviewer's Signature	[redacted]	11/22/13	

Research Involving Humans Study Information

Please provide answers to all questions, except as specified. Incomplete forms will be returned without review.

PART A: KEY PERSONNEL

1. List all members and relevant qualifications of the project personnel and define their roles in the research. Key personnel include the principal investigator, co-principal investigators, supervising faculty member, and any other individuals who will have contact with the participants or the participants' data (e.g., interviewers, transcribers, coders, etc.). This information is intended to inform the committee of the training and background related to the specific procedures that each person will perform on the project. For more information, please see Human Subjects – Persons Required to Obtain IRB Training.

NAME	Interpersonal contact or communication with subjects, or access to private identifiable data?	Involved in the consent process?	Contact with human blood, specimens, or other biohazardous materials?	Other Roles in Research	Qualifications (i.e., special training, degrees, certifications, coursework, etc.)	Human Subjects Training Date
✓ Ryan Wilson	☐	☒	☐	Running Study	BS Interactive Multimedia (in Visual Communication), MS Human Computer Interaction, 12+ years experience in graphic design industry, MFA coursework in Graphic Design nearly complete, PhD coursework in Human Computer Interaction nearly complete	Date of completion: 10/13/2011 Certification Number: 785058
✓ Debra Satterfield	☐	☐	☐	Supervisory	MFA Graphic Design	Date of Completion: 1/21/03
	☐	☐	☐			
	☐	☐	☐			
	☐	☐	☐			
	☐	☐	☐			
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	☐	☐	☐			
	☐	☐	☐			
	☐	☐	☐			

Please complete additional pages of key personnel as necessary.

☐ **Yes** ☒ **No**	**2.**	**Does your study include children (persons under age 18) as research subjects?**
		If ***Yes***, please read and respond to the following: ISU policy requires that background checks be completed for all researchers and key personnel who will have any contact with children involved in this research project. Details regarding this policy can be found here. **Principal Investigators and faculty supervisors are responsible** for ensuring that background checks are completed BEFORE researchers or key personnel may have any contact with children. Records documenting completion of the background checks must be kept with other research records (e.g., signed informed consent documents, approved IRB applications, etc.) and may be requested during any audits or Post-Approval Monitoring of your study.
☐ **Agreed**	**2.a.**	**Please check here to indicate that you have read this information and agree that you will comply with these requirements.**

PART B: FUNDING INFORMATION AND CONFLICTS OF INTEREST

☐ **Yes** ☒ **No**	**1.**	**Is or will the project be externally funded?**
		If ***No***, skip to question 8.
		If ***Yes***, please identify the type(s) of source(s) from which the project is directly funded. ☐ Federal agency ☐ State/local government agency ☐ University or school ☐ Foundation ☐ Other non-profit institution ☐ For-profit business ☐ Other; specify:
☐ **Yes** ☐ **No**	**2.**	**Is ISU considered to be the Lead or Prime awardee for this project?**
☐ **Yes** ☐ **No**	**3.**	**Are there or will there be any subcontracts issued to others for this project?**

☐ Yes ☐ No	**4. Is or will this project be funded by a subcontract issued by another entity?**
☐ Yes ☐ No	**5. If ISU is the recipient of the subcontract, does it involve any federal funding, such as federal flow-through funds?**
6. If this project will be externally funded, please provide the complete name(s) of the funding source(s); please do not use acronyms. If any subcontracts will be issued to others, please describe and include a list of all entities.	
☐ Attached	**7. Please attach a complete and final copy of the entire grant proposal or contract from which the project is or will be funded.**
☐ Yes ☒ No	**8. Do or will any of the investigators or key personnel listed on this application have a conflict of interest management plan in place with the Office of the Vice President for Research & Economic Development?**

PART C: GENERAL OVERVIEW – PURPOSE AND EXPECTED BENEFITS

1. Research Objectives – Briefly explain in language *understandable to a layperson* the purpose and specific aim(s) of the study.

This study will look specifically at the current needs of the design industry, how American design schools are preparing their students for the industry and how we can apply this information to a new method for developing curriculum to better prepare graduating (undergraduate) design students with the skills they will need in industry. With technology and industry needs continually changing, some questions to be considered:

- How do we stay on top of what students need to know?
- How do we as educators provide a proper education to prepare these students and refine our curriculum with enough frequency as to not fall behind the industry?
- How can we ascertain the desirable traits for an entry-level designer?
- What is the best method to teach/introduce these elements/traits?
- Are there ways to design/update our curriculum to stay current to the needs of the industry?
- What are other schools (design and related) looking for in their students?

To define these questions there are several areas that first need to be looked at:

- What technology are new designers expected to know?
- What skills/elements of design will new designers are expected to have?
- In what skillsets is the industry lacking?
- What departments/positions have more need for a certain skill set?

I will also consider integration with other schools (Human Computer Interaction, Computer Science, etc.) to achieve the best well-rounded education to prepare graduating students.

Lastly not just specific to graphic design, how can we apply this method to other departments/schools?

2. Broader Impacts/Significance – Explain in language *understandable to a layperson* why this research is important and how the information gained in this study is expected to advance knowledge and/or serve the good of society.

The goal of education of any kind is to prepare students for what comes after the completion of their education. The concern of both faculty and those hiring entry-level designers in the industry is – Are these students ready for what awaits them after college?

This study is intended to compare the feedback from three groups effected by curriculum and coursework design in Higher Education, those who are teaching it, those who are being taught and those who are employing the recent graduates of the programs.

☐ Yes ☒ No **3. Benefits to Participants –** Are there any expected direct benefits to research participants from participation in the research? **Note:** Monetary compensation is ***not*** considered to be a benefit of participation in research.

If ***Yes***, please describe the expected benefits to participants.

PART D: PARTICIPANT SELECTION

1. How many individuals do you plan to include in the study (including those involved in screening procedures)? The number listed here is the **maximum number** of participants that may be included in the study.

200

2. Inclusion Criteria – Describe the specific characteristics of persons that will be included in your study, **and provide justification for these requirements.**

Industry Professionals: For supervisors or individuals in direct contact with employees who are recent graduates (1-3 years) with graphic design or visual communication degrees either in entry-level positions or other related positions

Educators in Higher Education: For higher education educators in graphic design or visual communication fields of study

Recent Graduates: For recent graduates (1 to 3 years post graduation) with graphic design or visual communication degrees

3. Exclusion Criteria – Describe the characteristics of persons who will not be allowed to participate in your study, **and provide justification for their exclusion.**

Anyone not listed in the Inclusion

4. Do you intend, or is it likely, that your study will include any persons from the following vulnerable populations? (Check all that apply.)

☐ Children (any persons under age 18, including ISU/college students who may be under age 18)
Specify age range:
☐ Prisoners
☐ Persons with impaired decision-making capacity, such as those with dementia or severe cognitive impairment, those declared incompetent, persons in life-threatening situations, etc.
☐ Wards of the State
☐ Persons who are institutionalized
☐ Pregnant women or fetuses
☐ Neonates
☐ Educationally disadvantaged
☐ Economically disadvantaged
☐ Students in a class taught by the researchers
☐ Employees or subordinates of the researchers
☐ Other vulnerable population, given the setting of your research; please describe:

☐ Yes ☒ No **5. Will ISU students or other college students be asked to participate in your study?**

☐ Yes see 5.a.(2) ☐ No see 5.a.(1) **5.a.** If ***Yes***, do you plan to ***include*** college students who may be under age 18?

5.a.(1) If ***No*** *(i.e., students under 18 will be **excluded** from your study)*, please describe how you will ensure college students under 18 do not participate in the study.

5.a.(2) If ***Yes*** *(i.e., students under 18 will be **included** in your study)*, please be sure to describe the parental consent and minor assent processes in Appendix E.

PART E: RECRUITMENT PROCEDURES

1. How will you identify or search for potential participants? (Check all that apply.)

☐ Review of public records (e.g., voter lists, utilities lists, phone directory, ISU directory, etc.)
☐ Review of private records (e.g., medical records, student records, other private records)
☐ Purchased mailing lists
☒ Personal contacts/knowledge
☒ "Snowball" sampling
☐ Participant responses to posted advertisements (electronic or hardcopy) or flyers
☒ Other; please describe: *Social Media Outlets (e.g. LinkedIn)*

2. Please describe the details of how each of the methods checked in #1 above will be implemented.

To find recent graduate participants I will use the ISU alumni record to contact recent graduates in Graphic Design. This will be repeated for other schools to find graduates within the parameters of the study from other universities.

To find industry professionals within the parameters of the study I will use my contacts, word of mouth through them and outlets like LinkedIn, as well as the contacts of my Major Professor.

To find educators within the parameters of the study I will use my contacts, word of mouth through them and outlets like LinkedIn, as well as the contacts of my Major Professor.

3. What methods will you use to contact potential participants? (Check all that apply.)

- ☐ Letter or email
- ☐ Phone call
- ☐ Posting flyers
- ☒ Posting announcement on website (Check all that apply.)
  - ☐ ISU Department of Psychology SONA system
  - ☐ ISU Department of Marketing/MIS SONA system
  - ☐ ISU Office of the Vice President for Research and Economic Development
  - ☐ ISU Departmental/Research Project websites
  - ☒ Other; please describe: *LinkedIn*
- ☐ Distribution of email or advertisement via Listserves or online bulletin-boards
- ☐ Television or radio advertisements
- ☐ Personal or verbal announcement, such as in a class, meeting, etc.
- ☒ Informal, personal communication
- ☐ Other; please describe:

4. Please describe the details of how each of the methods checked in #3 above will be implemented.

I will create the survey using Qualtrics and distribute the link to the survey through email and posting to a professional social media website like LinkedIn.

☒ **Yes** ☐ **No** **5. Attached are copies of any letters, emails, phone/verbal scripts, flyers, announcements, or advertisements that will be used. Please know the IRB must review final and complete copies of all materials used to contact or recruit subjects. For verbal processes, a script or list of points to be covered during the discussion must be provided.**

If ***No***, please explain why:

PART F: SCREENING PROCEDURES

☐ **Yes** ☒ **No** **1. Will participants be asked to provide any information about themselves (e.g., medical history, personal characteristics) for screening purposes prior to enrollment in the study?**

If ***Yes***, please describe:

☐ **Yes** ☒ **No** **2. Will participants be asked to take part in any interventions (e.g., fasting, blood draws, etc.) for screening purposes prior to enrollment in the study?**

If ***Yes***, please describe:

3. If *Yes* to question 1 and/or 2, please describe how you will obtain the informed consent of participants PRIOR to their participation in screening activities.

PART G: COMPENSATION

☐ Yes ☒ No	1. **Will participants receive any of the following types of compensation for their participation in your research? (Check all that apply.)** ☐ Money (cash or check) ☐ Gift cards ☐ Gifts ☐ Reimbursement for expenses (i.e., costs of travel to lab, child care, meals, etc.) ☐ Course credit (including extra credit) ☐ Other; specify:
	2. If *Yes*, please answer questions 2a through 2d. ***This information should also be provided in the informed consent document.***
	2.a. Describe the specific amount of compensation to be provided (i.e., in monetary terms, points for course credit, value of gifts, etc.).
	2.b. Explain how compensation will be provided if the participant withdraws prior to completion of the study. **Note**: Completion of all study procedures cannot be a requirement for research participants to receive compensation.
	2.c. If course credit is given, describe alternative ways students can earn the same amount of credit and how these alternatives are *genuinely comparable* to participation in the study in terms of time and effort.
	2.d. If the study involves multiple visits, sessions, or time-points, how will compensation be prorated (e.g., how much will be provided per visit/session/time-point)?
	Note: Compensation plans must be in accordance with policies set forth by the

ISU Controller's Department. Detailed information is available here.

PART H: RESEARCH PLAN

1. **Research Procedures** – Using *layperson's terminology*, please describe in detail your plans for collecting data from participants. Include a description of **all** *procedures, tasks, or interventions* participants will be asked to complete during the research (e.g., random assignment, any conditions or treatment groups into which participants will be divided, mail survey or interview procedures, observation protocols, sensors to be worn, amount of blood drawn, etc.).

   Note: When referencing attached documents (i.e., surveys, interview protocols, copies of stimuli, instructions for tasks, etc.), please ensure that each attachment is clearly labeled and clearly referenced in this section.

Participants will take a short survey through Qualtrics. Survey questions will be displayed per user response; for industry, for educators and for recent graduates. Participants will be asked to choose a primary role to answer the set of questions.

Answers will be collected with Qualtrics for review.

RESEARCH INVOLVING DECEPTION OR INCOMPLETE DISCLOSURE

☐ Yes ☒ No **2. Will participants be *deceived or misled* about anything during the study?**
If ***Yes***, please answer questions 2a through 2d in Appendix A.
If ***No***, please skip to question 3.

☐ Yes ☒ No **3. Do you plan to *intentionally withhold* information from participants, such as the full purpose of the study, a full description of procedures, etc.?**
If ***Yes***, please answer questions 3a through 3d in Appendix A.
If ***No***, please skip to question 4.

RESEARCH INVOLVING EXISTING DATA OR INFORMATION FROM RECORDS

☐ Yes ☒ No **4. Does the research involve the collection or study of currently existing data or information to be gathered from records, such as the following? (Check all that apply.)**
☐ Student/educational records (including collection of class assignments, tests, etc.)
☐ Medical records (If checked, submit the Application for Use of Protected Health Information.)
☐ Data collected for a previously conducted study
☐ Information from government databases, such as the US Census, Iowa Dept. of Public Health records, etc.
☐ Samples from specimen/tissue banks
☐ Other; please describe:

If *Yes*, please answer questions 4a through 4g in **Appendix B**.
If *No*, please skip to question 5.

RESEARCH INVOLVING OBSERVATION

☐ Yes ☒ No **5. Does the research involve collection of data from observation of people's behaviors or activities?**
If *Yes*, please answer 5a through 5d in **Appendix C**.
If *No*, please skip to question 6.

RESEARCH INVOLVING INTERNATIONAL RESEARCH

☐ Yes ☒ No **6. Will the research take place in an international setting?**
If *Yes*, please answer 6a through 6c in **Appendix D**.
If *No*, please skip to question 7.

RESEARCH INVOLVING INVESTIGATIONAL DRUGS, DEVICES, DEXA/CT SCANS, X-RAYS, OR HUMAN CELLS OR TISSUES

☐ Yes ☒ No **7. Does this project involve an investigational new drug (IND)?** Number:

☐ Yes ☒ No **8. Does this project involve an investigational device exemption (IDE)?** Number:

☐ Yes ☒ No **9. Does this project involve DEXA/CT scans or X-rays?**

☐ Yes ☒ No **10. Does this project involve human blood components, body fluids, or tissues?**

☐ Yes ☒ No **11. Does this project involve human cell or tissue cultures (primary or immortalized)?**

If you answered *Yes* to either question 10 or 11 and the cells, body fluids, etc., have not been documented to be free of blood-borne pathogens, personnel handling these substances are required to take Blood-borne Pathogens Training annually.

Bloodborne Pathogens training is online via the EH&S website.

If you have any questions, contact EH&S at (515) 294-5359.

PART I: DATA ANALYSIS

1. Describe how the data will be analyzed (*e.g., statistical methodology, statistical evaluation, statistical measures used to evaluate results*).

The participants' responses and data will be recorded and analyzed using various programming and statistical techniques to identify significance and commonality between groups.

Results of the data analysis will then be made available to the scientific community. However, no information will be made available that would identify participants and their individual responses.

PART J: CONSENT PROCESS

According to federal regulations, participants can only be included in research if they, or their legally authorized representative, provide legally-effective informed consent. In some cases, the IRB can waive this requirement.

I. Consent for Adult Participants

RB per PI email 11/22/13.

☒ Yes ☒ No **A. Will you obtain the informed consent of all participants?**

If **A** is ***Yes***, please answer the following questions:

1. Describe the procedures you will use to provide information about the details of the study to participants.

The participants will be provided informed consent upon arrival at the survey website + will be prompted if they would like to proceed - The information will include that participation is voluntary & they may choose to skip any questions they do not feel comfortable answering.

RB 11-22-13 by email

2. Who, in general, will obtain informed consent from participants (i.e., explain the study, collect signed forms, etc.)? Please do not list actual names of study staff; rather, describe their role such as "the principal investigator," "research assistants," etc.

Informed consent will be collected through the survey.

2.a. What training have they received or will they receive regarding how to appropriately obtain informed consent?

3. Information conveyed to participants must be in a language understandable to them. Please describe the measures you are taking to ensure the informed consent process is understandable (e.g., translation into another language, using commonly understood terminology, assessing reading level of the consent form, etc.).

3.a. If translation is required, please provide the name of the person(s) who conducted the translation(s) and his/her qualifications for doing so.

	4. When will informed consent be obtained in relation to beginning data collection?
☐ Yes ☒ No	**5. Will all participants sign a consent form to document the consent process? Note:** Signatures must be handwritten by the participant; typing one's name on a form does not constitute a legally valid signature according to federal regulations. If ***No***, please explain why.
☐ Yes ☒ No	**6. Do any of the researchers or key personnel involved in the study have a supervisory, evaluative, or other position of "power" over participants?** If ***Yes***, please describe the measures you are taking to minimize any coercion or undue influence (real or perceived).
☐ Yes ☒ No	**7. Are any participants likely to be unable to provide consent for themselves, such as those who have severe cognitive impairments, dementia, are in life-threatening situations, cannot communicate, etc.?** If ***Yes***, please describe plans to obtain consent from the participant's legally authorized representative.
	7.a. To the extent possible, given the condition of the participant, how will you ensure they agree to take part in the research?
If **A** is ***No***, (i.e., you will NOT obtain informed consent from all participants), please answer the following:	
	8. Please provide strong and compelling justification for why you cannot carry out your study if you had to obtain informed consent. Note: The fact that obtaining consent would be inconvenient or time consuming is **not** considered to be sufficient justification.
	The survey will be conducted online and not in person. Collecting signatures from participants will not be possible. However, the first question of the survey will ask participants if they agree to participate in the survey. If they answer 'Yes' they will begin the survey questions, if they answer 'No' they will be sent to the final 'Thank You' page of the survey.
	9. Please explain why participants' rights and welfare will not be adversely affected if you do not obtain their consent.
	Participants rights and welfare will not be adversely affected without obtaining their consent because the collection method is an online survey. Participants responses will be confidential and no identifying information such as name, email address or IP address

will be collected. Participants have the right to stop the survey at any time.

-including names of colleges, universities or employers. (RS) per email 11/11/13.

II. Parent/Legal Guardian Consent and Child Assent (applies when participants are under age 18 or are considered to be children in the country where the research takes place)

☐ Yes ☒ No	**A. Does your study involve children?**
If **A** is ***Yes***, please complete the questions in Appendix E.	

PART K: RISKS/DISCOMFORTS

☐ Yes ☒ No* see 1.a.-1.g.	**1. Are there any foreseeable risks or discomforts to participants from taking part in your research?** *If ***No***, please answer the following question.
	If ***No (i.e., there are no foreseeable risks or discomforts to participants)***, please explain why you believe this is the case:
	Research is conducted through an online survey. Participants can opt out at any time.
	If ***Yes***, please answer ***Yes*** or ***No*** to items **1.a through 1.g** below. Indicate whether the following types of risks/discomforts are foreseeable. When ***Yes***, please describe the risks/discomforts **and** explain how each will be mitigated or minimized.
☐ Yes ☐ No	**1.a.** Physical Risks (e.g., injury, bruising from a blood draw, pain, side-effects from drugs administered, allergic reactions, etc.)
☐ Yes ☐ No	**1.b.** Psychological Risks (e.g., emotional discomfort from answering questions, stress or anxiety from procedures, mood alterations, viewing offensive or "shocking" materials, etc.)
☐ Yes ☐ No	**1.c.** Social Risks (e.g., harm to reputation, embarrassment, or stigmatization if participation becomes known, disruption of personal or family relationships, etc.)
☐ Yes ☐ No	**1.d.** Economic Risks (e.g., loss of money, loss of or harm to employment, etc.)
☐ Yes ☐ No	**1.e.** Legal Risks (e.g., criminal liability if information about participants' illegal behaviors is

	collected)
☐ Yes ☐ No	**1.f.** Informational Risks (e.g., harm if information collected about the participant were disclosed or overheard, such as embarrassment, retribution, stigmatization, disruption of personal relationships, legal liability, etc.)
☐ Yes ☐ No	**1.g.** Other Risks, given the setting of your research

PART L: PRIVACY AND CONFIDENTIALITY

1. Describe how participants' privacy will be protected during recruitment and data collection (e.g., discussions/procedures will be conducted in private locations, messages regarding the research will not be left on answering machines without permission of participant, documents or recordings will be kept secure, etc.).
All data obtained will be kept within a controlled access lab within the locked office of the primary investigator after being stripped of information that could be used to identify a specific individual (none will be collected). All electronic data will be stored on a password protected computer.
2. Please answer the following questions to describe the methods you will employ to maintain confidentiality and security of the data at all points in the research process (e.g., during data collection, during analysis, etc.):
2.a. Who will have access to the data and study records?
Members of the research team
2.b. Describe how/where physical copies (i.e., paper files, samples, etc.) of data and study records will be stored (e.g., in cabinets, desks, shelves, etc.).
There will be no physical copies of data
2.c. Describe security measures in place to maintain security of physical/paper data, samples, or study records (e.g., how access will be controlled, locks, etc.).
There will be no physical copies of data
2.d. Describe how/where electronic data will be stored (e.g., a desktop computer, laptop, portable drive, shared drive, etc.).
Electronic data will be stored on a secured, password protected computer and backed

	up on a secured cloud storage device.
	2.e. Describe the measures in place to maintain security of electronic data (e.g., encryption, password-protection, firewalls, using university controlled systems, etc.).
	Electronic data will be stored on a secured, password protected computer and backed up on a secured cloud storage device.
☐ **Yes** ☒ **No**	**2.f.** Will your data include any audio recordings and/or video recordings of participants? If ***Yes***, please answer the following:
	2.f.(1) Who will have access to the audio and/or video recordings?
	2.f.(2) Describe how/where the audio and/or video recordings will be stored (e.g., in a cabinet, on a computer, etc.).
	2.f.(3) Describe the measures in place to maintain security and confidentiality of the audio and/or video recordings (e.g., how access will be controlled, locks, password protection, firewalls, etc.).
☐ **Yes** ☒ **No**	**2.f.(4)** Will the actual recordings or images of participants from recordings be shared in any dissemination (e.g., manuscripts, reports, presentations, etc.) of the study results? If ***Yes***, what measures will you take to disguise their identity (i.e., blurring facial images, voice alteration methods, etc.)?
☐ **Yes** ☒ **No**	**2.g.** Will any identifiers or identifiable information (e.g., names, social security numbers, addresses, phone numbers, exact dates of birth, etc.) be collected with or linked to the study data at **any point in time**? If ***Yes***, please answer the following:
	2.g.(1) Describe the identifiers that will be collected or linked to the study data.
	2.g.(2) Why is it necessary to collect identifiers or link identifiers to the study data?
	2.g.(3) At what point in the process will identifiers be separated or removed from the data?

	2.g.(4) Please describe any coding systems you will use to maintain confidentiality of identifiable data (e.g., plans to replace names with ID codes or pseudonyms).
☐ **Yes** ☒ **No**	**2.g.(5)** Will you create a "key" linking identifiers with any ID codes or pseudonyms?
	If ***Yes***, how will you maintain control of the key and ensure the key is kept secure? **Note:** Best practice is to store the key in a separate location from the study data.
	At what point will the key be destroyed?
☐ **Yes** ☒ **No**	**2.h.** Have you or will you obtain a Federal Certificate of Confidentiality for this study? If ***Yes***, please submit a copy of the certificate materials with this application. **Note:** Certificates of Confidentiality are designed to protect identifiable research records against forced disclosure (e.g., subpoena). Certificates can be sought from the National Institutes of Health in certain circumstances. Visit the Certificates of Confidentiality Kiosk **for more information.**
☐ **Yes** ☒ **No**	**2.i.** Will the data be shared or submitted to a repository or registry, such as the Clinical Trial Registry Databank (ClinicalTrials.gov), the Database of Genotypes or Phenotypes, or via other data sharing agreements? If ***Yes***, please describe.
3.	What specific steps will you take to ensure participants are not identifiable (directly or indirectly via "deductive disclosure") when research results are reported?
	Participants will not be providing any identifiable information the survey will be sent out nationally to many Colleges + universities. No names or Universities or employers will be collected or associated with the survey. - per PI email 11-11-13 (VB)
☒ **Yes**	**4.** Please check here to confirm that you will retain research records (i.e., signed consent forms, approved IRB applications, etc.) for at least 3 years after the study is complete. Doing so is required by federal regulations.

PART M: REGISTRY PROJECTS

☐ **Yes** ☒ **No**	**1. Does this project establish a registry or databank?**
	Note: To be considered a registry or databank: (1) the individuals whose data are in the registry/databank might be contacted in the future; and/or (2) the names and/or data pertaining to the individuals in the registry/databank might be used by investigators other than the one maintaining the registry/databank.

If ***Yes***, please answer the following questions:
1.a. What information/data will be included in the registry?
1.b. What is the reason for establishing a registry (i.e., how will data from the registry be used)?
1.c. Who will be involved in establishing and providing oversight of the registry?
☐ **Yes** ☐ **No** **1.d.** Will the data in the registry be available to anyone other than the investigator(s) who maintain the registry?

Checklist for Attachments

Listed below are the types of documents that should be submitted for IRB review. Please check **and attach** the documents that are applicable for your study:

- ☐ Grant proposal or contract—must be the complete and final version submitted to funding agency
- ☐ Recruitment fliers, phone scripts, or any other documents or materials participants will see or hear
- ☐ A copy of the informed consent document or letter of introduction containing the elements of consent
- ☐ A copy of the assent form if minors will be enrolled
- ☐ Data-gathering instruments (including surveys, interview questions, focus group protocols, cognitive tests, observation protocols, etc.)
- ☐ When applicable, copies or detailed descriptions of stimuli participants will be exposed to, instructions for testing, investigator's brochures, etc.
- ☐ Appendices attached when applicable
  - ☐ Appendix A
  - ☐ Appendix B
  - ☐ Appendix C
  - ☐ Appendix D
  - ☐ Appendix E

The original signed copy of the application form, any completed appendices, and one set of accompanying materials should be submitted for review in hard copy to the Office for Responsible Research, 1138 Pearson, or electronically to IRB@iastate.edu.

1. Consent
2. General Information
3. Preparation and Preparedness
4. Skills (design, technical, professional)
5. Educational Curriculum and Course Design

There is no direct benefit to you, the survey taker. However, the results of this survey, along with curriculum and course design research will be applied to a new method for developing curriculum to better prepare undergraduate Visual Communications and Graphic Design students with the skills they will need in industry. The results of this study will be used for scholarly purposes only.

Survey - A3

Survey

Section I, Consent

1. Do you agree to participate in this survey?
    a. Yes - I agree to the above consent
    b. No - I do not agree to the above consent *–EXIT SURVEY–*

Section II, General Questions

1. Gender: Please select your gender:
    a. Male
    b. Female
    c. Prefer to not specify

2. Age: What is your age?
    a. 18-24 years old
    b. 25-34 years old
    c. 35-44 years old
    d. 45-54 years old
    e. 55-64 years old
    f. 65-74 years old
    g. 75 years or older
    h. Prefer to not specify

3. Education: What is the highest degree or level of school you have completed?
    a. No schooling completed *–EXIT SURVEY–*
    b. Nursery school to 8th grade *–EXIT SURVEY–*
    c. Some high school, no diploma
    d. High school graduate, diploma or the equivalent (for example: GED)
    e. Some college credit, no degree
    f. Trade/technical/vocational training

g. Associate degree
h. Bachelor's degree
i. Master's degree
j. Professional degree
k. Doctorate degree

4. Role: Which of the following roles best describes how you will be responding to this survey?
    a. Entry-Level Designer in Graphic Design or related field
    b. Educator in a Visual Communications or Graphic Design Program
    c. Industry Supervisor working in Graphic Design or related field
    d. None of the above *–EXIT SURVEY–*

5. Specifics: What are the specifics of your industry?
    a. Graphic Design
    b. Interactive Design
    c. Visual Communication
    d. Motion Graphics
    e. Print/Publication Design
    f. Web Design
    g. Other _____

6. (for those who answered #4 with 'c') New Hires: Have you hired or worked directly with any entry-level designers in the past 36 months?
    a. Yes
    b. No *–EXIT SURVEY–*

Section III, Preparation and Preparedness

You are answering questions about your experience as...

a. Section I, 4a - a recent graduate of
b. Section I, 4b - an educator working in
c. Section I, 4c - industry professional who, within the past 36 months, has worked directly with a graduate of

...a graphic design or Visual Communications program.

1. Please rate how prepared [4a - you were | 4b - your students are | 4c - recent graduates are] for working in the industry [1 = not prepared, 5 = very prepared]:
    a. 1 - - - - - 2 - - - - - 3 - - - - - 4 - - - - - 5

2. Do you feel that [4a - you needed | 4b - your students will need | 4c - recent graduates need] additional training when entering the industry?
    a. Yes - - - - - No

3. (If 'Yes' to #3) In what specific areas do you feel that [4a - you needed | 4b - your students will need | 4c - recent graduates need] additional training (select as many as you see fit):
    a. Design Skills *(i.e., theory, principles, methods, craft, etc)*
    b. Technical Skills *(i.e., programs, computer, coding, etc)*
    c. Professional Skills *(i.e., written communication, oral presentations, critiques, etc)*
    d. Other _____

Section IV, Desired Skill Set

1. Please rate how important you feel graphic design or visual communication programs include a **design skill education** *(i.e., theory, principles, methods, craft, etc)* [1 = not important, 5 = very important]:
    a. 1 - - - - - 2 - - - - - 3 - - - - - 4 - - - - - 5

2. Please rate how important you feel a **design skill education** *(i.e., theory, principles, methods, craft, etc)* is for recent graduates when working in the industry [1 = not important, 5 = very important]:
    a. 1 - - - - - 2 - - - - - 3 - - - - - 4 - - - - - 5

3. Please list any **design skills** *(i.e., theory, principles, methods, craft, etc)* that you feel students of graphic design or visual communication programs will need for working in the industry:
    a. _____

4. Please rate how important you feel graphic design or visual communication programs include **technology skills** *(i.e., programs, computer, coding, etc)* [1 = not important, 5 = very important]:
    a. 1 - - - - - 2 - - - - - 3 - - - - - 4 - - - - - 5

5. Please rate how important you feel **technology skill education** *(i.e., programs, computer, coding, etc)* is for recent graduates when working in the industry [1 = not important, 5 = very important]:
    a. 1 - - - - - 2 - - - - - 3 - - - - - 4 - - - - - 5

6. Please list any **technology skills** *(i.e., programs, computer, coding, etc)* that you feel students of graphic design or visual communication programs will need for working in the industry:
    a. _____

7. Please rate how important you feel graphic design or visual communication programs include **professionalism skills** *(i.e., written communication, oral presentations, critiques, etc)* [1 = not important, 5 = very important]:
    a. 1 - - - - - 2 - - - - - 3 - - - - - 4 - - - - - 5

8. Please rate how important you feel **professionalism skill education** *(i.e., written communication, oral presentations, critiques, etc)* is for recent graduates when working in the industry [1 = not important, 5 = very important]:
    a. 1 - - - - - 2 - - - - - 3 - - - - - 4 - - - - - 5

9. Please list any **professionalism skills** *(i.e., written communication, oral presentations, critiques, etc)* that you feel students of graphic design or visual communication programs will need for working in the industry:
    a. _____

10. Please list any **additional skills not listed above** that you feel that would be helpful for recent graduates to have:
    a. _____

Section V, Curriculum and Course Design

1. Please rate how important it is for a new employee to have a graphic design or visual communication education [1 = not important, 5 = very important]:
    a. 1 - - - - - 2 - - - - - 3 - - - - - 4 - - - - - 5

2. Do you have any suggestions or recommendations for current undergraduates in graphic design or visual communication programs to be better prepared for the industry?
    a. _____

3. *(Section I, 4b: For Educators)* Does your department, have an Advisory Board?
    a. Yes - - - - - No

4. *(Section I, 4b: For Educators)* In your department, is curriculum/course design counted towards your tenure review?
    a. Yes - - - - - No

5. *(Section I, 4b: For Educators)* In your department, is contract/freelance work counted as research?
    a. Yes - - - - - No

6. *(Section I, 4b: For Educators)* In your department, is there continued education for educators?
    a. Yes - - - - - No

7. *(Section I, 4c: For Industry Professionals)* Would you be willing to work with educators in graphic design or visual communication higher education to develop curriculum/coursework to better prepare their students for the industry?
    a. Yes - - - - - No

APPENDIX D

SURVEY DATA FROM QUALTRICS

Initial Report

Last Modified: 02/27/2014

1. Do you agree to participate in this survey?

#	Answer	Bar	Response	%
1	Yes - I agree to the above consent		70	97%
2	No - I do not agree to the above consent		2	3%
	Total		72	

Statistic	Value
Min Value	1
Max Value	2
Mean	1.03
Variance	0.03
Standard Deviation	0.17
Total Responses	72

2. Please select your gender:

#	Answer	Bar	Response	%
1	Male		33	48%
2	Female		36	52%
3	Prefer to not specify		0	0%
	Total		69	

Statistic	Value
Min Value	1
Max Value	2
Mean	1.52
Variance	0.25
Standard Deviation	0.50
Total Responses	69

3. What is your age?

#	Answer	Bar	Response	%
1	18-24 years old		28	41%
2	25-34 years old		25	36%
3	35-44 years old		10	14%
4	45-54 years old		4	6%
5	55-64 years old		1	1%
6	65-74 years old		1	1%
7	75 years or older		0	0%
8	Prefer to not specify		0	0%
	Total		69	

Statistic	Value
Min Value	1
Max Value	6
Mean	1.96
Variance	1.16
Standard Deviation	1.08
Total Responses	69

4. What is the highest degree or level of school you have completed?

#	Answer	Bar	Response	%
1	No schooling completed		0	0%
2	Nursery school to 8th grade		0	0%
3	Some high school, no diploma		0	0%
4	High school graduate, diploma or the equivalent (for example: GED)		2	3%
5	Some college credit, no degree		9	13%
6	Trade/technical/vocational training		0	0%
7	Associate degree		3	4%
8	Bachelor's degree		37	54%
9	Master's degree		14	20%
10	Professional degree		3	4%
11	Doctorate degree		1	1%
	Total		69	

Statistic	Value
Min Value	4
Max Value	11
Mean	7.78
Variance	2.17
Standard Deviation	1.47
Total Responses	69

5. Which of the following roles best describes how you will be responding to this survey?

#	Answer	Bar	Response	%
1	Entry-Level Designer in Graphic Design or related field		41	64%
2	Educator in a Visual Communications or Graphic Design Program		9	14%
3	Industry Supervisor working in Graphic Design or related field		14	22%
	Total		64	

Statistic	Value
Min Value	1
Max Value	3
Mean	1.58
Variance	0.69
Standard Deviation	0.83
Total Responses	64

6. Have you hired or worked directly with any entry-level designers in the past 36 months?

#	Answer	Bar	Response	%
1	Yes		12	86%
2	No		2	14%
	Total		14	

Statistic	Value
Min Value	1
Max Value	2
Mean	1.14
Variance	0.13
Standard Deviation	0.36
Total Responses	14

7. What are the specifics of your industry?

#	Answer	Bar	Response	%
1	Graphic Design		30	50%
2	Interactive Design		6	10%
3	Visual Communication		5	8%
4	Motion Graphics		4	7%
5	Print/Publication Design		1	2%
6	Web Design		4	7%
7	Other		10	17%
	Total		60	

Other
All the above
all of the above
live entertainment
Graphic Design and Marketing
All of the above
there are multiple
More than one of these; I work for a studio that is equally focused on general graphic design as well as interactive/web design (along with a bit of motion). It's all inter-related.
Retail Design / Print Design / Art Directing
All of the above
Print and Email design

Statistic	Value
Min Value	1
Max Value	7
Mean	2.87
Variance	5.58
Standard Deviation	2.36
Total Responses	60

8. Please rate how prepared you were for working in the industry:

#	Question	1	2	3	4	5	Total Responses	Mean
1	1 = not prepared, 5 = very prepared	2	9	12	15	1	39	3.10

Statistic	1 = not prepared, 5 = very prepared
Min Value	1
Max Value	5
Mean	3.10
Variance	0.94
Standard Deviation	0.97
Total Responses	39

9. Please rate how prepared your students are for working in the industry:

#	Question	1	2	3	4	5	Total Responses	Mean
1	1 = not prepared, 5 = very prepared	0	0	0	5	3	8	4.38

Statistic	1 = not prepared, 5 = very prepared
Min Value	4
Max Value	5
Mean	4.38
Variance	0.27
Standard Deviation	0.52
Total Responses	8

10. Please rate how prepared recent graduates are for working in the industry:

#	Question	1	2	3	4	5	Total Responses	Mean
1	1 = not prepared, 5 = very prepared	0	1	7	2	0	10	3.10

Statistic	1 = not prepared, 5 = very prepared
Min Value	2
Max Value	4
Mean	3.10
Variance	0.32
Standard Deviation	0.57
Total Responses	10

11. Do you feel that you needed additional training when entering the industry?

#	Answer	Bar	Response	%
1	Yes		33	87%
2	No		5	13%
	Total		38	

Statistic	Value
Min Value	1
Max Value	2
Mean	1.13
Variance	0.12
Standard Deviation	0.34
Total Responses	38

12. Do you feel that your students will need additional training when entering the industry?

#	Answer	Bar	Response	%
1	Yes		7	78%
2	No		2	22%
	Total		9	

Statistic	Value
Min Value	1
Max Value	2
Mean	1.22
Variance	0.19
Standard Deviation	0.44
Total Responses	9

13. Do you feel that recent graduates need additional training when entering the industry?

#	Answer	Bar	Response	%
1	Yes		10	100%
2	No		0	0%
	Total		10	

Statistic	Value
Min Value	1
Max Value	1
Mean	1.00
Variance	0.00
Standard Deviation	0.00
Total Responses	10

14. In what specific areas do you feel that you needed additional training (select as many as you see fit):

#	Answer	Bar	Response	%
1	Design Skills (i.e., theory, principles, methods, craft, etc)		8	24%
2	Technical Skills (i.e., programs, computer, coding, etc)		30	91%
3	Professional Skills (i.e., written communication, oral presentations, critiques, etc)		11	33%
4	Other		4	12%

Other
Research and Marketing Strategy
drawing
Personal skills: speed, efficiency
Professional practice skills, business skills, finance skills

Statistic	Value
Min Value	1
Max Value	4
Total Responses	33

15. In what specific areas do you feel that your students will need additional training (select as many as you see fit):

#	Answer	Bar	Response	%
1	Design Skills (i.e., theory, principles, methods, craft, etc)		0	0%
2	Technical Skills (i.e., programs, computer, coding, etc)		6	86%
3	Professional Skills (i.e., written communication, oral presentations, critiques, etc)		5	71%
4	Other		1	14%

Other
Practical application and growth as software and industry progresses

Statistic	Value
Min Value	2
Max Value	4
Total Responses	7

16. In what specific areas do you feel that recent graduates need additional training (select as many as you see fit):

#	Answer	Bar	Response	%
1	Design Skills (i.e., theory, principles, methods, craft, etc)		5	50%
2	Technical Skills (i.e., programs, computer, coding, etc)		6	60%
3	Professional Skills (i.e., written communication, oral presentations, critiques, etc)		7	70%
4	Other		2	20%

Other
understanding design, is NOT layout. design is solving problems, not just making it pretty.
concepting and art history

Statistic	Value
Min Value	1
Max Value	4
Total Responses	10

17. Please rate how important you feel graphic design or visual communication programs include a design skill education (i.e., theory, principles, methods, craft, etc):

#	Question	1	2	3	4	5	Total Responses	Mean
1	1 = not important, 5 = very important	0	0	2	17	37	56	4.63

Statistic	1 = not important, 5 = very important
Min Value	3
Max Value	5
Mean	4.63
Variance	0.31
Standard Deviation	0.56
Total Responses	56

18. Please rate how important you feel a design skill education (i.e., theory, principles, methods, craft, etc) is for recent graduates when working in the industry:

#	Question	1	2	3	4	5	Total Responses	Mean
1	1 = not important, 5 = very important	0	1	2	19	34	56	4.54

Statistic	1 = not important, 5 = very important
Min Value	2
Max Value	5
Mean	4.54
Variance	0.44
Standard Deviation	0.66
Total Responses	56

19. Please list any design skills (i.e., theory, principles, methods, craft, etc) that you feel students of graphic design or visual communication programs will need for working in the industry:

Text Response
How to contribute in brainstorming exercises, gauging the end user and coming up with the style perfect for them.
methods
Design ideation and collaboration, story mapping, design thinking, rapid prototyping, sketching.
formal organizational skills (the prep for this begins with hierarchy projects which introduces them to the design principles; they need to learn hand skills such as how to comp books and packages and 3D models because it rounds out the way they can submit or show work to a client in addition to generating images or designs on the computer. It also forces them to think ion another way. They learn compositional skills in all classes as well as the digital photography class. The students often do not realize that they need to apply what they are exposed to in these classes when it comes time to create applied design projects in the upper level classes.
Theory, practical, busines, legal, code, print production, digital imaging
not understanding what design really is. they think layout is design.
The ability to communicate theory, principles, methods and craft to non-design professionals.
designing for a business (ie clear communication of logo/brand to audience) as opposed to designing for artistic purposes is one challenge we have experienced
methods are the most important. What are agency's using to complete tasks.
Photoshop mastery, an eye for good/clean/modern design, typography (web & print), the grid
art history/ geometry (math)/ production (printing standards)
CRAP principles, grid based design, thoughtful communication
Craft and attention to detail is extremely important; Design principle foundation is a must-have, but Senior Designers will also help hone that skill;
interactive, web, hand drawing
Typography, grid systems/layout, photo editing, appropriate use of color, understanding of CMYK/RGB/PMS, understanding of pixel dimensions vs. dpi vs. ppi, unity across multiple design pieces in a system (branding), ability to create scale or to-size mock ups
how to use reference efficiently and properly, formal theory, methodology (generate ideas quickly)
Design skills are far more important than knowing how to use a program. Composition, grid systems, typography are very important.
typography, composition, color, etc
rule of thirds, complimentary colors, designing systems/identities, grids
Client communication, flexibility, ability to meet deadlines, juggling multiple projects simultaneously
Ability to meet deadline and deliver quality
Principles, Method and Craft.
color theory, design principles, coding, craft
composition, understanding of indesign, photoshop, and illustrator, typography
Web Layouts and Coding
theory and principles, along with experience working with clients
knowing how to completely use AI ID and PS
i believe graphic design students should have a firm grip on drawing and sketching.
mocking design solutions

Statistic	Value
Total Responses	29

20. Please rate how important you feel graphic design or visual communication programs include technology skills (i.e., programs, computer, coding, etc):

#	Question	1	2	3	4	5	Total Responses	Mean
1	1 = not important, 5 = very important	2	1	10	10	31	54	4.24

Statistic	1 = not important, 5 = very important
Min Value	1
Max Value	5
Mean	4.24
Variance	1.13
Standard Deviation	1.06
Total Responses	54

21. Please rate how important you feel technology skill education (i.e., programs, computer, coding, etc) is for recent graduates when working in the industry:

#	Question	1	2	3	4	5	Total Responses	Mean
1	1 = not important, 5 = very important	0	2	6	12	34	54	4.44

Statistic	1 = not important, 5 = very important
Min Value	2
Max Value	5
Mean	4.44
Variance	0.70
Standard Deviation	0.84
Total Responses	54

22. Please list any technology skills (i.e., programs, computer, coding, etc) that you feel students of graphic design or visual communication programs will need for working in the industry:

Text Response
I feel the student needs to be an intermediate to master of the "pencil" hes putting to "paper" So that the design skills they used are perfectly translated from the mind to the medium.
max, maya, softimage, java, opengl, python
I believe theory, craft, and design ideation trumps tech skills. Anyone can learn Photoshop or coding, but few know what to do with it.
Our students are often hired based on their excellent portfolios that show a well ropunded exposure to many aspects of design needed in industry. If these good desin=gners do not have a strong ability to code or design for the web, employers train them further. We try to prep our students to think and design as well as prep them technologically for entry level emplpyment. You cannot underestimate how diffficult it is to teach both design skills in addition to technological skills in a 4-year program to students of varying inate abilities and maturity levels. Technological skills alone could be a two-year focus and that does not necessarily include digital media animation training which is another two-year focus. As much as we prep the students even 4 years is a good solid introduction to a profession getting them ready to start a lifetime of study as they continue to learn and developon the job.
CSS, HTML5, java, print to digital production
true understanding of web tools, hierarchy, information flow, messaging
Demonstrate ability in those skills through some type of production.
we have experienced challenges with entry level people not having good coding skills, being unable to redesign a simple website on their own, not understanding the back end of a website or enewsletter, not knowing the best practices of enewsletters/can-spam act
Dreamweaver/Coda experience, HTML5/CSS3, Jquery, Wordpress/Drupal
Keeping up with the latest programs is important but also being able to use older versions, being able to switch between a pc and a mac
Good knowledge of HTML/CSS and CMS, along with advanced skills in Adobe programs
Adobe AIR, Away3D,
HTML, CSS, Javascript, understanding of how technology interacts
The more the merrier, honestly. But, knowing some basic HTML and CSS would definitely be a plus.
learn basic HTML, CSS, etc—web is the future, and if you don't have that, then you're kind of screwed; PS, AI, ID are the bare-minimum to know when entering work field
Web based language (HTML, CSS, etc)
HTML/CSS, Adobe Creative Suite, Microsoft Outlook, PowerPoint, Word, Excel, FTP protocol (how to send/receive large files or upload a webpage to the internet), understanding dpi/ppi/pixel dimensions, running mail merges, packaging InDesign files
Unless you are a web designer, I don't feel like knowing how to use programs is as important as knowing design principles. As a retail designer, I need to have excellent design principle knowledge and not so much knowledge of technology, like how to code or use Photoshop.
Illustrator, Photoshop, InDesign, After Effects, Cinema 4D or other 3D software, Premier Pro, Final Cut, basic HTML, CSS, & PHP
Coding and
software training (all adobe creative suite), basic HTML (CSS is also helpful), offset and digital printing, social media and blogging platforms
HTML, CSS, Adobe suite, Microsoft, Mac & pc
HTML coding! Web, knowledge of mobile friendly practices for email and web. Coding trends ie. responsive
Mainly the Adobe Creative Suite foundation
Computer skill as well as program knowledge
program tutorials or classes, coding classes/tutorials
Photoshop, InDesign, Illustrator, Dreamweaver
Web layout design
programs, computer, coding
coding, web design
everything you can get your hands on.
DSLR and Video Knowledge

Statistic	Value
Total Responses	32

23. Please rate how important you feel graphic design or visual communication programs include professionalism skills (i.e., written communication, oral presentations, critiques, etc):

#	Question	1	2	3	4	5	Total Responses	Mean
1	1 = not important, 5 = very important	0	4	9	15	26	54	4.17

Statistic	1 = not important, 5 = very important
Min Value	2
Max Value	5
Mean	4.17
Variance	0.93
Standard Deviation	0.97
Total Responses	54

24. Please rate how important you feel professionalism skill education (i.e., written communication, oral presentations, critiques, etc) is for recent graduates when working in the industry:

#	Question	1	2	3	4	5	Total Responses	Mean
1	1 = not important, 5 = very important	0	1	4	17	32	54	4.48

Statistic	1 = not important, 5 = very important
Min Value	2
Max Value	5
Mean	4.48
Variance	0.52
Standard Deviation	0.72
Total Responses	54

25. Please list any professionalism skills (i.e., written communication, oral presentations, critiques, etc) that you feel students of graphic design or visual communication programs will need for working in the industry:

Text Response
The person just needs communication skills. I feel the word "professional" is very broad.
Critiques: how to give them and more importantly how to receive them.
We try to imcorporate these skills into our curriculum especially the writing, the presentations and even critiques. However, all of these aspects apparently need the same kind of time and interaction from the instructor as do their design projects. It is almost impossible to do it all effectively so for me the focus is the design skill and the critiques which go with that on a daily basis. I can read, write and correct as an English teacher would but this is one more thing piled onto an already full curriculum and many of the students are treading water to keep up as it is.
public speaking or persuasion (both).
a lot of students can't take or give critiques. they think their personal art and satisfaction is what matters. they forget it is a business and they also need to be efficient and understand how to best use tools
In general, today's graduates are less aware of business norms and professionalism, etiquette, etc.
oral presentation, strategy analysis, critique
Oral presentations in a client atmosphere
Students definitely need to be able to present themselves and write emails in a professional manner. Must take and dish out criticism well. Should be detail oriented.
Understanding how to take criticism and how to communicate your ideas with out being hostel
Written communication is very important, but also learning to articulate during oral presentations is essential. Basics like eye contact and speaking loud and clear are typically not taught to the extent they are needed in industry.
Oral presentation!
Being able to defend your work, present eloquently, and communicate with teammates are big things.
Concise written communication (i.e. emails); Oral presentations and crits are crucial—you're gonna have to defend your reasoning against a Creative manager, Senior Creatives, clients, etc., and you're also going to have to learn to take criticism.
managing your own workflow, communicating effectively with "clients" who may be internal (What is the priority of this thing you're asking for? What is the due date/timeline? What do you want/need it to do/accomplish?)
Written communication, defending and explaining work, organizational skills, interpersonal skills
Know how to write professional emails, talk about your work (why you did what you did and why it is important), and know how to listen and apply feedback.
Communicating design ideas or criticisms, defending choices
written communication and basic inter-office communication
interview questions, practicing a "filter" (IE appropriate workplace small talk), learning from more experienced coworkers, email etiquette
up-to-date technical skills
Communication with clients and team members both written and verbal. Ability to self-critique
All the above mentioned skills are important since you must convey ideas, get respect and collaborate on the same level as other professionals.
Oral and written presentation
oral presentations, written communication, writing skills, visual presentations
ability to critique other's works, presentation of your own work, explanation of works.
how to professionaly present design
oral presentations, writing skills, ability to critique
written communications, oral presentation, professionalism
Speech

Statistic	Value
Total Responses	30

26. Please list any additional skills not listed above that you feel that would be helpful for recent graduates to have:

Text Response
Communication skills; adaptive skills
Cross-discipline collaboration. It is ideal that a graduate can work in a team of not just designers.
Confidence in their ability to continue to be able to learn without having it handed to them as it has been when they are in school.
Practicum and/or studio production in a team environment.
Demonstrated ability to work in the industry through some type of work coop or internship opportunity. Proven ability to work in the field.
More concepts of what else is out there. UX and product design are huge and hire web designers. Looking outside of the box web design isnt just for web anymore there are many more industries out that that need deign for their technology.
Basic knowledge of server setup/maintenance.
at least basic html, css, and some php
Really working collaboratively. We talk/hear a lot about this... but students are NOT taught conflict resolution and tend to complain about group work. All projects in industry are "group" projects.
Time Management, Organization Skills,
Ability to give and receive thoughtful and supportive critique; business
For ISU specifically, more emphasis on the digital world would be helpful. More and more, brands revolve around their websites. Those websites need to work on a multitude of devices. I felt pretty unprepared for that upon entering the professional world.
Professional experience is something that can't be taught. Although, a course mimicking a professional, fast-paced environment would be extremely useful.
be personable—if you're not interesting, people don't want to hire you. Also be humble. No one wants to work with an asshole. Also this: http://learnthesecrethandshake.com
How to ask questions when you don't understand something/asking for clarification. Organizing multiple concurrent projects that are all "highest priority". Interactions with a boss/manager, especially being able to say "I am overwhelmed and need help" or "I will not be able to complete all of these tasks because of [solid reason for why thing can't be completed]".
ability to work quickly and efficiently, hunger/ambition/enthusiasm
Writing (some of your survey's sentences were a little difficult to understand)
Art Direction, Advertising.
Professional practices, business, finance, etc
HTML, CSS, JAVA, After Effects
ISU is great at theory/principle education but I was wildly unprepared in terms of software knowledge and technical items. Teach students some basic HTML and how important it is to find a mentor.
life in generally easier the more attractive you are, so be attractive.
Ability to do whatever it takes to meet deadline and step up into leadership roles.
Better understanding of user experience, lifecycle and user testing. Know how to test and improve with iterations and repeat.
leadership skills
ability to maintain simple business skills, ability to efficiently search for jobs
learn how to sell yourself.
Reading other stuff other than design related content

Statistic	Value
Total Responses	28

27. Please rate how important it is for a new employee to have a graphic design or visual communication education:

#	Question	1	2	3	4	5	Total Responses	Mean
1	1 = not important, 5 = very important	1	0	6	12	35	54	4.48

Statistic	1 = not important, 5 = very important
Min Value	1
Max Value	5
Mean	4.48
Variance	0.71
Standard Deviation	0.84
Total Responses	54

28. Do you have any suggestions or recommendations for current undergraduates in graphic design or visual communication programs to be better prepared for the industry?

Text Response
Make contacts, Make contacts, Make contacts. Feed off your peers, apply to internships. Be open to everything and anything. AND be respectful to the progression of technology, don't get left behind, KEEP LEARNING!
Take online classes through PXPHD, and network, network, network
More theory, more practice in idea generation, more collaboration.
Be prepared to think fast and work fast with no excuses. Be prepared to take classes on your own time to learn ever-changing software.
Always stay on top of your skills and technology. These are the tools you will be using for the rest of your life. Also, have a professional attitude and understanding of how the industry's production pipeline functions.
professional practice classes - understanding the business side. and again, understanding design is solving problems, not just making pretty layout.
Don't overthink projects and do not be afraid to take risks. You're developing your design instinct right now, trust it. If something doesn't work, don't be afraid to explore another solution.
I think a basic marketing or business 101 type class would be useful, so they can connect the artistic/design aspect of their job to the bottom line/needs of the company.
Utilize the resources and peers around you, but never underestimate the power you have as an individual. The classroom is only the first step to becoming a professional in this industry; outside research, time, projects, and communication are the difference between a hobby and a career.
Go to a big city (NYC, Chicago, etc) for a summer or semester and intern. It should be a requirement to have more than one even if it takes longer to graduate.
Do work outside of the classroom. Find a client and build them an identity and/or website. The more client facing experience and the more work you have in your portfolio the better you'll look to an employer.
practice verbally communicating and being able to show why you chose a given path and why another didn't work
Do internships! Bring that knowledge into the classrooom and share with others. Western culture is individualistic, so more cultural awareness is essential and learning to build community within and outside of design.
travel
Connect with what is being done out there in the profession.
Know your design principles, first and foremost. Those translate to every medium you may have to work in. Working for someone other than yourself is a big adjustment, as well. Any way you can better prepare yourself for that, the better.
know your principles and be able to apply them. know your design history and be able to appreciate it. we're in an age where media and mediums are rapidly evolving, but the principles, theory, and history are still relevant (i mean, we say "above the fold" in web design…you know that come from newspapers, right?)
Be prepared to have crappy jobs for awhile.
Stay up to date on current trends. It's good to know principles of good design, but it's equally important to know what is popular and then try to figure out what is making it so popular so you can apply those techniques to your work in a similar way. Be prepared to find the answers to your own questions, especially through Google searches and other online resources. If you don't know how to do a certain thing in a program, consult the internet - chances are there are others that have the same question. It saves time from bouncing emails back and forth and chances are you may be the most knowledgable person on the topic of graphic design in your workplace. On that same note, don't be afraid to chime in and speak up when it comes to design or your design decisions - your education has trained you to know the basics of design principles, theories and effective layouts. Don't be afraid of what you know!
It's important to put together a solid portfolio, but more important is to be able to communicate effectively and be polite but hungry. A well-written email tends to be most effective for getting your foot in the door, and being nice, personable and professional does the rest for determining a good fit. Design and technical skills are increased rapidly once you start working.
Weird question. Not every employee should have a visual communication education unless it's their degree.
Keep track of your hours. Know how long it takes to do a project. Talk to a professional in your desired industry - ask questions.
Learn how to work quickly, Learn to take criticism and know that many decisions about your design will be made by others who do not have a background in design.
See previous answer. Also, understand that it is our responsibility as designers to educate our clients - they don't do this everyday - we do.
The industry is moving towards web deign, videography, high end photography. Designing for social media is also important.
be realistic about the available jobs in the area you're searching - I know a lot of people who did not expect to be in-house that now are
Learn HTML coding, it's not going anywhere soon. Coding trends, web design. Freelance and get experience working with real clients and learning how to communicate clearly and be able to set expectations.
Figure out what you want to do while in school and look for ways/classes to improve those skills
Do more than expected. Do tutorials without being asked. Treat job search and personal branding as a job.
pay close attention in class, take everything seriously, take constructive criticism well
work ahead and do many rough drafts and brainstorm as often as possible
work in upper division classes as though they are clients to prepare for future work environment and load
learn as much as possible in your field and closely related fields such as web design and coding
make friends, advertise and sell yourself.
Stay updated in every aspect of design

Statistic	Value
Total Responses	35

29. Does your department, have an Advisory Board?

#	Answer	Bar	Response	%
1	Yes		5	71%
2	No		2	29%
	Total		7	

Statistic	Value
Min Value	1
Max Value	2
Mean	1.29
Variance	0.24
Standard Deviation	0.49
Total Responses	7

30. In your department, is curriculum/course design counted towards your tenure review?

#	Answer	Bar	Response	%
1	Yes		4	57%
2	No		3	43%
	Total		7	

Statistic	Value
Min Value	1
Max Value	2
Mean	1.43
Variance	0.29
Standard Deviation	0.53
Total Responses	7

31. In your department, is contract/freelance work counted as research?

#	Answer	Bar	Response	%
1	Yes		5	71%
2	No		2	29%
	Total		7	

Statistic	Value
Min Value	1
Max Value	2
Mean	1.29
Variance	0.24
Standard Deviation	0.49
Total Responses	7

32. In your department, is there continued education for educators?

#	Answer	Bar	Response	%
1	Yes		1	14%
2	No		6	86%
	Total		7	

Statistic	Value
Min Value	1
Max Value	2
Mean	1.86
Variance	0.14
Standard Deviation	0.38
Total Responses	7

33. Would you be willing to work with educators in graphic design or visual communication higher education to develop curriculum/coursework to better prepare their students for the industry?

#	Answer	Bar	Response	%
1	Yes		9	90%
2	No		1	10%
	Total		10	

Statistic	Value
Min Value	1
Max Value	2
Mean	1.10
Variance	0.10
Standard Deviation	0.32
Total Responses	10

APPENDIX E

ADDITIONAL SURVEY RESULTS

IOWA STATE UNIVERSITY

Research Suite | Support & Feedback | Help and Tutorials | Ryan Wilson

My Surveys | Create Survey | Edit Survey | Distribute Survey | View Results | Polls | Library | Panels | Reporting

View Reports | Responses | Download Data | Cross Tabulation

Surveys Started: 73
Surveys Completed: 65 89%

Stats...

Design Education Research Study

Recorded Responses | Responses in Progress

Current Filters From Report

Report: Initial Report
Response Set: Default Response Set
Subgroup: -
Completion Status: -

Response Search Criteria

Response Type: IP Address
From Date: to End Date:
First Name: Last Name:
Email Address: External Reference:
Response ID:
Search

Select: All None With Selected: View Delete Advanced Options

Response ID	Respondent	Response Type	Start Time	End Time	Duration	Actions
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R_1NXDoEFKlKiV4Lr	192.223.7.254	IP Address	25 Nov 2013 01:24 PM	25 Nov 2013 01:27 PM	2m 59s	
R_0kPAXz7GlYfR7gx	66.192.64.61	IP Address	25 Nov 2013 01:27 PM	25 Nov 2013 01:29 PM	2m 37s	
R_a4QSBq5NnDmusRf	50.79.31.169	IP Address	25 Nov 2013 02:37 PM	25 Nov 2013 02:50 PM	12m 29s	
R_2oshEmDrdvfr7p3	88.105.52.106	IP Address	25 Nov 2013 03:10 PM	25 Nov 2013 03:20 PM	10m 12s	
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R_bl0TbSR5Ly2KRHT	173.22.42.44	IP Address	26 Nov 2013 08:46 AM	26 Nov 2013 08:52 AM	5m 9s	
R_6F1TOkSjHqAYVAF	24.149.10.50	IP Address	26 Nov 2013 09:03 AM	26 Nov 2013 09:11 AM	7m 52s	
R_5AWWLYQlFJYnpeR	132.235.109.99	IP Address	26 Nov 2013 09:30 AM	26 Nov 2013 09:45 AM	14m 5s	
R_bCNCY5l9vywRsdT	74.93.156.97	IP Address	26 Nov 2013 10:03 AM	26 Nov 2013 10:09 AM	6m 13s	
R_4VLnJy9mbJCozlN	108.178.226.110	IP Address	26 Nov 2013 10:10 AM	26 Nov 2013 10:14 AM	3m 31s	
R_5beX05uO9RUJNUp	69.57.36.144	IP Address	26 Nov 2013 10:14 AM	26 Nov 2013 10:24 AM	10m 9s	
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R_d0DECvwwZgQVCLJ	98.103.70.43	IP Address	27 Nov 2013 09:17 AM	27 Nov 2013 10:11 AM	54m 21s	
R_cONWEnAUqspNOiX	108.12.174.219	IP Address	02 Dec 2013 08:37 AM	02 Dec 2013 08:49 AM	11m 59s	
R_6fzYrpcf4NvO6dD	129.186.253.129	IP Address	02 Dec 2013 10:16 AM	02 Dec 2013 10:23 AM	6m 53s	
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R_5ptVn6npx3QsrsN	50.77.139.9	IP Address	03 Dec 2013 09:48 AM	03 Dec 2013 09:56 AM	7m 51s	
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R_9taN48L93E9YTuI	69.170.148.42	IP Address	05 Dec 2013 08:28 AM	05 Dec 2013 08:30 AM	2m 18s	
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R_43dSNKMEciVdlr3	50.240.75.214	IP Address	05 Dec 2013 08:41 AM	05 Dec 2013 08:55 AM	14m 39s	
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R_b7nxDCXXFafdqUB	173.8.117.41	IP Address	05 Dec 2013 10:28 AM	05 Dec 2013 10:31 AM	3m 27s	
R_2456rq1F4vwAcLj	216.51.162.171	IP Address	05 Dec 2013 10:29 AM	05 Dec 2013 10:31 AM	2m 0s	
R_3qSsmR0JiY6lH5b	75.73.8.144	IP Address	05 Dec 2013 11:14 AM	05 Dec 2013 11:32 AM	17m 41s	
R_3wSK3mYBUYu7wcl	50.78.186.29	IP Address	05 Dec 2013 11:33 AM	05 Dec 2013 11:37 AM	3m 33s	
R_7OKROdtJxUviGqh	152.2.59.32	IP Address	05 Dec 2013 11:44 AM	05 Dec 2013 12:03 PM	18m 49s	
R_80nhyiuuEaIA3fn	167.246.61.1	IP Address	05 Dec 2013 11:54 AM	05 Dec 2013 11:57 AM	3m 10s	
R_4ZcBT5pODkW9Nlx	72.43.150.202	IP Address	05 Dec 2013 02:22 PM	05 Dec 2013 02:55 PM	33m 14s	
R_4JEF8ENBL2BK593	65.241.160.10	IP Address	05 Dec 2013 04:27 PM	05 Dec 2013 04:32 PM	5m 36s	
R_b8YpSFA8wqvqZJH	68.173.30.137	IP Address	05 Dec 2013 05:47 PM	05 Dec 2013 05:50 PM	3m 12s	
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R_0HRZr4lxCon3cQ5	71.62.162.165	IP Address	06 Dec 2013 06:13 AM	06 Dec 2013 06:24 AM	10m 56s	
R_2hEs8G0e0Ai9uKN	50.240.130.250	IP Address	06 Dec 2013 03:24 PM	06 Dec 2013 03:25 PM	0m 51s	
R_eJz8XWPRWipYaeF	50.240.130.250	IP Address	06 Dec 2013 03:26 PM	06 Dec 2013 04:04 PM	38m 21s	
R_3WpahOxQzq90asB	24.252.28.243	IP Address	07 Dec 2013 11:52 AM	07 Dec 2013 12:01 PM	9m 23s	
R_0xmz7CQjDoS21zn	68.191.213.10	IP Address	07 Dec 2013 06:55 PM	07 Dec 2013 07:06 PM	11m 35s	
R_6eTEc1AGu55SOlR	173.20.235.155	IP Address	08 Dec 2013 03:02 PM	08 Dec 2013 03:04 PM	2m 29s	
R_a8IAZ5pp76tSx49	99.29.172.236	IP Address	09 Dec 2013 08:36 AM	09 Dec 2013 08:38 AM	1m 39s	
R_0P8IfoHVWUWCaTX	72.50.228.6	IP Address	09 Dec 2013 10:36 AM	09 Dec 2013 10:44 AM	7m 39s	
R_4O7hTr7ejVGkNQF	99.95.120.74	IP Address	10 Dec 2013 02:41 AM	10 Dec 2013 02:44 AM	3m 40s	
R_abokbWoC8BqksGF	174.109.188.213	IP Address	14 Dec 2013 10:15 PM	14 Dec 2013 10:50 PM	35m 16s	

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Surveys Started: 73
Surveys Completed: 65 89%

Stats...

Design Education Research Study

Recorded Responses | Responses in Progress

Current Filters From Report

Report: Initial Report
Response Set: Default Response Set
Subgroup: -
Completion Status: -

Response Search Criteria

Response Type: IP Address
From Date: to End Date:
First Name: Last Name:
Email Address: External Reference:
Response ID:
Search

Select: All None With Selected: View Delete Advanced Options

Response ID	Respondent	Response Type	Start Time	End Time	Duration	Actions
R_5BdPN4wjXYSclp3	69.181.214.160	IP Address	15 Dec 2013 02:35 AM	15 Dec 2013 02:39 AM	4m 20s	
R_1N9AvuyuqYQgnat	139.78.193.111	IP Address	23 Jan 2014 12:48 PM	23 Jan 2014 02:46 PM	1h 57m 56s	
R_dmOihVO7FEtXReR	139.78.193.182	IP Address	23 Jan 2014 12:49 PM	23 Jan 2014 12:54 PM	4m 41s	
R_6X4DdNiwBAiqVk9	139.78.193.181	IP Address	23 Jan 2014 12:49 PM	23 Jan 2014 12:56 PM	6m 28s	
R_0PQPTABSWqEN7wh	139.78.193.108	IP Address	23 Jan 2014 12:50 PM	23 Jan 2014 12:57 PM	6m 29s	
R_8qUvvS5ScXxvilb	139.78.193.143	IP Address	23 Jan 2014 12:50 PM	23 Jan 2014 12:55 PM	4m 59s	
R_0p4Ic2c077WxSAt	139.78.193.88	IP Address	23 Jan 2014 12:51 PM	23 Jan 2014 12:56 PM	5m 6s	
R_aaCi87eiSCNPhif	139.78.193.145	IP Address	23 Jan 2014 12:52 PM	23 Jan 2014 01:07 PM	14m 50s	
R_0PrWByB8RfXGpoN	139.78.193.172	IP Address	23 Jan 2014 12:56 PM	23 Jan 2014 01:08 PM	11m 56s	
R_6o52nUVhEGNuO8d	139.78.193.198	IP Address	23 Jan 2014 12:57 PM	23 Jan 2014 01:01 PM	4m 17s	
R_73UEataBz1aTNyt	139.78.193.121	IP Address	23 Jan 2014 12:59 PM	23 Jan 2014 01:04 PM	4m 7s	
R_9EvDwQO3biyqt9P	139.78.193.232	IP Address	23 Jan 2014 01:04 PM	23 Jan 2014 01:06 PM	2m 22s	
R_eysVwHPlUK3AjY1	139.78.193.199	IP Address	23 Jan 2014 02:01 PM	23 Jan 2014 02:04 PM	2m 56s	
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R_6GalFk9XcXqJLW5	139.78.193.155	IP Address	27 Jan 2014 12:18 PM	27 Jan 2014 12:19 PM	0m 16s	
R_eXOWq4Fi3Q9Bedv	129.186.181.189	IP Address	31 Jan 2014 09:30 AM	31 Jan 2014 09:48 AM	18m 3s	
R_0vMR57LL7T617lX	129.186.181.189	IP Address	31 Jan 2014 09:48 AM	31 Jan 2014 09:50 AM	1m 38s	
R_8dqkh8LKq7V6oSN	129.186.181.189	IP Address	31 Jan 2014 09:50 AM	31 Jan 2014 09:59 AM	8m 31s	

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