Social Media as a Means of Promoting
Peer-Based Learning in Design Education

A thesis submitted to the School of Visual Communication Design,
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requirements for the degree of Master of Fine Arts

by
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Chapter 1

Introduction

Critique is an integral part of design education where students show, review, and evaluate projects, while learning relevant design concepts. Interpersonal skills are as important as the knowledge acquired. Critique is intended to emphasize social interaction within a design framework (Conanan & Pinkard, 2004). However, classroom critiques often lack the necessary social and career-building elements because projects are often critiqued by professors while students sit idly by (Percy, 2004). Students may feel intimidated in the presence of professors and lack confidence to participate (Weimer, 2011). The lack of participation in class hinders students’ ability to acquire interpersonal skills as well as rhetorical skills (Percy, 2004). Peer-based learning can help support many of the same objectives.

In today’s fast-paced culture, students expect immediate feedback (Attwood, 2009). Few professors are available beyond scheduled classes and office hours. In addition, modern students hold jobs, raise families, and commute long distances to school, and therefore do not always form the necessary peer groups. Without peer groups, however, the critique process will continue to suffer. There is a need for a supplementary method of critique.

College students are extremely involved in social media, and want to belong to a community and share knowledge (International Telecommunication Union, 2012). Although social networks drive new forms of social interaction and collaboration, academic networks are scarce (Bruff, 2011). Potential exists to build peer-based learning into a medium with which students are already familiar and comfortable.

The goal of this thesis is to create an online networking environment for the national design student community that would (a) be a stress-free environment free from instructors and potential employers; (b) support professional development; (c) promote student confidence by creating an opportunity to give and receive feedback on works in progress; (d) be a resource for trouble-shooting and sharing technical skills; and (e) foster professional connections between future designers.

This network will help students build confidence in their design and critiquing abilities. In turn, this will change classroom dynamics helping students to become active participants in
class. The new found confidence and knowledge gained from their involvement with the online network, together with their active involvement in class, will improve students’ design work. This network will build a community of peers, and help them give each other the needed support outside of the classroom setting.
Chapter 2

Literature Review

University as Preparation for a Career

A university education is meant to prepare students for a profession in a given field, and facilitate the transition from student to professional (Schrand & Eliason 2012). "Merely mastering a knowledge base does not mean one is educated in that field; education in a discipline involves engaging in investigations to create knowledge in ways particular to that discipline" (Anderson & Speck, 1998, p. 89). Education should include practical experiences that enable "students to integrate their understanding of theory and practice into their professional knowledge base. Practical experiences also enable students to develop more professional attitudes and strengthen their self-esteem" (p. 97).

College graduates today often do not possess the skills that are most valuable to employers. “Employers report individual’s ability to demonstrate effective communication in the workplace is among the top skills they seek in job candidates,” However, “many college students do not possess the written and oral communication skills that they need to be successful” (Anderson & Speck, 1998, p. 41). Often, universities try to build students’ communication skills through oral assignments. In design, oral communication is crucial for participating in critique. Oral assignments can improve student’s abilities to speak in public, give feedback, make decisions, negotiate, mediate, and resolve conflicts. Additionally, oral assignments “encourage students to take an active role and greater responsibility in their learning, articulate ideas and opinions, and hear how others respond to their thinking” (p. 41). However, there must be a supportive environment established, otherwise students become apprehensive about oral presentations and will not participate or gain from the experience. Students must practice these skills and build confidence.

Self-evaluation is another important professional skill that students must master. Self-evaluation is crucial as it “provides the basis for developing skills that the students can use to become a lifelong learner” (Anderson & Speck, 1998, p. 98). Self-evaluation cannot be developed when only external feedback is provided, the student must be actively involved. However,
unfortunately, many university students have spent numerous years in professional programs in which the evaluation of their work constantly involved external feedback. Students have been given relatively few opportunities to direct, document, and evaluate their own learning. Without these experiences and skills, approaching one’s professional work as a lifelong learner is unlikely (p.100).

In addition to communication and self-evaluation skills, students need to become active learners. “Planning for any specific career may be impossible. Given the rate of acceleration of information technology, the world we live in currently is not the world students will enter when they finish college...these careers might not exist yet” (Lieberman, 2012). Therefore, the goal of a university experience should be to help students learn to love the process of learning, and help students to master skills that will serve them well throughout their careers. However, the current situation seems to be that “most students experience universities as isolated learners whose learning is disconnected from that of others. They continue to engage in solo performance and demonstration in what remains a largely show-and-tell learning environment...Learning has become a ‘spectator sport’ in which faculty talk dominates and where there are few active student participants” (Tinto, 2003, p. 1). In such a system, it is unlikely that students will learn how to learn or master the crucial skills of communication, self-evaluation, or active learning.

**Learning**

Learning is a complex experience. It is an experience that cannot be designed, but is rather facilitated. “Learning is a continual process that occurs as one works rather than a pre-work exercise” (Cope & Kalantzis, 2009, p. 120). The challenge then is “to support the work of engagement, imagination, and alignment” (Hara, 2009, p. 22). As students’ lives become more busy and complex, the key to learning is through the availability of various methods to engage learners in constructing and reflecting new knowledge. Learning is both motivated and driven by internal and cultural factors. Through learning, people share and communicate with one another so that experiences and knowledge can be adapted across diverse contexts (Hiltz & Goldman, 2005).
There are three types of knowledge: book, practical, and cultural. Book knowledge refers to factual information. Practical knowledge refers to the real world application of book knowledge. Cultural knowledge refers to the professional environment of a particular field. Many schools and training programs provide book knowledge to their students; however, they “do not assist students with understanding the roles of professionals in the real world...[Students need] opportunities for informal socialization in order to learn the professional identity of a particular profession” (Hara, 2009, p. 113).

According to Kolb, learning is “a process in which knowledge is created by the transformation of experience” (Haan, 2005, p. 107). There are two different experiences from which learning can take place: apprehension and comprehension. Apprehension is learning through a direct experience. It is unique and nontransferable. Through apprehension, the learner knows something because he or she experienced it firsthand. Comprehension on the other hand is learning through an indirect experience, or the transmission of facts. It is easily transferrable. However, the learner only knows about something, but did not experience it firsthand. “Individuals learn better when they develop meaning through direct interaction with information rather than when they are told information” (Hiltz & Goldman, 2005 p.192). Therefore, apprehension is more valuable for a student’s internalization of information than comprehension’s learning by rote which occurs often in schools (Hara, 2009).

Not only does learning take place through two different methods, learners process information in two different ways. Learning can be processed internally or externally. Internal learning requires time to process information as well as concentration and reflection to generate knowledge. In contrast, external learning requires experimentation and acting to generate knowledge. Both methods are equally valid. Some students process information best one way, but for some students, the process is dependent on the information being learned (Haan, 2005).

Knowledge is “the process by which a person or a group of people acquire a situated understanding within a social context” (Hara, 2009, p. 17). People can learn independently, but it is easier to learn within a social context (Cope & Kalantzis, 2009). “Learning is a group-level phenomenon which is an essential part of daily work practices” (Hara, 2009, p. 8). Learning through participation, situational immersion, and collaboration with colleagues encourages
students to use work-relevant skills and knowledge in context. Constructivism (developed by Piaget 1970, Vygotsky 1978, and Brunner 1986) states that “knowledge has to be discovered, practiced, and validated by each learner; learning involves active struggling by the learner... (as well as) active exploration and social collaboration” (Hiltz & Goldman, 2005, p. 21).

Constructivism complements the Social Learning Theory which views learning as a social process in which “knowledge is created most effectively when learners interact with each other while performing a task” (p. 192). Both of these theories agree that students learn from active participation and opportunities to explore their own ideas through discourse, debate, and inquiry. The role of the instructor should therefore be as a facilitator, and the students should assume the responsibility for their own learning (Anderson & Speck, 1998).

**Design Education**

Design education has evolved from an apprenticeship system where students were instructed by masters. To some degree this model is still present today—though students learn from multiple masters that are referred to as professors or instructors (Conanan & Pinkard, 2001). Most students today have a different instructor every semester. While the connection between instructor and student is somewhat lost, being exposed to different instructors introduces students to many different design philosophies and methods. This can help students to better develop their professional agendas (Goldschmidt, Hochman & Dafni, 2010).

Design is learned through doing.

Teachers demonstrate and lead the students to engage with real design problems.

Students try to observe, to understand, and to grasp the various methods and techniques through the process to cultivate observations and decision-making capabilities, to explore their own talents, and finally to develop their own procedure and style of design (Chen & You, 2010, p. 153).

Design as a subject matter lacks “clear demarcation between theoretical knowledge and practical skills...Design knowledge is not simple information; it cannot be transmitted directly to students in the same way as general content” (p. 152). Design is a social process that requires negotiations and discussions, which results in the construction of knowledge (Chen & You, 2010). Therefore,
the design process involves a high level of interaction between instructors and students. Together, they evaluate and reflect on ideas while formulating alternative solutions and improvements (Sagun & Demirkan, 2007). “Design cannot be regularized as a sequential process of learning patterns” (Chen & You, 2010, p. 152), and instruction is based on individual experiences due to students’ varied processes for achieving design solutions.

Design education takes place through a variety of studio courses. Within each studio course, projects are assigned, and students discuss their work through different types of critique (Piersanti, 2010). “A studio is a working space, but also a group of students who undertake design exercises, or projects...typically during one semester at a time, under the guidance of teachers who are experienced designers but rarely expert educators” (Goldschmidt, Hochman & Dafni, 2010, p. 285). Studio courses generally meet for two to three hours, two to three times per week. Within the studio environment, students discuss their work and receive feedback from their instructor, peers, or guest visitors. In addition, the studio environment is a place for individual and joint reflection on the students’ design work.

**Design Critique**

Critique is the process by which design work is evaluated and feedback is given. “During critique the student reports on the state of the project and describes its development since the previous critique...Teachers ask for clarification...Students learn by doing” (Goldschmidt, Hochman & Dafni, 2010, p. 285). In design education, “participation in design critiques, or reviews of creative works, are considered essential to learning how to design” (Conanan & Pinkard, 2001, p. 1). Critique is visual in nature and easy for multiple people look at and learn from simultaneously. Details can be pointed to and discussed, and observations can be clarified on the spot (Schrand & Eliason, 2012). “Design critiques help students to develop projects by pointing out the efficient and useful solutions as well as types, levels, and location of the inconsistencies in their development” (Sagun & Demirkan, 2007, p. 80). “This model of social interaction between student and instructor involves a critical conversation about the student's design, and usually involves both people working towards solving a problem” (Conanan & Pinkard, 2001, p. 2). This dialogue helps students to improve their skills and abilities.
Critique involves a high level of student engagement. It provides opportunities for participation, immediate feedback, dialogue, and clarification on their work. The design culture is a feedback culture, and one that instructors try to familiarize students with while in college (Schrand & Eliason, 2012). One function of critique is to send a message to students about who they should be as a member of the discipline and how they should relate to others in the discipline. Critique requires rationale for opinions and that feedback should not be taken personally, rather that feedback is guiding potential of pooled expertise from the instructor and other students (Piersanti, 2010). Entry level students require more attention and guidance, but as they progress through their schooling, students should begin to give and receive more feedback from their peers in addition to their instructor's feedback (Ganju, 2005). For designers, “being able to communicate and support others is just as important as knowing design principles and having design skills” (Conanan & Pinkard, 2001, p. 1).

The design process is reflective in nature. “Students develop their design by reflecting on their new ideas and solutions in each step as the result of critique” (Sagun & Demirkan, 2007, p. 81). “Reflection enables students to compare their own problem-solving process with those of an expert, another student, and ultimately, an internal cognitive model of expertise. By articulating thinking, students clarify their understandings as well as make their own thinking accessible to others” (Conanan & Pinkard, 2001, p. 2). Students must use information that they learned in previous courses to create successful projects while applying new information learned in current courses (Sagun & Demirkan, 2007). Additionally, students learn from hearing the critique of other students' projects. “Students can judge and adjust their own projects based on what they hear about how other students are doing, hoping to avoid problems and learn different views and opinions” (Piersanti, 2010, p. 6). Students also learn from giving critique on other students' projects because “giving critique to each other's work, enables students to see the design project through the eyes of others” (Sagun & Demirkan, 2007, p. 80).

Often, critique includes sketches in the beginning stages of a project. Sketches bridge the actual and mental worlds. They allow people to see an external representation of the student's mental world. Once people can visualize what the student is thinking, then the idea can be discussed verbally (Sagun & Demirkan, 2007). Critique is not about solving problems for the
student, but rather helping the student to “recognize and communicate debatable issues concerning a product” (Piersanti, 2010, p. 6). There is no design formula, but feedback can be based on design knowledge and point out errors of low quality work. “The critique allows students to formally and frequently judge how their object should be changed based on assessment from design instructors and other students” (p. 8).

Critique is dialogue between the instructor and student, or between student and student (Dannels, Gaffeny & Martin, 2008). Students should be encouraged to seek help and learn from others while also inspiring confidence in their own strengths. Students should be made aware of their strengths and weaknesses and should be encouraged to share their expertise. Students “should feel comfortable and be eager to share their expertise in critique when appropriate, but also they should acknowledge when another’s expertise could help an area where the student might be weak” (Conanan & Pinkard, 2001, p. 7).

There are many benefits of student involvement in critique. Students receive suggestions for improvement, and experience a model for evaluating work. By learning how to evaluate work, “students may become less dependent on faculty and better prepared for a professional design career” (Ganju, 2005, p. 3). Additionally, feedback provided to student through critique sets expectations about work and provides insights on disciplinary norms, identities, and behaviors. Through critique, students learn principles of design and what it means to speak like a designer. Students also learn oral communication skills as they present their work, give feedback, and provide rationale for their decisions, an essential skill in the workplace (Dannels, Gaffeny & Martin, 2008). Students also become aware of their peers’ progress and have the opportunity to reflect individually to improve design. There are five important competencies that are developed through critique:

1. A systematic demonstration of design. The process of ideation should be clear showing how the concept emerged from the initial state.

2. A comprehensive explanations of visuals, including clear and specific language that coordinates oral and visual content and material. This not only shows that they have mastered certain skills, but that they have communication skills as well.
3. Transparent advocacy of the design intent. There should be a clear rationale for design choices and how they support the intended design concept. Critique is meant to help students to “articulate design rationale clearly, so that the others can understand what they are doing and why” (Piersanti, 2010, p. 6).

4. Credible staging of the presentation. The presentation should engage the audience both visually and orally as well as showing that they have a comprehension of the subject.

5. Appropriate interaction management. The presenter should evaluate themselves, their peers, and respond to the audience since design requires a high level of interaction (Dannels, Gaffeny & Martin, 2008).

**Instructors’ and Students’ Roles**

University instructors are never taught how to teach, rather they learn through the experience—they learn through doing. “The quality of teaching is contingent on their experience, awareness, and tenet” (Goldschmidt, Hochman & Dafni, 2010, p. 286). There are three instructor profiles:

1. **Instructor as a source of expertise or authority.** This type of instructor is necessary for the transmission of knowledge to the students. The students learn and extract information from their instructor.

2. **Instructor as a coach or facilitator.** This type of instructor is necessary when students possess skills and abilities and the instructor wishes to help them maximize their potential through guidance and opportunities. This helps student acquire experience to build their skills and abilities further.

3. **Instructor as a buddy.** This type of instructor helps to reinforce and encourage students in the socialization process into the professional community and its culture (Goldschmidt, Hochman & Dafni, 2010).

These types of instructors are not mutually exclusive, and design instructors often possess all three attributes, but show them at different times according to their students’ needs.

It is the instructor’s goal to acculturate students into the community they aspire to join. Students and instructors speak different languages which reflects the different communities to which they belong. “Education initiates us into conversation, and by virtue of that conversation...”
initiates us into thought” (Hiltz & Goldman, 2005, p. 20). In design education specifically, the instructor has a number of obligations. It is the instructor’s responsibility to demonstrate and describe problems of design that will provide “novices with the ability to deal with similar situations” (Piersanti, 2010, p. 4), tailor demonstrations and descriptions to the needs of individual learners, as well as overcome the challenge of taking novices, who cannot yet do activities of design, in a discipline that requires learning by doing (Piersanti, 2010).

The deepest and most difficult kinds of learning require a teacher who understands the student's struggle to learn. The teacher engages the student in a beneficial feedback loop, continually probing the student's progress and adjusting his/her arching to the student's needs (Cope & Kalantzis, 2009, p. 206).

Sometimes students need to struggle in order to learn, but instructors should not let these periods of uncertainty last longer than is helpful (Cope & Kalantzis, 2009).

The instructor aids the students and leads them in the right direction. “Far beyond knowledge with students regarding the subject matter of the project, the teacher must...raise issues and sustain ideas at a general level as well as by referring to specifics of the project in hand” (Goldschmidt, Hochman & Dafni, 2010, p. 300). The instructor provides opportunities for engaged learning. Through the critique experience, students notice and understand an instructor’s underlying expectations (Piersanti, 2010). It is preferable for instructor to help students understand principles and lead students in the right direction without taking control of the students' projects. Students must have a sense of ownership over their ideas in order to be motivated and have satisfaction with their work (Goldschmidt, Hochman & Dafni, 2010).

Some students view critique as “a kind of oral tradition that teaches students the rituals of the design tribe” (Schrand & Eliason, 2012, p. 56). It can be seen as an initiation ritual where those who are successful in participating in critique become members, while those who fail to participate become isolated and unsuccessful. While this view is somewhat dramatic, it illustrates the power students see in the instructor during the process of critique (Schrand & Eliason, 2012).

Students want to impress their instructor as well as their peers. Therefore, students’ comfort level regarding critique is often directly connected to the amount of work they put into their project and their personal satisfaction with their results. Final critiques can present high-
stake situations where students become worried about their presentation, the grade they will receive, and whether the hard work was worth the effort. In contrast, students are most comfortable during preliminary critiques, whether in a group setting or one-on-one. This is because the work is incomplete, the stakes are low, and there is an opportunity to clarify and respond to the feedback. Students find that feedback is most useful when they have a chance to use the information to improve their work. Feedback that is not associated with a grade or that is threatening to a student’s self-esteem leads to stronger learning gains. Additionally, students do their best work when they find projects engaging (Schrand & Eliason, 2012).

Issues with Critique

During critique, with the exception of the initial questions that students bring, instructors typically raise the majority of issues. Sometimes during critique, instructors will quiz students to help them figure out what is wrong, but that is not always an effective method. When an instructor makes students feel that he/she knows something that the students do not have access to, they come dangerously close to the Mystery-Mystery Syndrome. The mystery in the instructor’s comments and questions increases the student’s lack of self confidence and create a sense of awe of the instructor. This situation does not create an open instructional conversation or assist in learning (Goldschmidt, Hochman & Dafni, 2010, p. 300).

Critique should involve a high level of student engagement. It provides opportunities for participation, immediate feedback, dialogue, and clarification on their work. However, at times, this may provide a high stake environment that might intimidate students and undermine learning (Schrand & Eliason, 2012). Additionally, students might have limited opportunities to contribute, students might not be invited to contribute, or students might be unable to contribute because they cannot see the work in question. Alternatively, students might be too intimidated to participate or might experience a lot of stress when speaking in a large group.

Students possess different personalities that affect their willingness to participate. Some students are extroverts while others are introverts. Extroverts do not mind speaking the first thing that comes to their minds, while introverts prefer the ability to prepare what they will say in advance. Often, the extroverts dominate whole-class or large-group discussions, and the
introverts are seen as quiet and disengaged. Also, some students are shy and therefore have a hard time participating verbally in class (Schultz, 2009). The classroom setting does not always allow all types of students the ability to participate, and students who “are not confident enough to ask questions are further left behind” (Schrand & Eliason, 2012, p. 14).

Students possess different comfort levels and abilities when it comes to publicly debating and explaining their work. Students who are more comfortable with their abilities are less intimidated by critique, but those who are less comfortable might benefit from an alternate form of critique (Schrand & Eliason, 2012). Additionally, there is an emotional component to critique that students need to overcome. If a student cannot overcome the emotional aspects, it will be hard for him/her to progress in a design program. Students need to realize that critique is not personal.

While some issues are dependent on personality type, attention is universally selective. Sustained attention lasts for at most ten minutes, and people only pay attention to what they feel is necessary to finish the task at hand. Critiques can be long, making it difficult for students to pay attention the entire time. Additionally, to pay attention to something, a person must be able to perceive it (Weinschenk, 2011). The group of students being critiqued is generally large. Therefore, some students can become disengaged because they are physically too far away from the work being discussed to engage in the discussion (Piersanti, 2010).

Another issue with long critiques, is that people’s minds wander. As people work on one task, their minds fade into thinking about things that are unrelated to the task at hand. A person’s mind wanders roughly ten to thirty percent of the time but can be as high as seventy percent. Mind wandering can lead to zoning out, which can lead to missing information (Weinschenk, 2011). When critique lasts longer than students’ attention spans, it is safe to assume that their minds’ wander and they miss important information.

Another issue is that students do not always fully understand expectations. Therefore, they have difficulty figuring out what they should contribute, and have difficulty comprehending and making sense of what is being said during critique. Typically, critique and feedback are given orally and there is no record of what is taking place. “Students’ future rests on their ability to grasp the full meaning of the feedback given to them” (Dannels, Gaffeny & Martin, 2008, p. 11). It
can be difficult to catch all of the information during critique, and students have no ability to go back and review the dialogue or feedback that was given.

Students build dependence on their instructors. Instructors are a valuable resource for students. However, “many students, especially in the early stages of their studies are quite dependent on their teachers, and feel insecure until they receive from the teacher both approval and explicit guidance for the advancement of their project” (Goldschmidt, Hochman & Dafni, 2010, p. 285). Students listen eagerly to the instructor during critique and wait and hope for positive comments and feedback. Additionally, “students often request one-on-one critiques that can be held after class or during office hours. These requests exhibit a dependence on faculty critiques and an overall desire for additional feedback” (Ganju, 2005, p. 3). Students act as though they are not receiving enough feedback and yearn for more.

“Stuckness”

Design education is a complex and challenging experience. “Students are expected to grasp many new concepts and ideas. They are also asked to both design and learn to design simultaneously. They must present and defend new ideas, conduct personal relationships with instructors and fellow students, and learn new techniques and skills” (Sachs, 1999, p. 195).

At times students have difficulty completing assignments because they encounter, difficulties or dilemmas. As a result they become stuck. The design process as with any other thought process inherently includes blocks and breakdowns. “Stuckness’, therefore, is not particular to students, but is experienced by mature designers as well” (Sachs, 1999, p. 196). Students however, have a wider range of difficulties because of their inexperience. (Sachs, 1999)

There are many factors that can contribute to a student feeling stuck:

- A situation not matching expectations
- Conflicts inherent to solving the design problem
- Confusion over the design process itself
- Confusion about the next steps or actions
- Lack of knowledge or information vital to the design process
- Insufficient design skills, technical skills, self-criticism, or critique skills.
• Confusion about the instructor’s feedback or requirements.

Whatever the reason for being stuck, it causes a “breakdown in the student’s capability to respond to studio requirements...often affecting the design process so that it falters or even stops” (Sachs, 1999, p. 208). Often, students are aware that they are stuck, but will remain stuck until they have a breakthrough. Becoming unstuck can happen in a number of ways. Students can seek help and try to see the design in a new way, discuss the issues with an instructor or colleague, work on a different task and then return, or do research to become better informed about the issue. In whatever way students becomes unstuck, the result is that the students learned something new, and improved their design process (Sachs, 1999).

**Peer-Based Learning**

The premise of peer-based learning is that learning occurs within social contexts (Cope & Kalantzis, 2009). “Learning is a group-level phenomenon which is an essential part of daily work practices” (Hara, 2009, p. 8). Students learn through active participation and opportunities to explore their own ideas through discourse, debate, and inquiry (Anderson & Speck, 1998). “The most powerful learning experiences occur when students work together to achieve a common goal” (Light, 2001, p. 33). The Social Learning Theory supports this idea and views learning as a process where, “knowledge is created most effectively when learners interact with one other while performing a task” (Hiltz & Goldman, 2005, p. 192). The role of the instructor should therefore be as a facilitator, and the students should assume responsibility for their own learning (Anderson & Speck, 1998).

Peer-based learning differs from the ‘direct transfer’ or ‘one-way transmission’ of a lecture style class where the instructor is the sole source of information. Peer-based learning “is an extraordinarily effective way to help students learn...(and) reap the benefits from and with one another” (Anderson & Speck, 1998, p. 66). Through peer-based learning, students combine their existing knowledge with that of the other students during class discussions. (Hiltz & Goldman, 2005) “Assuming that the students have various individual strengths and weaknesses, peer interaction can create valuable opportunities for learning” (Conanan & Pinkard, 2001, p. 2). Student internalize information conveyed by more knowledgable peers, and integrate that
knowledge into their own reasoning. Additionally, more knowledgeable peers benefit from providing explanations to other students because it improves their own understanding in the process. Peer-based learning is beneficial for everyone involved. (Hiltz & Goldman, 2005) Collaboration facilitates higher developmental in learners. Peer-based learning allows students to share what they know so that everyone has a shared understanding of the information. Students can and will learn from each other through peer interactions (Conanan & Pinkard, 2001).

There are many benefits of peer-based learning. Peer-based learning leads to higher levels of satisfaction with the learning process (Hiltz & Goldman, 2005). Students typically move together through a program. Therefore, working with peers provides a baseline for work quality. Peers can see how their work compares to the larger group of students. While working with peers, students form deeper relationships with their colleges and become aware of their strengths and weaknesses as well as their limit of expertise (Haan, 2005). Additionally, peer-based learning improves students’ abilities, and can reduce anxiety and uncertainty as students work their way through complex or new tasks. When students work with each other, social factors prevent students from ignoring conflicts and force them to deal with the issues, seek additional information, and find a solution.

Peer-based learning can help students to develop professional skills. Professionals engage in organized, joint reflection, or peer-based learning, to take advantage of their colleagues’ knowledge. Joint reflection is a method used by professionals to improve themselves and their work. Together, colleagues generate wider ranges of ideas and possibilities for a given situation than one person could alone. Working with colleagues helps to generate creative and inspiring insights (Haan, 2005).

If professionals are engaging in peer collaboration, and college is supposed to prepare students for their professional career, students should learn to engage in peers collaboration and joint reflection. Additionally, promoting peer-based learning in design education should help students to be more successful. By majoring in design, everyone involved has a perceived level of engagement and some degree of expertise even if it’s minimal. Often, design students also have mutual commitments and shared aspirations. Therefore, feedback from peers can and should be taken seriously. When students engage in peer-review, they build a community and trust among
the design students and capitalize on the benefits that peer-based learning can provide (Schrand & Eliason, 2012).

While there are many benefits to peer-based learning, there are some issues that can arise as well. Working in a group can be complex for decision making. A result of working with peers is ‘group think’. ‘Group think’ occurs when a group of people begin a discussion with initial preferences and do not consider external information. This can lead the group to make less than optimal decisions, and creates potential issues of confinement and limitation. There may be other information that they do not know or other ideas that they did not explore (Haan, 2005). While peer-based learning can lead to limitations in exploration, “two heads are better than one” (Weinschenk, 2011, p. 215), especially if both people are knowledgeable and have adequate skill sets.

Another potential issue with peer-based learning is external pressure. Students should be supportive of one another, but the possibility exists that peers could be judgmental, monitoring, or supervisory. At times with group work, individual members might find it difficult to express an opinion if it differs from the majority of the group members' opinions. Just because a decision is made by a group, does not meant that the entire group actually made the decision. Dominant members take charge and lead the group. When group members are uncertain, they will willingly let others decide what to do. People are heavily influenced by the opinions and behaviors of those around them (Haan, 2005; Fletcher, Meyer, Anderson, Johnston & Rees, 2011). Therefore, while peer-based learning provides many opportunities for students to learn, it must be used with caution as to avoid some of these potential issues.

Classroom Participation

A form of peer-based learning is class participation. Through participation, students learn from the ideas of their peers and build a collaborative environment where new thinking and idea building can take place. Participation by students can manifest itself in many forms including verbal, visual, written, and silent participation. Often, verbal participation is the only form of participation acknowledged by instructors, and is the method used to gauge what students know and what they have yet to learn. In many cases, the instructor controls the conversations during
class and monitors who has the opportunity to speak while the other students are expected to remain silent. In reality, both speakers and listeners are important for a class discussion to take place. There needs to be silence in order for someone to have the opportunity to speak, and for others to listen and gain insights from the information being spoken. Therefore, silence is not always passive or a sign of disengagement. Silence can be listening. This leads to a more complex understanding of participation (Schultz, 2009). Classroom participation should be understood as: “any contribution to a group activity—not just verbal contributions—that creates and extends the spaces for understanding in the classroom” (Schultz, 2009, p. 7).

Classroom participation shares many of the same benefits of peer-based learning. However, not all students gain equally from classroom participation. Similar issues exist here as they do with critique. Extroverted students are comfortable speaking the first thing that comes to their minds in class, while introverted students prefer the ability to prepare what to say in advance. Often, extroverts dominate whole-class or large-group discussions, while introverts are seen as quiet and disengaged. Introverts might do better in smaller groups or with a different format all together.

Another issue for participation is shyness. Students can be shy and therefore have a hard time participating verbally in class. People are not always shy, but rather become shy in certain situations. “Institutions, interactions, and power dynamics create conditions for silence” (Schultz, 2009, p. 21). Sometimes, silence is constructed and maintained by others. A student might become stereotyped as shy despite reality. As result, silence was chosen for that student, and he or she can actually become shy (Schultz, 2009). It is also possible for the environment and interactions within the classroom to produce silence. Students must feel comfortable and unthreatened in order to fully participate. “Creating caring classroom conditions facilitates the desire to form alliances...Advocates of such a notion maintain that for such a classroom to flourish, educators must dismantle the authoritative, hierarchal, lockstep mind that characterizes public schooling today” (Cope & Kalantzis, 2009, p. 236).

A third issue that arises regarding classroom participation is expectations. “Students and teachers bring their own implicit and explicit rules that guide behavior in the classroom. Most often, these are learned outside of school from families, communities, religious institutions, and
the media. They are also learned in school from the first day in the classroom. Rules learned at home or the community might not always align with the classroom rules and students might have to adopt to unfamiliar rules (Schultz, 2009, p. 65). Additionally, colleges are becoming more diverse with students from many different cultures and backgrounds. Some cultures value silence, while others are stereotyped as being silent. Also, when English is not the first language for students, they may have difficulty participating due to the pace of the conversation. Often, these students are perceived as shy when in reality they just cannot participate (Schultz, 2009).

**Learning Communities**

Learning communities provide more opportunities for peer-based learning (Zhao & Kuh, 2004). A learning community is generally a group of twenty-five to thirty students, typically freshmen with undecided majors, who become part of a community based on academic content. These students share common interests and take the same courses during their semester. Sometimes, these students are asked to live in the same dorm building as well (Tinto, 2003). Learning communities are purely voluntary and are “a mechanism by which college freshmen can develop a small community of peers who share common interests” (Hotchkiss, Moore & Pitts, 2003, p. 1).

Learning communities help students engage in a deeper form of learning through complex ways of thinking and knowing (Zhao & Kuh, 2004). Students in learning communities “report an increased sense of responsibility to participate in the learning experience, and an awareness of their responsibility for both their learning and the learning of others” (Tinto, 2003, p. 6). Learning communities help students build confidence as they become less passive and take more responsibility for their learning (Tinto, 2003). Within learning communities, students develop their own self-supporting groups which extend beyond the classroom. Students support each other and spend more time learning together both inside and outside the classroom. Learning communities help bridge students’ academic and social activities. Students who join learning communities have higher performance levels, put more effort into their work, and are more satisfied with the overall learning and college experience. There seems to be no debate about it, learning communities enhance student learning (Tinto, 2003).
Communities of Practice

Similar to learning communities that form in colleges, communities of practice have developed in the professional world. Communities of practice originated from a group of technicians who discovered that by communicating with other technicians in their region, they could learn from one another and broaden their skill sets (Hara, 2009). Communities of practice are not exclusive to technicians, but can be applied to any profession. “Communities of practice are collaborative, informal networks that support professional practitioners in their efforts to develop shared understandings and engage in work-relevant knowledge building” (p. 3). Members of the community share knowledge and are self-motivated to learn. No one wants to indicate that they are incompetent or lacking, so people think about these communities as a place to share common experiences rather than a place to troubleshoot.

In a community of practice, “there is no distinction between learning and social participation” (Hara, 2009, p. 14). “All learning is situated in practice—all practice is social in nature” (Hiltz & Goldman, 2005, p. 241). Communities of practice bring people together. As people work together, they not only learn from doing, they develop a shared sense of what has to happen to get the job done. A common vocabulary or language is developed within the community helping people to better communicate. This leads to shared comprehension of knowledge among members as well as shared meanings. Both of which are imperative for the exchange of knowledge (Hara, 2009).

Communities of practice must be formed on their own. “Communities of practice cannot be artificially created or implemented...they are informal networks that evolve organically...(and) develop over time” (Hara, 2009, p. 14). Members cannot be forced to work in a group or share information. People like to self-select and choose to contribute on their own without external pressures. However, the right people and the right situation can lay the groundwork for knowledge sharing since professionals often work in groups and share information willingly.

Overall, communities of practice are informal social networks comprised of professionals, within a supportive culture, developing shared meanings, and engaging in knowledge building. These communities assist novice as well as more experienced professionals. Novices gain valuable information and insights from those more experienced, while more experienced professionals
reflect on their behavior, offer advice, and learn from their interactions with others. Everyone can gain something by participating (Hara, 2009).

**Prevalence of Technology and the Opportunities it Provides**

Learning should link knowledge acquisition within the classroom to experiences outside the classroom. “Learning should not be fragmented into disparate parts” (Cope & Kalantzis, 2009, p. 243-244). Through technology available today, this is more possible than ever before. “Laptops promote a new type of classroom, [they] attempt to erase the division between classroom, time, homework, and real life” (p. 243-244). Technology provides students with new opportunities. “Electronic publishing and social networks provide students with new and expanded audiences for their own work, giving them access to the work of other authors, and making them a part of a much larger, sometimes global discourse” (p. 249). Students today can share their own work, and tap into and learn from a much larger network than previously possible. Additionally, “when students become producers and authors, rather than simply consumers of new media texts, they gain a fuller understanding” (p. 249). When students make use of their knowledge, it forces them to further develop their critical thinking skills.

Students today can learn anytime and anywhere. This is known as ubiquitous learning. Ubiquitous learning is only possible because of modern technology. Computers have become such a big part of people’s daily lives that they have become naturally interspersed and “deemed invisible and normal...considered an extension of self” (Wright & Webb, 2011, p. 194). Technology is erasing the divide between physical locations such as home, work, and school. Through these electronic devices, people bring home into work and work into home. As smart phones become more commonplace and as mobile technology improves, the online and offline worlds become harder to separate (Wright & Webb, 2011). “A boundryless world (is being created)...Physical and virtual worlds are always with us, singing a given song of connection, distraction, and options” (p. 197).
College Students Today

College students today are part of a generation called Millennials. Millennials were born between 1977-1994, and “have experienced great technological advancements during their formative years as children” (Goupil, 2012, p. 1). Many students entering college today have “grown up never knowing a time when the internet did not exist or that certain technologies such as smart phones, digital cameras, blogs, and wikis were not always a part of mainstream society” (Cope & Kalantzis, 2009, p. 94). Millennials are accustomed to being surrounded by technology. "For youth today, technology is ubiquitous, commonplace” (p. 230).

Students use electronic technologies creatively and effortlessly. They are ‘cyber-nomads’, “tech-savvy cultural creatives” who have “physical, digital, and social mobility” (Cope & Kalantzis, 2009, p. 233). They simultaneously work across media and are globally connected. Most college students own laptops and carry them constantly, not just to class. Laptops have become an extension of themselves. Wherever they go, their laptop does too (Cope & Kalantzis, 2009).

Students are accustomed to multitasking and being constantly ‘plugged-in’, a term meaning connected through technology. They are 'plugged-in' to their iPods, cell phones, laptops, tablets, etc. Students connect with friends through social networking sites, maintain relationships through constant electronic connections, play online games, capture events with digital cameras, blog about their intimate experiences, navigate using a GPS, and learn through Google and YouTube. These skills are learned when students are in their teenage or even pre-teenage years. Millennials are digital learners and “use technology as a vehicle through which they come to discover a solution or question the validity of an answer” (Cope & Kalantzis, 2009, p. 94).

There are many opportunities for learning that are created through technology. However, technology can create obstacles to learning as well, if abused. “The increase in virtual communication and online collaboration has created an intense pressure to be constantly available” (Wright & Webb, 2011). Therefore, students want to be constantly available to interact with their friends. When these technologies are used excessively like this, students can become sleep deprived, miss class, or delay work to spend time with friends online (Gemmill & Peterson, 2006). Additionally, this expectation can extend beyond peers. Students expect that their instructors will be constantly available to answer their questions. However, this is not reality and
can cause students much frustration. Overall, most students do not experience major issues or negative effects on their lives due to their technology habits.

**Social Networking Sites**

A social networking site is an online environment defined by three major criteria: “construction of a profile in a system that can be restricted if desired, inclusion of others with whom they share some type of connection, and viewership and surfing capabilities among a list of contacts if desired” (Wright & Webb, 2011, p. 21). Social networking sites were created in 2004, and have been experiencing exponential growth as internet access and mobile technology improves. The widespread use of computers and smart phones have allowed social networking sites to become more popular. Now, people can access these sites anywhere and anytime. Social networking sites are part of people’s daily lives. Eighty to ninety percent of college students use social networking sites and have a profile on at least one site. These sites appeal to younger people because they are fast, convenient, inexpensive, and user-friendly (Wright & Webb, 2011). “Social networking sites are playing an increasingly important role in the communication patterns of young adults and are even beginning to gain reputation as a viable networking tool for adults” (p. 14). Social networking sites can be used for entertainment, relieving boredom, passing time, procrastination, virtual ‘hang-outs’, information seeking, self-expression, professional advancement, and communication with friends and family (Wright & Webb, 2011). The level of interactivity makes social networking sites popular. These sites are open to anyone and interactions take place in a publicly viewable space. Users of social networking sites possess near instant access to the wealth of information provided by friends and other members of their social network. However, there are privacy settings which allow users to restrict access to their postings for specific groups, networks and individuals.

Social networks have a tendency to bring people and social groups together that might never meet in real space. Users are surprisingly comfortable disclosing large amounts of personal information. Additionally, barriers for initiating communication are lower online.

We regularly meet new people that we would like to learn more about, yet we often are not willing to exert the energy to engage in the effort necessary to exchange phone
numbers and personal information. Searching for these individuals on social networking sites and adding them as a ‘friend’ provides an easy way to initiate a weak social tie that ensures continued contact with that person (Wright & Webb, 2011, p. 5).

Social networking sites “hold significant power as a relational and social tool for users,” and can be used to “initiate relationships, seek social information on potential partners, construct identities, manage impressions and relationships, and maintain existing off-line relationships” (Wright & Webb, 2011, p. 3).

**Participatory Culture**

Participatory culture is not a new phenomenon. It is something that is a part of human nature and has always existed. People want to be heard, and there is “a rich history of participatory and performative audiences existing before the twentieth century” (Ekstrom, Julich, Lundgren & Wisselgren, 2011, p. 22). What has changed over time, is the medium that people use. In the past, people would distribute home-made tapes, or write to newspapers to voice an opinion (Ekstrom, Julich, Lundgren & Wisselgren, 2011). Today, if someone wants to be heard, they blog about their opinions or comment on an article online, if they have knowledge they wish to share, they submit information to Wikipedia, and if they have a video that they want people to view, they publish it on YouTube. The year 2004 marks the rise of “participatory content production, collaboration, sharing, and communication through interfaces of: wikis, blogs, collaborative mapping, tagging, and social networking platforms...Web 2.0 platforms allow any user to create, upload, and edit data within the browser window without the need for special desktop software” (Goriunova, 2012 p. 10). New digital media is cheap, accessible, and easy enough to master (Cope & Kalantzis, 2009). Participatory media is characterized by the “user's personal access to the means of media production—allowing them to become producers themselves—and their opportunities for distributing the media products in many-to-many communication” (Ekstrom, Julich, Lundgren & Wisselgren, 2011, p. 58).

Participatory culture creates “strong support for creating and sharing one's own creations, and some type of information mentorship whereby what is known by the most experienced is passed along to novices” (Cope & Kalantzis, 2009, p. 35). People contribute to an
online community to further the goals and agenda of that particular community, and believe that their contributions are important. Additionally, participants also feel a social connection to others in that online environment. “Inclusive participatory action has spread to many aspects of daily life demonstrated by email lists, discussion groups, recommender systems, cooperative classification systems, collaboratively build wiki encyclopedias, dictionaries, and local resources, as well as citizen journalism in blogs and photoblogs” (p. 31). People have knowledge that they wish to share, and others are happy to view and learn from it.

Participatory culture is changing who learns from whom. Learning can now take place continuously—anywhere, anytime. Anyone can contribute and retrieve information, learning materials, and advice from their computer through the internet. While this is a huge resource, there are some potential risks. If anyone can post information, there is a risk that the information might not be accurate. It becomes the retriever’s responsibility to sort through the found information and determine what is accurate. There is a huge need for critical media literacy among students today. In addition, there is a risk that because of the vast amounts of information available online today, that people might bypass professionals and miss out on information. Even though these risks are present, many users believe that the convenience outweighs the accuracy problems (Cope & Kalantzis, 2009).

Significance and Relevance of Computer Mediated Communication to Learning

Participatory culture and social media provide many opportunities for students. Students can engage in “online conversations [through] postings in email lists, bulletin boards, web pages, blogs, and wikis. [These] leave an accessible record that can be reviewed and visited” (Cope & Kalantzis, 2009, p. 40). Students have the opportunity to engage in more peer-to-peer discovery and create “shared definition of meanings through collaborative, conversational interaction” (p. 39). This allows students with different levels of expertise to mingle, learn from, and teach each other. Students have the opportunity to access and learn from students who are in a different geographical locations. This can open students to new perspectives (Cope & Kalantzis, 2009).

While there are many advantages and opportunities that are provided from social networking sites and participatory culture, there are some additional dangers. Social networking
sites provide a short-term environment. As soon as someone leaves the site, they leave the group and connection is lost. Online interaction can be easier to disrupt and get caught up in off-topic conversations. Additionally, online environments generally have some level of anonymity which make it easier for people to misrepresent themselves and lie (Weinschenk, 2011). Other issues revolve around privacy. Only one-half to one-third of social network users customize their privacy settings. In addition to not using enough privacy settings, people password share. This allows impersonation by others using their log-in (Wright & Webb, 2011). Another problem is harassment, or cyberbullying, which is “an overt, intentional act of aggression towards another person online” (p. 374). However, harassment online is not any more common online than it is offline (Wright & Webb, 2011).

**Opportunities for Online Learning**

*Asynchronous vs. Synchronous Formats*

A synchronous environment is one where people can communicate in real-time without the need to be in the same physical location. Examples of synchronous environments include: chat rooms, Instant messaging, and video calling. Synchronous environments provide people with immediate feedback. Expectations for online social interactions follow those of in-person interactions (Weinschenk, 2011). Therefore, synchronous interactions more closely mimic in-person interactions where everyone needs to be present and there is no time to think through or prepare answers in advance. Synchronous environments are quicker paced than asynchronous environments.

An asynchronous environment allows people to communicate at their convenience independent of time and place (Hara, 2009). Examples of asynchronous environments include: online support groups, discussion boards, and email. Anytime and anywhere that people have access to a computer and internet, they can participate. It is sometimes thought that online communication is less personal, however, a sense of both personality and community can be generated in a text-based asynchronous environment. This can be achieved through communication conventions such as keywords, nonverbal cues written out, playfulness and humor, emoticons, and punctuation. Asynchronous environments allow users to reflect and refine
contributions before sharing (Hiltz & Goldman, 2005). Also, asynchronous environments provide users with a record of what has been said. Therefore, this format could be less intimidating, provide less confident students with an outlet for asking questions and receiving help, and help students keep track of the feedback they were given (Schrand & Eliason, 2012).

Asynchronous Learning Networks
Asynchronous learning networks (ALN) are networks that facilitate learning anytime and anywhere. “Asynchronous learning networks combine self-study with substantial, rapid, asynchronous interactivity with others” (Hiltz & Goldman, 2005, p. 5). These networks can have various functionality. ALN can support content delivery to hand out homework assignments or for file sharing. They can also facilitate communication through synchronous or asynchronous means. ALN can also be used as an assessment tool to evaluate students through quizzes, exams, survey, or critique. They usually have a secure log-in, integrated email, and a central location for content delivery as well as additional links and information (Hiltz & Goldman, 2005). ALN allow students to read text, watch online tutorials and videos, take quizzes and do homework.

Students can use ALN to collaborate with others, apply concepts, and formulate ideas into words. This facilitates interactive learning. “Most faculty who choose to teach asynchronously, value the development of students as lifelong learners and value learning as an active constructive process that depends on cooperation and teamwork” (Hiltz & Goldman, 2005, p. 170-171). Additionally, students who participate in learning environments often find satisfactions in their learning process and outcomes. “Students learn better in a constructive environment in which the instructor serves as a facilitator rather than an authoritative figure” (p. 177). Online courses and environments seem to achieve this and promote knowledge acquisition.

There is every reason to believe that asynchronous learning networks can be just as effective as classroom-based learning. There seems to be no difference in the perception of learning or in test scores between the two mediums. However, in hybrid courses, students who participate in the asynchronous learning network typically earn higher grades than those students who participate only during the in-person class. Many students find that their motivation increases because other students and the instructor are able to view their work. Students feel that
it is easier to access information and course content online. Additionally, students feel that
conventional courses in person are more boring than asynchronous learning networks. In face-to-
faced interactions, students base their information on experiences, while “online students tend to
cite literature and link their beliefs to other authors” (Hiltz & Goldman, 2005, p. 132).

Asynchronous learning networks help increase the interaction frequency and increase
student communication. “Instructor presence is more pervasive in traditional face-to-face
discussion than in the online discussion. This leads to communication inhibition in the classroom
and increased student participation in asynchronous learning networks” (Hiltz & Goldman, 2005,
p. 40). Asynchronous learning networks can foster greater participation from students who do not
typically participate in the classroom setting, such as shy or anxious students, minority students,
and students with speech and sight disabilities. These networks enable unlimited discussion
among students, unlimited amount of questions to be asked and answered, provides students
with more participation opportunities, and forces students to play an active role. Students can
build relationships with people they might not normally encounter or befriend in person.
Asynchronous learning networks allow students to learn form each other and develop critical
thinking skills. Communication online “may include more diversity of viewpoints, egalitarian
participations, interpretive risk taking, and challenges to textual authority” (p. 221). Additionally,
online the emphasis is shifted from public speaking skills to the quality of their work and ideas
(Hiltz & Goldman, 2005).

Asynchronous learning networks provide opportunities that a traditional classroom
course cannot. Students can access the course at their convenience around conflicts stemming
from academics, work, family, and other commitments. Not only do asynchronous learning
communities allow students to access coursework at their convenience, but if a presentation is
bad, they do not have to waste time watching the entire presentation as they would during an in-
person critique. Additionally, less advanced students feel embarrassed and do not present well in
from of their peers. Online asynchronous format affords the student time to publish work and feel
safer presenting since they are not physically standing in front of others (Hiltz & Goldman, 2005).
Challenges for ALN

There are many opportunities to improve learning through the internet and “while this affords greater flexibility for learners to access material when and where they want, its comparatively static and solitary nature leaves the learner isolated from both their peers and instructors, and disengaged from the content itself” (Cope & Kalantzis, 2009, p. 132). Many online learning environments lack adequate interactivity. Other problems that arise with online learning are issues of information retrieval. With general-purpose search engines, there is information overload and it becomes difficult to sort through and identify the most relevant, appropriate, and high quality educational resources (Cope & Kalantzis, 2009).

There are other problems that present themselves with asynchronous leaning networks as well. Text-based communication may not be ideal for all types of learners. Many students tend to lurk online rather than participate. Some students are reluctant to put up their best ideas in a public forum and are afraid of intellectual property theft (Hiltz & Goldman, 2005). There can be issues with the comments themselves. Sometimes comments can get overly repetitive, and unfortunately sometimes they can become abusive and an abuse-team is necessary to remove these comments and users from the site (Goriunova, 2012). The potential for more participation online does not mean that all students will receive equal attention because it is easier to ignore people online than it is in person. In many of the studies read, the instructor graded the student participation on these sites which provided the motivation to participate. Without a grade, motivation to participate might decline significantly. Asynchronous learning networks are heavily contingent on internet access as well as hardware and software access, and requires students to be internally motivated to participate (Hiltz & Goldman, 2005).

Virtual Design Studios

A virtual design studio is an online learning environment customized specifically for a studio course or studio content. They can be run in many different ways and include both synchronous and asynchronous tools. Virtual design studios can take the form of a completely online course or a hybrid course where the online environment supplements the in-class experience. Generally, a
virtual design studio gives students a place to post their work, view their peer’s work, and give and receive critique.

There are many benefits of using a virtual design studio. In traditional studios, not every student has the opportunity to participate for reasons including: time constraints, intimidation, or shyness. Online environments provide opportunities for these students to participate.

Online courses in general can result in more discussion than in-classroom-based courses. This may be due to perceptions of relative anonymity, reduced self-presentation anxiety, as well as the elimination of a student’s need to compete to be recognized by the instructor and fellow students (Piersanti, 2010, p. 15).

There is an added dependence on peers in virtual design studios (Ganju, 2005). “Discussions that take place in online environments often increase the student-to-students interaction and feedback that is sometimes missing from the classroom” (Piersanti, 2010, p. 2). Online environments allow students enough time to construct thoughts and comments, which may help them feel more comfortable asking questions or contributing to critique (Piersanti, 2010). Additionally, students can begin a conversation in class and then open up the conversation to a wider online audience.

Online text-based feedback is better received and seen as less negative than in-person feedback.

Online critique can be used specifically to give students more of an opportunity to provide and receive constructive feedback from their peers; this increase in opportunity, in turn, can lead students to become less dependent on faculty critiques by learning to evaluate their own work as they evaluate the work of other students. When students are able to become less dependent on faculty in terms of their ability to critique their own work, they become better prepared for a professional design career (Piersanti, 2010, p. 13)

There are technical reasons that a virtual design studio can enhance a studio course as well. Course content can be made available online for the student to access at any time. In addition, critiques can be recorded in text, video, or audio formats for students to be able to review at any time. Students often do not remember verbal feedback accurately, and therefore benefit from the ability to keep a record of critique for future reference (Piersanti, 2010). The way in which work is critiqued can be enhanced through a virtual design studio. Often in traditional critiques, students and instructors do not wish to draw on a sketch out of fear of damaging the
student's work. Online this is not the case. Drawings on top of a sketch does not need to be permanent and will not damage the original work. Often in a traditional design course, students are divided into smaller group critiques. Therefore, students miss feedback given to other groups. In virtual design studios, students have access to and can view all comments made on all projects (Chen & You, 2010).

There are challenges to working in a virtual design studio. Design work is often something tangible or consists of hand drawn sketches. Representing them online can be difficult and time consuming. In addition, “communication typically involves not just words but gestures, references to or use of other objects, intonation, body language, etc. This is only partially supported by current technologies” (Piersanti, 2010, p. 17). Other issues arise with technology as well. Students can become frustrated with technical problems, especially if the online system is not easy to use. It can also become costly for students to participate if they are required to buy webcams and microphones, though most laptops today come equipped with those things. In addition, students can experience confusion, anxiety, and frustration if they experience ambiguous interactions and do not receive prompt feedback (Piersanti, 2010). Another issue with virtual design studios, concerns the time and motivation required for critique. In a traditional design studio, the students are present and held captive for the entire critique. They have no choice but to be part of critique. Online, however, students must make time to be actively involved, and may procrastinate or have more pressing demands that delay their giving of feedback (Piersanti, 2010).

**Examples of VDS**

**CoOL Studio**

CoOL Studio was an online studio experiment for architecture students that supplemented their in-classroom studio course. CoOL Studio’s goals included:

- Facilitate access to information and case studies on the internet that the professor provided in order for students to incorporate a wider range of technical information within their designs.
• Allow professionals to critic students' work, giving students access to a wider range of expertise.
• Help students with the articulation of their designs.
• Provide a greater opportunity for cooperation and collaboration among the student, so that they could more easily share research, comment on each other's work, and engage in peer review. It was thought the asynchronous environment would allow students to interact at their convenience, and allow them easy access to their entire class without the social constraints that exist in-person.

Students experienced a number of issues while using CoOL Studio. They were required to keep online journals as records of their concepts and ideas, similar to sketchbooks. However, these became too long, scattered, and disorganized. Students complained that scanning all their sketches took too long, and some students were unwilling or reluctant to post their initial ideas in a public environment. Also, students posted files that were too large and therefore took too long to download. This discouraged people from wanting to review and comment on work.

Additionally, few students personalized their pages and many did not add links. Though students may have viewed pages, they did not comment on each other's work. It is possible that they gave verbal feedback, but they did not use the website for this purpose often. While CoOL Studio was meant to support student collaboration, it seems it did not fully work.

Some of these issues were attributed to the structure of the website. Projects were located under the student's name which could have caused two problems. Either projects were hard to locate, or that structure may have made people feel like they were invading someone's privacy. Additionally, the set-up of the website should have better connected student's projects, and may have required different software capabilities for better interaction and collaboration.

There was both positive and negative feedback about the online critique itself. Traditional architecture critiques are known to be overly negative, however, in the online forum there was no sharp criticism. Sometimes students felt that critics missed the mark, but that could be attributed to the time-lag between students scanning sketches, posting them, and waiting for comments. By the time a student received comments, they had already moved past that part of the project, and the comments were no longer relevant. The critique itself though “raised questions, pointed out
problems, provided encouragement, reinforced design decisions, reinterpreted design features, and suggested new ideas. In some cases the critiques included references to books and well-known works of architecture. Rarely though did a critique of one project include a reference to another [student’s project]” (Zimring, Khan, Craig, Haq & Guzdail, 2001, p. 681). Students occasionally posed specific questions about their project, but usually it was left open. Often, reviewers often had similar comments to one another. Additionally, CoOL Studio was supposed to allow insights from experts; however, some critics lacked knowledge of the projects and needed time to catch up or do research before they were able to comment creating a lag in feedback.

Despite the issues, CoOL Studio did help the students in a number of ways. Through posting work, students began to reevaluate their work. These ‘virtual pin-ups’ of their work made students focus on their presentation skills while they were still developing their ideas. Students had access to expert opinions, and the asynchronous environment allowed people to comment at their convenience. The lack of face-to-face interaction with the professionals meant that students needed to articulate and sufficiently explain all of their design intentions and abstract ideas. Students improved their articulation and communication skills through this process.

CoCreaThink Design

CoCreaThink Design was an online design environment linking two different in-classroom design courses. One course was offered through Chang Gung University and the other course was offered through the National Yunlin University of Science and Technology. Both courses were junior level design courses. The site had three sections: Community, Classroom, and Studio. The community section allowed students to have an open space to discuss opinions, share information, and share experiences. The classroom section had tools to support design learning. Students received information from their instructors, class announcements, and were able to upload assignments. Both the community and classroom sections were asynchronous. The Studio section was an interactive, synchronous space. Students were able to communicate with one another, as well as with the instructors, through chat rooms, video conferences, file exchanges, and electronic white boards. Everything was recorded for later use.
Most of those involved with CoCreaThink Design felt that it had a positive influence on both learning and teaching. CoCreaThink increased their motivation and participation, improved performance, and enhanced the overall learning process. Informal critiques among peers happened more frequently through the internet. Some students became more active and immersed in the course content as a result.

There were issues that arose with CoCreaThink Design. Technical problems included: bandwidth issues, equipment needs and costs, interface issues, and functionality problems. Human factors included: motivation levels, skills, and habits. Another issues was that some students did not participate often. This could be attributed to low technology skills or psychological issues with pressure to participate or fear of being graded. However for some students it was a chance to open up and participate.

Those involved with CoCreaThink, felt that the benefits outweighed the problems. CoCreaThink Design improved communication and interactions with instructors as well as peers outside of their immediate programs. Students had broader access to resources, and were able to find information and save it for later reference. Through CoCreaThink Design students were able to work around restrictions of time and place.

California State University Hybrid Course
California State University conducted a hybrid course with a senior level corporate ID and systems design course consisting of fourteen students. The course was structured so that there were two large group critiques in-class, and students were set up in rotating pairs to critique each other’s work online. The online format allowed students to voluntarily participate in weekly critiques, but required participation in final project critiques. Most of the students had a significant design knowledge base, but were still exceedingly dependent on their instructor’s feedback. Students were given detailed instructions on how to use the online site before they were expected to use it. Additionally, students were provided with guidelines about forum etiquette and how to write online critiques.

While there was significant added value, students experienced some problems with the hybrid structure. Absent students presented a problem as they lagged behind the rest of the class.
and caused their peers to lag with them since they did not provide critique. Students submitted their critiques late creating the same problem since the student whose work they were critiquing was not able to incorporate the suggestions before class. Students felt that they needed a few days between receiving critique and being able to implement the suggestions properly. As the semester progressed, students began procrastinating and leaving critique for the last minute. Since students had so much other work that they needed to complete towards the end of the semester, the online critique became a burden. Students found it difficult to find the time to complete their critique in a timely manner, and the online critique became a low priority for students.

At the end of the semester, all students said that the online critiques that they received were helpful. Students felt that the online critiques helped to build a community and stronger relationships between students. They found it useful to hear peers’ thoughts and opinions about their work. At first, not all students cared what their peers thought. Some students only cared what the instructor had to say, but as the semester progressed, students became increasingly engaged with the peer critiques and began to value peer insights more. Students felt that they could take their peer’s suggestions and evaluate them for themselves. Peers often noticed things that the person whose work was being critiqued had missed. Students were thankful for the feedback and intended to implement the suggestions given. As the semester progressed, the students’ critiquing abilities improved and became more thorough. Students felt that the online environment was valuable. A community was built, students supported each other and had pride in each others work. Students had access to an extended critiquing process outside of class, and they had the opportunity for more personal evaluations. Some students felt that in-class time should be shortened, and more time and attention should be spent on the online component since students received more personal feedback online.

*Design Collaboration Model (DCM)*

The Design Collaboration Model was an online site for students and instructors to discuss and share ideas while developing design projects. It was limited to authorized collaborators and involved students from two different courses within the same university. This site was used during the span of one project and lasted only a few weeks. Critiques and discussions took place
asynchronously online. Everyone involved received a written document that explained the rules and principles of the collaboration process before using the site.

Collaborators had no difficulties communicating design through the internet. Students found the site easy to learn and use, though there were complaints about the time it took to download artwork. Activity was split almost evenly between the students and the instructors. The highest number of critiques were given in the first week, and they declined as the weeks progressed. The majority of the critiques revolved around design solutions rather than problems, and focused on low level design instead of high level conceptual design. Most critiques proposed only one solution rather than choices and none of the critiques referenced the previous design process. In the end, it was not the number of critiques that indicated success of the design, rather the quality of the content within the critique.

**Studio Zone**

Studio Zone was a project conducted though the University of Michigan. It was a website that allowed students to present digital images of their designs and post comments asynchronously through guided questions. Studio zone was a:

- virtual critiquing space that structured and guided students' thinking as they presented and responded to work at various points during a design project. By saving students' representations of design over time and the discussions of these designs, Studio Zone also captured the design process itself (Conanan & Pinkard, 2001, p. 3).

Studio Zone aimed to foster student's abilities to reflect on their own designs, and enhance peer learning through design critiques.

The instructor played a central role in Studio Zone. The instructor set up the assignments and created the guiding questions which students used to critique their peers' work. In addition, the instructor managed usernames and passwords, as well as monitored all online activity. The instructor set the expectations and purpose of the online critique.

Studio Zone had some weaknesses. Rapport among students was an issue. Students did not want to appear too bossy or give their peers more work to do. At times students would withhold a critique if they felt that they knew more than the other students because they did not
want to appear superior to their peers. Student’s concerns with rapport was not because they did not want to help one another, but because they did not know how to go about it. There was a weak sense of shared criteria for critique, and therefore, students did not know exactly what to critique or how to go about critiquing work. Sometimes the critiques were too nice and did not go deep enough or got to the real issues. The critiques tended to focus on the design themselves rather than the concepts and big ideas. The guiding questions were useful, but became burdensome when they needed to answer all the questions for every student. Students found it too time consuming to respond to every post. Additionally, there were some structural issues with the site that made it difficult for some students to use the site and respond to posts.

While there were issues, there were many aspects of Studio Zone that were successful. The online critique gave students a place and framework to discuss design. The guiding questions provided structure and helped students break down the information. The guiding questions were seen as helpful, though it might have been helpful to allow students to articulate what kind of feedback they were looking to receive. Another success of Studio Zone was the asynchronous format. This allowed students to have time to reflect and compose their thoughts. It also allowed students to have time to consider their peers' feelings as to not say things in a hurtful or insulting manner which could happen by accident when a student is put on the spot in a classroom. While there were many strengths and weaknesses, Studio Zone definitely “support[s] the idea that a web-based technology tool like Studio Zone can help students lean from design critiques” (Conanan & Pinkard, 2001, p. 7).
Figure 1: Visual of the topics covered in the literature review
Chapter 3

Target Audience

**Triangulation of Data**

After completing most of the secondary research, thinking about where to gather information from became important. Triangulation of data is key. “Triangulation is the process of combining several different research methods to illuminate one area of study, in other words using several research tools to examine the same thing” (Visocky O’Grady & Visocky O’Grady, 2006, p. 76). Triangulation is not only applicable to methods, but is also applicable to sources of information as well. When different groups of people are targeted for information, a more broad and less biased group of data can be collected. This helps uncover apparent truths and is useful when dealing with qualitative data. Therefore, three target groups were selected for this research: design students, design instructors, and design professionals.

**Design Students**

Since this study revolved around helping students, it was crucial to understand the perceived issues from the students’ perspectives. It was also important to know where they struggled. If students do not think that something is an issue, it is unlikely that they would be interested in trying to fix it. Therefore, this study focused on areas where students acknowledge that they experience issues.

**Design Instructors**

Instructors often see the bigger picture and learning objectives that students sometimes miss. Therefore, it was important to understand from the instructor’s point of view where students struggle most.

**Design Professionals**

Design professionals have been through the schooling system and are now using what they have learned on a daily basis. They interact with entry level designers as well. It was important to
understand from their perspective where design students struggle. Their insights clarify what problems will or will not affect students’ professional development.

The Search for Universal Issues

It became apparent that there was a need to distinguish between universal problems for students in design education and school-specific issues. The focus was intended to be exclusively on universal problems since the goal was to create a system that can work with different universities and programs. Therefore, it was decided to include in this study students and instructors from four different design programs in four different universities. For convenience, and in order to limit the study to a specific geographical location, research was conducted solely at state universities in Ohio. The universities involved in this study were: Kent State University, Cleveland State University, The Ohio State University, and University of Cincinnati. While each university offers a design degree, there are significant differences between the various programs. A chart comparing the different universities involved can be viewed in Appendix A.

Description of Universities Included in this Study

Kent State University

Kent State University is located in Kent, Ohio and offers a BA or a BFA in visual communication design. There is no portfolio requirement to enter the program, but there are a series of reviews that students must pass to remain in the program, which creates stress and anxiety among the students. About half of the entering freshman class does not graduate with a design degree. Classes start off large and get smaller as they progress through the program. Students are required to have at least one internship before they graduate. The visual communication design program is located in the art building, though it is part of the School of Communication. They share a building with fine art majors as well as photo-illustration majors. Projects are generally completed individually and there are no interdisciplinary design courses. Students can work in the art building, though it is not open through the night.
Cleveland State University

Cleveland State University is located in downtown Cleveland, Ohio and offers a BA in art with a concentration in graphic design. There are no portfolio requirements or official reviews. However, the university has a requirement to maintain a certain GPA. The graphic design program is part of the school of art and is located in the art building. Students can work in the art building, though it is not open through the night. Most students do their work elsewhere since the majority of students commute to campus. Cleveland State University’s graphic design program is considerably smaller than Kent State University’s. Students mostly work on individual projects. There is some interdisciplinary interaction for students during their foundation courses since all art majors share a few basic foundation courses.

The Ohio State University

The Ohio State University is located in Columbus, Ohio and offers a BSD in visual communication design. There is no portfolio requirement to begin the program. They allow everyone to take courses during freshman year. After that first year, the instructors evaluate the students and pick eighteen students to continue in the program. The rest are allowed to try again the following year or continue for a minor. The eighteen students that continue in the program become a very tight knit group of students. They have all their design courses together. The visual communication design department shares a building with interior design and industrial design departments. Students have a few interdisciplinary courses with students from these programs. They work on projects both individually and collaboratively. Students have access to the building all day, every day. Additionally, juniors and seniors each have own their studio space and a desk of their own where they can work.

University of Cincinnati State University

University of Cincinnati is located in downtown Cincinnati and offers a BS in graphic communication design. There is no portfolio requirement for admissions into the program. However, they are selective based on high school GPA, class rank, and SAT or ACT scores.
Graphic communication design is divided into three tracks: print-based design, interaction design, and time-based design. Students apply to a specific track and there are typically two sections within each track. Students from one section do not typically mix with students from other sections. Graphic communication design is part of DAAP which includes Design, Architecture, Art, and Planning. All these programs are located within one building that is open all day, every day. Many students take advantage of this, especially towards the end of the semester. University of Cincinnati emphasizes interdisciplinary interaction for students. Students have studio courses where they work collaboratively with students from various disciplines including print-based design, interaction design, time-based design, interaction design, industrial design, fashion design, and architecture. University of Cincinnati also emphasizes internships and students participate in a co-op program. Beginning sophomore year, students complete an internship every other semester. By the time they graduate, students have completed a year and a half of internship experience.

Figure 2: Target audience triangulation

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Chapter 4
Research Assumptions

During the initial steps of research, primarily during the literature review and observations, a list of major assumptions was created to be tested and validated during primary research. The following is a summary of the major assumptions.

Students
Students care about learning and succeeding in university. They expect everyone, including their instructors, to be available to provide constant and immediate feedback and responses to their questions.

Technology
Students today grew up surrounded by technology. They live within a global context and are part of a global network. Students own many types of technology (phones, laptops, iPods, etc), are constantly ‘plugged in’, and partake in various forms of computer-mediated communication. Students are more comfortable approaching people electronically than in-person, and prefer computer-mediated communication, especially through social networks. Students enjoy asynchronous environments due to their convenience. These environments can be successful in promoting student learning and interaction.

Design Education
Students learn by doing along with examples and demonstrations. There are many skills that are important for design students. A few important skills include: individual and joint reflection, self-evaluation, collaboration with peers, and communication. Students often struggle with these skills. Additionally, students often have difficulty learning design software itself. Design education is a continuos process that never ends, and students must learn how to learn.
Homework

Students get stuck while working on design projects. Many college students do not live on campus or with other design students. They are busy with homework and jobs, and are often live far apart from one another. Therefore, students feel isolated while working on their homework and do not know where to turn for help other than their instructor. However, their instructors are not constantly available or willing to be available to help their students, especially on nights and weekends.

Learning Communities

Participating in learning communities improves student learning, performance, and happiness. Peer communities lead to success, and students willingly join them.

Peer Interactions

Students are not comfortable reaching out to their peers, but peer interaction outside of the classroom can enhance in-class conversations and critique. Students have valuable insights and feedback to offer their peers. Generally, students are willing to help one another and share what they know. They are often willing to accept feedback and learn from their peers though students might not always value their peers’ opinions.

Critique

Critique is an integral part of design education. However, many students have a difficult time with in-class critiques. Introverted students find it difficult to participate, and students can have anxiety with public speaking. Other students need time to think through ideas and reflect before sharing while some students do not understand the feedback being given. Students often miss important information during critique for various reasons such as: being too far away, the person talking is too quiet, the room is too noisy, and attention drifts in and out. In-class critiques are oral without a record to look at later for reference. In-class critiques can become high-stake environments that are intimidating for students and dominated by instructors. Students value and trust their instructor’s feedback and input, but become too heavily reliant on them.
Chapter 5

Research Questions

To help organize and guide the research, research questions are necessary. The main question driving this research was how peer-based learning can be promoted in design education, outside of the classroom, to foster professional skills in developing designers. This question refers mostly to promoting peer-based learning with regard to critique, but also includes other important professional skills as well. To gain a deeper understanding, three target groups were identified and specific questions were applied to each:

Design Students

- How do students relate to and interact with their peers?
- What are the biggest issues or obstacles that prevent students from completing their design work and participating during in-class critiques?
- How do they relate to and use technology, especially social media sites?

Design Instructors

- How valuable is peer-based learning?
- What are the most important skills that instructors try to teach their students?
- Where do students struggle the most in design education?
- How available are design instructors and how reliant are students on them?

Design Professionals

- How important is collaboration or peer interaction in a professional environment?
- Can peer-based learning in design education better prepare students professionally?
- What are the most valuable skills for emerging designers to possess?
- What strengths and weaknesses do professionals notice in entry-level designers?
Chapter 6
Methods—Research Summary

Summary of Research Methods

- Secondary Research
- Primary Research
- Summary/Documentation
- Research Models
- Prototype

Stage #1: Initial Exploration
Stage #2: Understanding Critique
Stage #3: Design Networks
Stage #4: Organization of Information
Stage #5: Prototype Ideation

1. Literature Review
2. Observations
3. Survey
4. Interviews
5. Journals
6. Initial Summary
7. Mock Critique
8. Card Sort
9. Comparative Analysis
10. Research Summary
11. Personas
12. Logic Models
13. Prototype Development

Figure 3: Longitudinal research projection model

A research plan was crafted to guide the research for this project. The research plan outlined the steps that would be taken and the type of information that was hoped to be gained. As the research progressed, it followed the model, but was adapted as well. Steps were added when necessary. The research itself was separated into five different stages. The full research plan can be viewed in Appendix B.

Stage 1: Initial Exploration

This stage was exploratory in nature. The goal was to research design education, issues that students face regarding critique, and understand what skills students need to become successful designers. This stage included a literature review, observations, interviews and student journals.
**Literature review**

The research process began with a literature review. It was hoped that this step would bring a broader and deeper understanding of the topic and the issues at play. During this phase, journals, articles, books, publications, theses, and case studies were examined. The topics explored included: purpose of a university education, how people learn, design education, studio experiences, critique culture and feedback, peer-based learning, teacher-student interactions, classroom participation, learning communities, communities of practice, prevalence of technology, generation Y, computer mediated communication, participatory culture, online learning communities and environments, and asynchronous learning environments. Overall, the purpose was to collect background information to bring clarity and preliminary understanding of important topics and issues related to this project from an academic viewpoint.

**Observations**

Primary research began with observations. Through the observations, it was hoped to gain an understanding of what is happening in design education during class, during critique, and while students are working on their homework. This step was meant to gather more information and check the assumptions made during the literature review. There were three different types of observations made during this process. The first series of observations took place during in-person design courses at various universities. The second series of observation took place through online design courses at Kent State University. The third series of observation took place during a program called AIGA mentoring.

In-person courses were observed at various universities for the purpose of triangulating the data. At least two design courses were observed at each university. These courses varied as did the levels of the students, including freshmen, sophomores, juniors, and seniors. Observations included courses with only graphic design students, interdisciplinary courses, courses where students worked on projects independently, and courses where students worked on projects collaboratively. Many different types of design courses with as many different design instructors as possible were observed. This was done in hopes of understanding the bigger picture of
students’ experiences while trying to eliminate issues caused by specific courses, instructors, or universities.

The specific courses observed by university are as follows. At Kent State University, observations included two freshman foundation courses, a sophomore typography course, and a senior interaction design course. Observations were also made during teaching assistant experiences with a sophomore level typography course and a freshman level foundation course. At Cleveland State University, observations included a sophomore introduction to typography course and a junior advanced typography course. At The Ohio State University, observations included an interdisciplinary sophomore design research course and a sophomore foundation course. At University of Cincinnati, observations included two junior collaborative studio courses. One course was collaborative with different designers while the other course was collaborative with students from other disciplines. In total, ten design courses were observed between those four universities.

The second series of observations took place during online classes that I taught at Kent State University. The first course was Basic Computer, a five week course taught during the summer semester. This was a foundation course in which students learn how to use InDesign, Illustrator, and Photoshop. Students had to complete a series of exercises as well as a few larger projects. Students were required to post sketches and drafts, and then comment and critique each other’s work. The second course was a basic design course for non-design majors. It was a sixteen week course during the fall semester. This was an elective course structured similarly to Basic Computer and included a series of exercises and a few larger assignments. Again, the larger assignments required students to post sketches and to comment and critique each others’ work. Both courses were taught using Blackboard. One was taught in Blackboard Vista, and the other in Blackboard Learn. Both Vista and Learn are similar when it comes to critique. Discussion boards were used to create the structure and house the critique.

In addition to observing design courses, AIGA Mentoring was observed as well. This program is run by AIGA Kent, a student run chapter of AIGA with a faculty advisor who oversees and guides the student board members. Every Sunday evening in the Kent State University art building, the AIGA Kent board members, juniors or seniors, are available to help students with
their homework. When students, typically freshmen, come for help with their homework they receive one-on-one help with their homework. They can sit in the classroom, continue doing homework, and ask as many questions as they want. This event was particularly interesting because AIGA Mentoring is a voluntary, peer-based learning program for design education that centers around critique. AIGA Mentoring is a supplementary method for students to receive critique and feedback on their design projects. Therefore, I attended a few sessions of AIGA Mentoring to observe and speak with the students involved, to learn more about the event and how students respond to it.

**Surveys**

Surveys were created to achieve three goals: test assumptions, gather participants for future research, and understand the issues from various perspectives. The surveys themselves were launched online via Qualtics.

Gathering contacts can be difficult, so the survey was used as a spring board for future steps of the project. The last question on each survey asked participants to leave their names and email addresses if they were interested in participating in future research.

Understanding issues from different perspectives became very important for this research. It was important to understand from student’s perspectives where they think they struggle, from instructors perspectives where they think students need the most help, and from professional designers what skills are most important to be successful professionally. Therefore, three different surveys were created. The first survey was created for design students. The second survey was created for design instructors. The third survey was created for professional designers.

Design students and instructors were contacted from the four different universities. Email addresses for the instructors were gathered from university websites, and the instructors were contacted via email. The email sent to instructors included an introduction about the researcher, information about the research project and its goals. The instructors were given a link to the instructor survey and asked to pass along a survey to their students. Contacts for professionals designers were found through LinkedIn and AIGA Cleveland. Local designers were contacted within the same geographical region as the students and instructors. Emails were sent
to the professional designers and included an introduction about the researcher, information about the research project and goals, and a link to the survey.

As the research progressed, it became clear that professional designers and design instructors felt that students do not understand the meaning of design. It was an oversight on my part that I never thought to ask students to define design. Once this realization was made, a second survey was sent out to design students through their instructors in the same way that the first survey was sent to them. The survey consisted of three questions: what do you think design is, what do you think designers do, and what skills do you think a designer needs to possess?

To view responses for the design student, design instructor, and professional designer surveys, please view Appendices C, D, and E.

Interviews

The goal of the interviews was to gain a deeper understanding of the topics from the three target audiences. Participants were gathered from the contact information provided from the surveys.

The interviewing process began by contacting professionals who left their contact information at the end of the survey. Three professionals were contacted and interviewed. These interviews took place in their perspective offices. Each professional worked in a different environment. The first interview was with the principal of a small business-to-business focused design firm. The second interview was with a graphic designer who worked in-house at a larger company. The third interview was with a graphic designer who started her own business and works with one other designer. Another contact was suggested during this interview, and this designer was approached and interviewed as well. In total, four professional interviews were completed. Professional interviews were stopped after four interviews because similar information was being repeated. It did not seem that there would be much more gained from additional interviews with professional designers.

Next, instructors were contacted for interviews. It was important to interview instructors from each of the four universities for variety. Collecting contacts for interviews worked differently than for professional designers. I had the good fortune that two instructors contacted me directly via email to discuss the project upon their completion of the survey. The first was an instructor at
University of Cincinnati who took a particular interest in the project because his program was trying to promote peer-based learning within their program. Following several exchanges via email, an interview was scheduled and conducted over the phone. Following that interview, a visit to University of Cincinnati was planned. During the visit, that instructor was interviewed, as well as other instructors.

The second instructor, from The Ohio State University, contacted me directly after the survey. There were a few exchanges via email, and then a visit was planned. During that visit, three instructors as well as the academic advisor were interviewed.

Contacts from Cleveland State University were collected prior to beginning this project since I completed my undergraduate degree there and knew them personally. An instructor at Cleveland State University was contacted, and a visit was scheduled. During the visit, two instructors were interviewed.

Similarly, contacts at Kent State University were also collected before the start this project since that is where I am currently a student. Four instructors were contacted and interviewed. At each university, at least one more experienced instructor and one less experienced instructor were interviewed. In total, eleven instructors and one academic advisor were interviewed.

Student interviews were conducted during visits at the various universities and were much less formal than the professional and instructor interviews. During visits, courses were observed. After observations, students were approached and asked a few questions. At least four students from each university were interviewed. At times, students were interviewed individually, but mostly students were interviewed in a group. There were times when an interview began with one student, and then students nearby joined in the conversation.

**Student Journals**

Often, there is information that gets left out of interviews, or cannot be observed. People have perceptions about how they act and feel even when it is not always true. To really understand how students act and feel during critique and working on their design homework, a journaling activity was employed. Small blank journals were given to students with instructions to record...
experiences with critique, in-class work sessions, working on homework, and similar activities. They were allowed to write about anything regarding their design process or design education. Fifteen journals were given to students at various levels within the design programs at Kent State University, Cleveland State University, and The Ohio State University. Students were instructed to keep their journals for two weeks, and then return them, but a mistake was made with regard to the returning system. Emails were not collected when students were given journals, so there was no way to contact students to get the journals back. Luckily, most of the journals were returned. Only four journals never made it back. Luckily, most of the journals were returned. Only four journals never made it back. Students wrote in the journals and drew pictures illustrating their emotions. These journals provide more accurate accounts of student behaviors and emotions since they journaled while they were still involved in the activity that they described. To view images and quotes from the student journals please see Appendix F.

Stage 2: Understanding Critique Methods

This stage focused more specifically on the act of critique itself. The goal was to understand how students go about critiquing work, and how the physical process of providing feedback on paper might be translated into a digital experience. This stage included a mock critique, and a card sort.

Mock Critique

Promoting peer-based learning in design education heavily revolves around critique and the ability to talk about and provide feedback on peers’ design work. To understand how students critique each other’s work, and what tools they need to effectively provide feedback, a mock critique was created. This exercise included only design students at Kent State University. It would have been ideal to include students from the other three universities as well, but this was not possible within the time-frame. Roughly fifteen students were involved. They were handed a few basic compositions, each having many design issues, so that they could easily be critiqued. Students were provided with a pen and were asked to show how they would provide feedback if their friend just handed them their composition, left, and was planning on picking it up later. This was meant to simulate how students would provide feedback in an asynchronous format. By having students write their comments and feedback on the sheets of paper, it was hoped that their

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comments would also help inform how to translate the mechanical method of physically critiquing work into an online, virtual process.

Card Sort

The card sort was used with the same pool of students as the mock critique and had nine participants. While some students worked on the mock critique exercise, other students were given a card sort. Students were handed a stack of note cards with name of tools written on them, one tool per card. The tools included were: text tool, comment below image, pointers/arrows, blank paper to draw on, highlighter, post-its, voice over, zoom, compare to someone else’s work, shapes, pencil, lines, marker, check mark, scissors, eraser/white out, and pen. Students were told to think about these tools like the tools in Illustrator. Therefore the pen tool would use bezier curves while the pencil tool would be more freeform. Because the list of tools was comprehensive, students were told that if they felt that some tools were redundant, they should disregard them and only rank the tools they felt were necessary. Students were asked to sort the tools from most helpful to least helpful for critiquing work in an online environment.

The data from the card sort was entered into a Qualtrics survey made specifically for the card sort. Images were taken of the students’ card sorts, and then manually entered into the survey afterwards. There were eighteen cards. Whatever students ranked as being the most important tool was given eighteen points, second important was given seventeen points, third important was given sixteen points, and so forth. Items that students took out of the pile as redundant or unnecessary were given a zero. Using this ranking system, Qualtrics was able to add everything together and sort items from the highest number of points to the lowest. Items that students ranked higher on the list of importance received a higher number ranking overall. In this way, the most important tools could become apparent.
Stage 3: Existing Design Networks

This stage consisted of a comparative analysis to discover what online resources are already available to students to show their design work and receive feedback.

Comparative Analysis

An important step in this study was to discover what design networks exist and are already available for students to use. To do this, a comparative analysis was created. During the initial stages of this project, a quick comparative analysis was completed to see if there were any sites...
that promoted peer-based learning that would fulfill the proposed goal of this thesis. Later in the process, a more thorough comparative analysis was completed. The goal of this comparative analysis was not only for peer-based learning objectives, but also for critiquing capabilities, and inclusion of students as opposed to strictly professional designers. Websites included in this comparative analysis were: Behance, Deviant Art, The Whole 9, Blue Canvas, Designe:Related, Portfolio Friend, Shown’d, Coroflot, Core77, Tumblr, Flickr, Pintrest, Instagram, Drop Box, Google Drive, Twitter, and Facebook. These websites were either mentioned during interviews or surveys with students, instructors and professionals or found through searches on the internet. Some of these sites are specific design sites, while others are general social media sites, sites for inspiration, or file sharing sites. To view a summary of the comparative analysis, please see Appendix G.

**Stage 4: Organization of Information**

During this stage, data was organized, sorted, and meaning was extracted. Personas were created as well as experience models to better explain the situation and data.

**Data Collection**

Summaries were not created for each individual observation, survey, interview, or journals. Instead, observations, surveys, interviews, and journals were broken down into data points. Each point was written down on a color-coded note card to keep track of what method recruited that data point to make triangulation of data easily visualized. When all the points were collected, they were sorted and organized, first by target group: student, instructor, or professional. Then, each group was broken down into smaller categories. Overlapping categories were found between the three target groups. This is how key findings were gathered. See Appendix H for a summary document of these data points.
After completing most of the primary research and organizing the information, personas were created to help organize research and make users, in this case students, seem more real and understandable. Five different types of students were identified. Each one is an extreme on a scale. While most students are likely a combination of a few personas or at times one persona and other times another, each persona exemplifies specific attributes of students as a whole that cover the entire range of possibilities.

Experience Models
Once personas were created, the next step was understanding the larger experience and where the various personas struggle. Breaking down the experience helps clarify which stages needs to be focused on for the prototype. In this project, the “Five E Experience Model” (Conifer Research, 2002) was used. The five E’s stand for: entice, enter, engage, exit, and extend. The first step was defining the experience of working on a design project in school in terms of the five E’s. Once the
experience was defined, two sets of models were created. The first set looked at specific topics and how each persona relates to those topics during each stage of the experience. The second set looks at each persona individually and shows how they respond to the categories from the first models during each stage of the experience. Decisions about placement for the personas during stages of experience were based on the primary research. The scale ranges from high to low. There is no quantitative data used in these models, but rather qualitative data was collected from the various research methods previously mentioned. In specific, the student journals provided a lot of insight for this process as did the interviews and observations.

**Stage 5: Prototype Development**

The fifth and final stage was prototype ideation. This stage explored possible design implications based on the key findings. Due to time constraints, the prototype was not created in a functional way, but was outlined and conceptualized in the form of detailed wire frames.

Key findings, personas, and experience models were used to reveal key areas of the experience that need to be targeted. All of this information outlined and dictated what needs to be addressed and what features need to be incorporated. Detailed wire frames were created as possible design solutions to be tested.
Chapter 7
Discussion of Key Findings

Stage 1: Initial Exploration
From all the observations, surveys, interviews, and journals, the following are the key findings that were discovered.

About Design Itself
Most students do not understand design. They think that design is about the end artifact and that it is a form of art. However, both instructors and professionals view design as a method of action. “Design is not a noun, it’s a verb,” stated one instructor. Design is less about the artifact and more about the process of problem solving and filling a need.

    Students, instructors, and professionals all agree that a designer needs to be imaginative and passionate, have a good understanding of design, possess good communication and time-management skills, and have the ability and drive to learn independently. Instructors and professionals added that designers must have confidence, be hard working, be able to work collaboratively, be able to self-evaluate and evaluate the work of others, and possess good critical thinking and analytical skills.

    Though it was not particularly relevant to my research questions, it kept surfacing that instructors and professionals both value internships. They think that internships help students to mature as people and become better prepared for a career in design. Students did not comment about internships.

Students Struggles
Students, instructors, and professionals all agree that students struggle with time-management, motivation, and confidence. Students procrastinate a lot, and have difficulty with personal responsibility and taking initiative. Students do not value the struggle in learning and tend to give up or procrastinate when things get difficult. The process of learning requires struggling, however, most students do not expect to struggle. When things get difficult, they want to give up. Additionally, students do not typically have the most effective workflow or design process.
Students, instructors, and professionals all know that students struggle with ideation, are afraid of making mistakes, uncomfortable with exploration or experimentation, and tend to cling to their first idea thinking it is their best idea. Students are often afraid to try new things. They do not understand that sometimes one needs to fail in order to succeed. Additionally, students often do not know where to turn for help or where to look for inspiration. Both instructors and professionals think that inspiration is important and students should learn to use it properly.

Students expressed that they experience a great deal of stress. This can be the result of poor time-management skills, inefficient workflow or design process, lack of confidence, fear of making mistakes, or poor understanding of the expectations. Whatever the reason for the stress, instructors and professionals think that learning to cope with the stress and not letting it interfere with one’s work is important.

Both instructors and professionals believe that visual, verbal, and written communication skills are imperative for designers to master. They both think that students generally have weak communication skills and need to learn to explain their rationale for design choices and learn to use design terminology.

*Peer Interactions*

Many students work alone, but form peer groups as they progress through the program. It takes time for students to build trust and to feel comfortable reaching out to their peers. Both instructors and professionals think being able to work and communicate with peers is important and that everyone gains something from peer interaction. “Students should be encouraged to seek help and learn from others while also inspiring confidence in their own strengths” (Conanan & Pinkard, 2001, p. 7). Designers often rely on their colleagues’ expertise.

Additionally, many professionals and instructors think that joining a design community, like AIGA, is important since it helps designers build relationships, network, learn from others, and find inspiration. Some students join AIGA and like feeling part of a community, but many students find AIGA too intimidating, and therefore, do not participate or join.
Homework

Most students work on their homework alone in their homes. Some students work with peers in dorm lounges or in the art building. Many students get stuck or frustrated while working on their homework and will give up and leave it to discuss in class. There does not seem to be a good way for peers to reach out to one another outside of class or meeting with peers in-person. Instructors encourage students to work together, but recommend that students who are struggling come see them during office hours or meet with them before or after class.

Technology and Social Media

College students today have “grown up never knowing a time when the internet did not exist or that certain technologies such as smart phones, digital cameras, blogs, and wikis were not always a part of mainstream society” (Cope & Kalantzis, 2009, p. 94). Eighty to ninety percent of college students use social networking sites and have a profile on at least one site. Students spend four or more hours a day on their computers and check their social network accounts multiple times each day. Social networks have a tendency to bring people and social groups together that might never meet in real space. Through these sites students have the opportunity to engage in peer-to-peer discovery and create “shared definition of meanings through collaborative, conversational interaction” (Cope & Kalantzis, 2009, p. 39). This allows students with different levels of expertise to mingle, learn from, and teach each other. Students have the opportunity to access and learn from students who are in different geographical locations.

Online Academic Environments

Students like online environments for the ease of access and convenience they provide. However, the lack of interactivity and connectivity in current online classes creates negative feelings towards these environments. Instructors think that these sites provide good opportunities for reviewing notes and comments, viewing inspiration, and allowing shy students to participate. However, these sites are mostly used by the instructors and not the students. Students generally use these sites to satisfy the minimum requirements of the course.
Role of Design Instructors

Everyone agrees that it is the job of the instructor to help students understand principles and concepts through critique. Professionals, however, think that critique becomes a crutch and that students wait for the instructor’s approval and do not learn to take initiative, self-evaluate, or ask others for feedback.

Everyone agrees that the instructor generally runs critique and offers the most feedback. Some students feel uncomfortable and self-conscious during critique and do not know what to say. Students do not want to give other students more work, and therefore, withhold comments or suggestions. In general, students are not accustomed to formally evaluating one another. Instructors and professionals think that students need to learn to be intelligently critical and give feedback. Additionally, students do not always receive feedback well. They get offended and need to learn to accept and grow from constructive criticism.

In-Class Critiques

Students value critique and the clarification it provides. By participating in critique, students learn design principles, understand project objectives, notice what is or is not working with their project (learn to self-evaluate), and become inspired and push themselves to improve their work and critiquing skills.

Both students and instructors think that students benefit from a large group critique. When students see everyone’s work at once, it is easier for students to notice what elements work and where their project stands in comparison to the group. It can be motivating. However, some students become overwhelmed by the amount of information and feedback, and fear being judged in front of everyone which causes anxiety.

Students and instructors see value in small critiques as well since they allow students to have more individualized attention. It is also easier for some students to process information and feedback when it is coming from fewer people. Additionally, students think that people are more open and honest in a smaller group.

Students today desire a lot of personal attention. Students tend to be unmotivated and want to be shown how to do things instead of exploring and figuring things out for themselves.
Some students complain that they do not receive enough feedback, but students display many bad behaviors that can inhibit their learning during critique. Students check their phones, have side conversations, and come and go during class. Also, many students do not take notes. All of these factors cause students to miss information. There can also be issues with the classroom itself, which can make it difficult for students to hear the feedback being given. Additionally, Critiques are often very long and students lose focus. Even though critique is long, there are times when instructors run short on time and must rush through the end of critique.

**Stage 2: Understanding Critique Methods**

*Mock Critique*

Students used straight lines, dotted lines, organic lines, arrows, brackets, circles, boxes, exes, small sketches in the margins, and text to provide feedback. Students commented on specific elements as well as overall compositional issues. One student numbered his comments, and another used bullet points. This provided insight into what tools students would need to critique work, and was helpful for thinking about how to translate this experience into a digital one.

*Card Sort*

The ranking from the card sort revealed which tools students thought were most necessary for critiquing design work online. The ranking of the tools from most important to least important is listed below as well as in figure 5:

1. Text tool
2. Comment below image
3. Pointers/Arrows
4. Blank paper to draw on
5. Highlighter
6. Post-its
7. Voice over
8. Zoom
9. Compare to other work
10. Shapes
11. Pencil
12. Lines
13. Marker
14. Check Mark
15. Scissors
16. Eraser/white out
17. Pen
18. Paintbrush
It was surprising to see lines so low down on the list, but perhaps students prefer arrows. Maybe that could be one tool and the arrow heads can be added or subtracted. The placement of voice over was interesting. Some students put it near the top of their list while others put it rather low. Another surprise was check marks. Maybe some students thought that that only meant check marks and not also exes as well, or maybe they thought that it was included with shapes. Many students used these kinds of marks when they critiqued the composition during the mock critique. Another interesting point was that students seemed to prefer the pencil tool over the pen tool. This information helped reveal what tools students think they need for critiquing work.

**Stage 3: Existing Design Networks: Comparative Analysis**

One of the most interesting interviews that I had was with a sophomore design student at The Ohio State University. I asked her to describe a time when she got stuck on her homework and describe how she moved passed it. She replied by telling me that she does not experience issues
with her homework. I was shocked. How does a sophomore design student not struggle with homework? I questioned her and asked if it was really true that she never experiences difficulties with her homework. Then she explained that her class had a private Facebook group. When she has trouble, she posts to that page and within five minutes she has a response. She explained that students are always on Facebook and therefore, someone always responds. Whether it is during the day, during class, or at night, people are always on Facebook.

This interview revealed that when students feel that they have an outlet or way to solve an issue, they do not even perceive the situation as a problem. Students are constantly on their computers and many of them check their social media accounts multiple times a day. A design network seems to be a viable solution to help students to reach out to their peers for help with design work.

There are many design networks that currently exist. A comparative analysis was created with various sites to analyze their functionality. Many of these sites allow designers to create portfolios or post their work. However, it seems that the majority of these sites target professional designers looking to show off or promote their work. Most of these sites have discussion boards, blogs, and job postings as well. For students, these sites may be intimidating, and definitely do not fit their needs for feedback. On the majority of these sites, if feedback or comments are given at all, they often just congratulate or pat the designer on the back. No real critique or feedback is being given. Additionally, the critique format is usually just a comment box below the images. There is no meaningful way of providing critique even one wanted to.

During student interviews, students expressed that they currently use Facebook groups as well as Dropbox and Google Drive to share files with peers. These were examined to see what features might be incorporated into a prototype. It seems that while there are many great websites in existence, there is no one website that students use to find inspiration for projects, share files with peers, ask for help or feedback, and provide feedback to their peers. I was unable to find a design network whose main focus was to provide designers with critique and feedback on their work. It seems that that goal of most design networks is to let designers present their portfolio work to find a job.
Stage 4: Organization of Information

Personas

Five personas were created to represent five extreme aspects of design students who would be potential users of the prototype.

Marci is a highly motivated and successful student. At times she doubts herself and her work, but has a positive attitude and looks for ways to succeed. She takes advantage of opportunities offered, is organized, and stays on top of her work. Marci is proactive, seeks extra help when needed, and reaches out to those around her. She often comes early to class and stays late. She usually works independently, and tries to get as much work done during class as possible. She uses her time effectively and tries to get as much feedback as possible. She will ask her peers for feedback. She appreciates critique, and looks forward to the receiving feedback. After critique, she feels validated and knows where to improve. Marci takes good notes during critique so that she can remember things later. When she participates during critique, she has good feedback to offer. However, she is often shy and quiet.

Kayla is a highly motivated student, but not terribly successful. She is confident and always expect to do better than she actually does. She has a decent attitude, and tries very hard. She can see the strengths and weaknesses in other student’s projects, but has difficulty applying concepts to her own work. Kayla often tries to seek extra help. She comes to class on-time, and stays for the entire class. She tries to use her time effectively, and works during class. Kayla likes to offer feedback to others. She always participates during critique. However, she becomes extremely frustrated that she can see what works in other students work, but cannot make it happen in her own. She also becomes very frustrated with the lack of positive feedback on her own work despite the hard work she does.

Figure 7: Persona 1, Marci (drawing created by Aliza Donath)

Figure 8: Persona 2, Kayla (drawing created by Aliza Donath)
Dan is a mediocre student who is somewhat motivated and successful. He has a decent attitude, though he sometimes feel indifferent or discouraged. He prefers to work alone. Dan procrastinates and underestimates how long assignments will take to complete. At times, he completes assignments in advance, while other times he races to finish them. While working on homework, Dan often becomes frustrated, gives up, and passively waits until the next class for help from his instructor. He often comes a few minutes late to class and leaves at the very first opportunity. He does not usually use his time during class effectively, and will talk to those around him about non-class-related topics. Dan will occasionally ask for feedback and discuss his work. He is interested in critique, but typically sits quietly. He pays attention, but does not often participate. Dan is usually unsure of what to say or what feedback to offer. He often does not ask questions for fear of looking stupid.

Figure 9: Persona 3, Dan (drawing created by Aliza Donath)

Ryan is an unmotivated but successful student. He relies on talent and the ability to work quickly. He is very confident and a little arrogant at times. He does not have the best attitude and can be haughty at times. Everything comes a bit too easy for him and he does not have to work hard to produce decent results. He underestimates how long assignments will take to complete. He does not always complete his work, but what he does complete is good. Dan misses a lot of class or often comes late. He does not usually do much work during class, but sometimes does work for a different class. He often distracts those around him and talks about non-class-related topics. When he is present, he has good feedback to offer during critique and is more than happy to offer his opinion.

Figure 10: Persona 4, Ryan (drawing created by Aliza Donath)

Sam is an unmotivated and unsuccessful student. He is a confident person in general, but not about his school work. He has a bad and bitter attitude about his design work. He underestimates how long his assignments will take to complete, and often waits until the last minute to do his work. He has serious issues with procrastination. He does not typically reach out for help or seek extra feedback on his work. He misses classes, often comes late, or leaves early. He does not typically do much work during class, and often talks to those around him about non-class-related topics. Sam does not pay attention during critique. During critique, he often plays with his phone or talks with his friends, distracting those around him. He does not take notes and therefore cannot remember any feedback given during critique.

Figure 11: Persona 5, Sam (drawing created by Aliza Donath)
Experience Models

The “Five E Experience Model” (Conifer Research, 2002) was used to break down and explain the experience. The five E’s stand for: Entice, Enter, Engage, Exit, and Extend, and can be used for any experience. For this project, the overall experience being examined was the experience of working on a design project in a university setting. The breakdown of the experience into the five E stages is as follows:

- **Entice** is the stage where Students are being enticed to begin a new project. A new assignment is given together with instructions and objectives.
- **Enter** is beginning the process of ideation and sketching. It is the beginning of a new stage, step, or section of a project.
- **Engage** is working on the bulk of a project. This includes homework, classroom critiques, and work in class sessions. The most time during a project is spent in this stage.
- **Exit** is the final stage of a project. Students are finishing up their projects and preparing to hand them in.
- **Extend** is when students receive their grade and feedback about their overall project. It is the final connection to a project, and can be motivating or discouraging for future projects.

The first set of models looked at specific topics and how each persona relates to those topics during each stage of their experience.
PROCRISTINATION

While each persona varies from stage to stage in the experience, there is a noticeable trend. Most students procrastinate more as a project progresses, but then finally buckle down and do their work near the end when the deadline becomes eminent.

Figure 12: 5 E Experience Model, personas' levels of procrastination

PERCEIVED UNDERSTANDING

Things vary from persona to persona, but there is a clear trend. Most students' level of perceived understanding of a project and design goes down during the initial stages of a project. When they first begin working, they become confused and doubt themselves. For most students, as they progress, their perceived level of understanding increases. Students who are unsuccessful or think they know more than they do, lose perceived understanding and realize there is more that they don't know than they originally thought.

Figure 13: 5 E Experience Model, personas' levels of perceived understanding
STRESS LEVEL

HIGH

MEDIUM

LOW

ENTICE ENTER ENGAGE EXIT EXTEND

Students’ stress levels all rise during enter when they first begin working on a project and at the end of a project as they approach the deadline. Students who are motivated and successful, become less stressed throughout the project, whereas less motivated and less successful students become increasingly more stressed.

Figure 14: 5 E Experience Model, personas’ levels of stress level

CONFIDENCE

HIGH

MEDIUM

LOW

ENTICE ENTER ENGAGE EXIT EXTEND

Confidence fluctuates throughout the experience. Most students lose confidence at the beginning stages of a project and again towards the end of the project. Students start to understand more and receive more positive feedback as they begin to succeed with their work. Some students lose confidence throughout this process because they do not succeed, or do not work hard enough. From speaking with students and reading the journals, it is clear that positive feedback is directly linked with confidence.

Figure 15: 5 E Experience Model, personas’ levels of confidence

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It seems that stress is directly related to procrastination and perceived level of understanding. Since students’ stress levels rise from Entice to Enter, and perceived level of understanding generally drops, it would appear that students might be stressed since they do not understand and are confused by the assignment. A lack of understanding can lead to procrastination as students are unsure of what to do or how to proceed.

The first set of models, show where each persona falls by topic, but I wanted to learn more about each persona individually. Therefore, I ran each persona through and ranked the topics by stage in the experience specifically for that persona, hoping it would tell a bigger picture.

Figure 16: 5 E Experience Model, Marci’s experience

*Marci works hard and procrastinates very little throughout her process. As a project progresses, her level of confidence and level of perceived understanding increase, while her stress level drops. Her biggest area of concern is during enter when her stress level and procrastination rise slightly, and her perceived level of understanding drops.*
**KAYLA**

Kayla begins with high confidence and perceived understanding. As the project progresses and she sees that she is not as successful with her work as she would like, she becomes stressed and procrastinates more. She begins to realize that maybe she does not know as much as she thinks she does. Her confidence sinks and her stress rises.

*Figure 17: 5 E Experience Model, Kayla's experience*

**DAN**

Dan procrastinates with his work, which causes him a great deal of stress. He has low confidence, but it builds throughout the project as his perceived level of understanding increases. Dan struggles in the beginning stages of a project, but seems to pull it all together in the end.

*Figure 18: 5 E Experience Model, Dan’s experience*
Ryan has very high confidence and thinks that he knows a lot. As a result, he procrastinates heavily in the beginning stages of a project. His stress level is very low until the deadline approaches. Then, his procrastination is put on hold and he does his work.

Figure 19: 5 E Experience Model, Ryan’s experience

Sam procrastinates heavily throughout the entire process. Therefore, his level of understanding does not build because he does not put effort into his work. His confidence is low and only becomes lower as he does not receive positive feedback on his work. His stress level rises as the deadline approaches and he realizes that he will not succeed.

Figure 20: 5 E Experience Model, Sam’s experience
Summary of Experience Models and Personas

After looking through these models by topic and by persona, it became clear that students are struggling the most during initial stages of a project and again at the end as they race to finish a project. I believe that if students could get off to a better start with their projects, they would not be racing to the finish as much. There will always be issues with procrastination, but if something can be done to help alleviate students’ stress during the initial stages, help them to build confidence and perceived understanding, they could get off to a better start and perhaps be happier and therefore more motivated to work on a project. There were many times that I heard students say that they did not know where to begin, so they just left it for a few hours or days. I think perceived level of understanding upfront with a project is crucial.

I do not believe that the solution needs to target Marci or Sam. Marci is a hard working and successful student. She wants to use any tool that will help her succeed. She is already successful, and while she struggles at times, she has found ways to overcome her challenges. The same can be said for Sam, the opposite extreme. He is not motivated or successful. Chances are, even if a tool was created to help him, he would not take advantage of it. There is probably nothing that can be done to help him be motivated to succeed. Chances are, he is in the wrong major or not interested in putting in the time or necessary effort.
Chapter 8

Possible Design Application of Key Findings

Prototype Development

The functions and capabilities of the prototype need to focus on the needs discovered through the research. The experience models show that most students struggle during the beginning stages of projects, which prevents them from keeping up with their work load initially. The factors that seem to affect students most were procrastination, perceived understanding, stress, and confidence. These factors are really all intertwined and interrelated. It seems that perceived understanding drives the experience. In the beginning stages of a project, students have low levels of perceived understanding and their confidence becomes low since they do not understand. Then students procrastinate since they do not know how to proceed or underestimate the time needed to complete the project. Therefore, students become stressed since they do not see results. To address these issues as well as other issues discovered through the primary research, there are four proposed aspects of the prototype: community, time-management, inspiration, and critique.

Building a Community

Defining the Problem

One reason that students procrastinate is due to a lack of understanding. Most students' levels of perceived understanding decrease during the initial stages of a project. When they first begin working, students become confused and doubt themselves. As they progress with the project, most students’ perceived levels of understanding increase. Because of this, students often get off to a slow start as they are unsure how to begin. If students felt that they were part of a community and felt comfortable approaching their peers, they would have a system for asking for help much sooner in the process, and not fall behind due to this lack of understanding.

Design students experience high levels of stress. Stress was a topic that surfaced many times, especially in the student journals. One student wrote, “Thinking about our current project just gives me anxiety.” Another student wrote, “My stress level is at an all time high! This second part is difficult, I don’t understand, and I need help.” Students experience a high level of stress at the beginning stages of assignments, especially when they do not understand what is expected.
from them. Students expressed frustration with not understanding their instructor’s expectations. One student wrote in their journal, “I HAVE NO IDEA WHAT SHE WANTS...It seems like whenever we ask questions, the answers end up adding to our confusion even more...the feedback was pretty ambiguous.” If students had a way to reach out to their peers, they might be able to relieve some of their stress, partake in a supportive environment, and discuss points of confusion with their peers.

Additionally, there is benefit to be gained from students communicating and interacting with peers at different levels. Many instructors thought that older students interacting with younger students was beneficial for everyone involved. During my visit to The Ohio State University, an instructor stated that the junior and senior level studio spaces are combined into one space. He explained that it was helpful for the juniors because they had access to more experienced students who could help them. He also explained that it was beneficial for the seniors to be able to explain design. Additionally, the juniors worked hard aspiring to be like the seniors and that the seniors were motivated by the juniors to work even harder so that there work would be better than the juniors’ work. There are benefits for creating a community where students of all levels can interact with one another.

Many design students expressed concern with reaching out to their peers. There were two major reasons given: either students did not feel comfortable approaching their peers, or students were too embarrassed or afraid of looking stupid. One student wrote in his journal, “I didn’t ask opinions of my peers because they all seemed pretty into their own work.” During an interview, one student told me that, “I never thought once to talk to a peer if I had questions. It felt almost like an unspoken rule. Like, you figure it out yourself or you don't figure it out at all.” Another student wrote in her journal, “I should get input from my peers, my classmate, but I’m too afraid of coming off as not knowing enough about design and perhaps not worthy of being in the program.” There is a lot of pressure that students put on themselves, and they become intimidated or embarrassed to approach a peer for help.

Interviews and secondary sources in the literature review revealed that people have lower entrance barriers online, and therefore might be more willing to put themselves out there and approach peers for help. Interaction online seems less real to students and they are therefore
willing to be more open than they would be when speaking with someone in person. It is interesting to note that in the surveys, interviews, and journals, the majority of students said that they prefer to contact their peers in person, but when asked what they do when they need help with homework, more students said that they reach out to a peer online than in person. During a visit to The Ohio State University, I noticed that their sophomore class of eighteen students all share a private Facebook group. They use the space to upload their work, ask for feedback, clarify assignments, as well as other social non-design related items. They see each other every day in class, but multiple people in the class said that they prefer to ask questions through the Facebook group instead of in person. This shows that students will use an online environment to ask questions rather than in-person discussions. Either way, providing students with a way to connect with peers online, perhaps peers that they will never see in person, would provide students with an opportunity to feel comfortable approaching and asking for help or feedback from their peers.

Design instructors, as well as professional designers, think that it is important for design students to be part of a design community. Something notable in the student interviews and journals was that students who contacted other design students for help on a regular basis or felt that they had a community to rely on, seemed far less stressed and expressed fewer issues with their work. A digital design student community could be very beneficial for students.

*How the Prototype Can Help*

The community aspect of this prototype needs to promote interaction in a way in which students will feel comfortable. It needs to be a space where students feel that they have a supportive community and will not be embarrassed to ask questions or show their work. This space should be a social environment, however, its primary focus should be on educational goals. The format of environment should promote and encourage helpful and thoughtful discussions between students. The model for the community aspect would incorporate ideas from communities of practice and learning communities. The social components keep people interested and involved, but with an educational goal.

There would need to be different options for creating the community. All students would be required to have university email addresses and prove that they are design students. It needs to
be an exclusive environment only for design students in order to build a community of practice. Students should be able to connect with design students currently or previously in the same course at the same university, design students in a similar course at a different university, and any design student regardless of courses or level in the program as long as they have not yet graduated. Students need the option to connect with students that they do not know since they might be less intimidated or embarrassed to ask questions to people that are not in their classes. There would need to be adjustable security settings so that students feel comfortable and safe in the environment.

### Crit-Chat

<table>
<thead>
<tr>
<th>Recent Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jerome Smith</td>
</tr>
<tr>
<td>Kent State University</td>
</tr>
<tr>
<td>Introduction to Typography Project #2: Page layout using an image and type</td>
</tr>
<tr>
<td>Katie Johnson</td>
</tr>
<tr>
<td>Kent State University</td>
</tr>
<tr>
<td>View more</td>
</tr>
</tbody>
</table>

**Importance of Web Design**

Sitem et quae vellicita aliquam mino assein rempep spedit que plam que optati del magiportin assein recursquu solupra test faculti cert to et et ipci trecit unaceat aliquam mino exsasquie am amandia, si rerum autem eae et dolupra sperfesum...

**Brainstorming 101**

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**Creating Better Concepts**

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**Figure 21: Crit-Chat home page**
**Time-Management**

**Defining the Problem**

Most students procrastinate more as a project progresses, but finally buckle down and do their work as the deadline approaches. There are many reasons why students procrastinate. One major reason for procrastination is that students struggle to manage their many responsibilities. One student wrote in her journal, “I regularly feel frustrated by the fact that I have to work so much to pay bills and that affects how creative I can be on a project due to time constraints.” Another student wrote, “I procrastinated on the second part of this project...and now that I have a job, I’m
not sure if I’ll have enough time to do this.” Students have a lot of responsibilities, and struggle to find the time to do everything. Additionally, students often underestimate how long a task will take them to complete. One student wrote, “After two hours, I would really have liked to have more done.” Students often think that they have more time than they actually do, and therefore push things off until the last minute. Students, instructors and professionals all noticed and mentioned that students struggle with time-management. They all feel that this is an important skill to master in order to be successful professionally.

_How the Prototype Can Help_

This prototype would include a time-management feature to help students manage their time more effectively. While there are different possible ways to approach this issue, a tool that would help students to plan their time more effectively and visualize their time is suggested. This tool would allow students to enter their work schedule, class schedules, assignments, due dates, and personal commitments. At the start of each semester the site would ask students to input this information, but students can add or edit their schedule at any time. Then a calendar would show students what their schedule looks like, when they have free time, and when their assignments are due. This calendar can be exported or shared with the student’s computers or phone calendars. Additionally, on the home page, a to-do list would be displayed showing upcoming assignments.
Users can browse their schedule one week at a time, arrows switch between weeks.

This calendar can be exported or shared with the user’s computer or phone calendars.

Users can edit their schedules by using the button or clicking on the calendar itself.

Users can view their calendar and schedule by day, week, or month.

Users can view and edit class and homework details by clicking on a course.

Homework can easily be viewed at the bottom of each day, color coded by course.

Figure 23: Crit-Chat calendar page.
1. Users can add a new course or job to their schedule at any time
2. Users can edit a course or job at any time

*Figure 24: Crit-Chat edit calendar page*
<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 am</td>
<td>DUE: 15 Math Problems, 15 Math Problems Notes</td>
</tr>
<tr>
<td>7 am</td>
<td>DUE: 3 Layout Variations, 20 Pages of Reading</td>
</tr>
<tr>
<td>8 am</td>
<td>DUE: Intro to Type, Intro to Type, Intro to Type</td>
</tr>
<tr>
<td>9 am</td>
<td>DUE: 3 Revised Layouts, 3 Revised Layouts, 3 Revised Layouts</td>
</tr>
</tbody>
</table>

**Introduction to Typography**

**Due Today:**

1. 3 layout variations for project 1, part 1. Try as many different things as possible, but only print out the best 3.

**Tonight’s Homework:**

2. Enter homework here...

**Due Date:**

3. [Date]

---

1. Users can edit what is due by clicking on “Due Today”
2. Users can edit tonight’s homework by entering it into the text box
3. Users can set a due date for homework which will then show up on the correct day in the calendar

*Figure 25: Crit-Chat add/edit assignment page*
Schedule component lets users see their schedule and what homework they have

Users can view and check off their upcoming homework assignments

**Figure 26: Crit-Chat home page**

**A source of Inspiration**

**Defining the Problem**

Not only can a community help students get off to a quicker start on their project, but inspiration can help as well. As stated earlier, many students procrastinate during the initial stages of a project. One student wrote, “As suspected I got nothing done today. I just sat around surfing the internet.” Another student wrote, “So I’m looking at this again, not sure what I want to do. Procrastination seems to be settling in.” A third student wrote, “Well, it’s almost 10pm, and I have yet to even start [homework]. It seems I really need to work on this procrastination habit...damn Stumble Upon.” These quotes are endless. So many students expressed that they procrastinate while trying to begin their homework. Often, Students admitted that they waste time surfing the web. One student wrote, “I looked at tumblr and YouTube for a while. I’ll work in VCD later.”
Since students already spend much of their time on the internet, it would therefore be ideal, for the prototype to be a website that students could browse while procrastinating, but then lead them to do their homework or at least get inspired to work on their homework.

Students struggle to find inspiration and use it properly, but inspiration can help students to think in new ways. Inspiration not only helps motivate designers, but can also provide clarity about what good design is or what the assignment’s goals are. Instructors and professional designers think that inspiration is important in the design process and listed websites as a top source for inspiration. Additionally, there is a misunderstanding among students about what design is. Having a section of inspiration could help clarify for students what design is all about.

*How the Prototype Can Help*

Students often gain clarity by looking at other students’ work during critique. It would be helpful to mimic this process in the prototype, and include student work from other courses as well. Additionally, there should be a section for inspiration that includes professional design work and related design articles. Some of the work would be posted by the people managing the website, but most of the work should be posted by the students involved in this network. The articles however, should mostly be posted by the people managing this site. It would be ideal for instructors and professional designers to write short articles that are specifically relevant to design students. This section should be searchable and organizable media type. Additionally, students should be able to comment on work and articles as well as share items with their friends.
Users can type in keywords that will pull up photos, videos, or articles with those tags

Users can filter the search by type of media (posters, packaging, animations, articles, etc.)

Users can click on an image to see it bigger, comment, and share it

Users can click on article headlines to read the entire article and share it

When users mouse-over an image, information and number of comments and likes can be viewed

*Figure 27: Crit-Chat inspiration page*
Critique Environment

Defining the Problem

There are flaws with in-class critique such that students feel that they do not receive enough feedback or cannot remember what was said later. One student wrote in her journal, “For such an extensive project, I was disappointed I didn’t get a lot of feedback.” Another student wrote, “I forget what the professor and class say.” Many similar comments were made during interviews as well. Students also complained that in-class critiques can become too overwhelming. One student wrote, “There are too many voices and it gets confusing.” These issues with in-class critiques leave students feeling confused and stressed. It would seem that a supplementary method for receiving...
feedback on their work would be helpful. When students are provided with enough feedback, they feel less stressed since they know how to proceed. Obviously students like hearing compliments on their work, but students know that their work is not perfect. They are happy to hear constructive feedback so that they can improve. One student wrote in her journal, “Happy I know what needs improvement.” Another student wrote, “It felt good hearing suggestions and being able to implement them.” Students want honest and actionable feedback.

Another reason for providing students with a supplementary critique environment is to help students learn how to critique, self-evaluate work, and communicate about design. Ninety-six percent of professional designers who took part in the survey thought that entry-level designers should be able to self-evaluate their own work and evaluate and offer feedback on their peers’ work. Eight out of twelve instructors from the survey thought that peers can sufficiently help one another, and the other four said they were unsure. Not one instructor said that peers cannot sufficiently help one another. All respondents said they encourage students to form peer groups, work together, and provide one another with feedback. Most instructors thought that when students work together outside of the classroom they perform better in class and participate more often with better comments. The student survey revealed that one of the biggest issues for students during critique is that they are afraid of saying the wrong thing or do not know what to contribute. Instructors and professionals think that communication is key. Many students complained that the feedback they receive during critique is often too vague or unhelpful. One student wrote in her journal, “I feel frustrated with people blurting out ‘I like’ or ‘I don’t like’. Tell me why and actually make yourself useful.” It seems that students need a way to practice and improve their feedback and critiquing skills. The only way to improve one’s critiquing abilities is by doing it more often. The more one practices, the better one gets. One student wrote in her journal, “When I critiqued their work, I could better see where I might improve.” This environment would provide students with the opportunity to communicate about design and improve their critiquing abilities.
How the Prototype Can Help

The critique environment would need to supplement what is already happening in the classroom. The instructor-student relationship is important and should not be replaced. That relationship should always exist. Instructors have knowledge and experience to share with their students. However, students tend to become too reliant on their instructor’s feedback. This environment can provide an opportunity for students to learn to voice opinions and take their peer’s suggestions into account.

Some students prefer large group critiques, while others prefer small group critique. Some students enjoy large amount of feedback from many different people, while other students prefer the feedback of one or two close peers. In this prototype, both methods of critique would be incorporated. There would be a public way of sharing work with everyone, and more private and controlled way of sharing work with selected peers. This would somewhat mimic the Facebook model of posting on a wall, which is public for all friends to view, and messages where only specific invited people can view it. Students would be able to create groups and share work specifically with them, similar to Google+. There would be a need for different levels and options for students to chose from since students have different comfort levels and needs.

This prototype would also need to help guide students to provide useful and helpful feedback. The format for submitting work would prompt students to ask specific questions that they have on their work, and help guide students to answer and provide useful feedback. It would not be so limiting as a question-answer format, but there would be tools to help students critique the work. Additionally, peers would be able to comment and critique on top of the work as if they were using digital tracing paper. There would be a way to pick and choose which comments to view. Students would have a series of digital tools at their disposal to use to mark up the composition online. All comments would be written down and students would have the ability to review and compare comments. This should help students to think through their choices and consider more possibilities.
Innovators in Graphic Design

Three American Greats

“A good designer has to be, by nature, a student and an experimenter—constantly trying to find new tools for expressing his ideas, as well as new inspiration for the restocking of his creative potential.”

With a degree in art history, Beall was primarily a self-taught graphic designer. Extensive reading and a curious intellect paved the way for his professional career. He broke traditions of American advertising layout through the use of strong, direct visual forms and a randomly intuitive process. Beall admired the bold form of wood type lettering and he often incorporated this into his work.


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**Figure 29: Crit-Chat upload design work page**

1. Users can select a file to upload to create a new critique
2. A preview and status bar are shown as the document uploads to the site
3. Users provide information about the project such as university, course, project name, and keywords
4. Users provide information about they type of feedback and critique they are looking to receive
5. Users select the audience they want to participate and view their critique
Innovators in Graphic Design
Three American Greats

“A good designer has to be, by nature, restocking of his creative potential.”

Beall admired the bold form of wood type lettering and he often incorporated this into his work. Extensive reading and a curious intellect paved the way to his professional career. He broke traditions of American advertising layout through the use of strong, direct visual forms and a randomly intuitive process. With a degree in art history, Beall was primarily a self-taught graphic designer. Extensive reading and a curious intellect paved the way to extensive new colors. Beginning in the printing and type trade, Beall mastered complex organization, form, and visual imagery from letterpress plates to bring graphic and symbolic power to the page. Thompson used variations, which is a question of curiosity. I arrive at different conclusions—some just slight variations, others more radical—of an original idea.

Project 2: Page Layout
Kent State University
Kinetic and Sequential
Mary Ellen

Project 2: Page Layout
Kent State University
Introduction to Typography
Project 2: Page Layout

Project 2: Page Layout
Kent State University
Introduction to Typography
Project 2: Page Layout

Users can search for projects and critiques by keywords
Users can search for projects and critiques by university
Users can search for projects and critiques by course name
Users can search for projects and critiques by project name
This bar keeps bread crumbs of what was used in the search
My Active Crits compiles all the crits that you started or commented on
Users can create begin a new critique by clicking on the “Start a new critique” button
Users can see the number of new comments and view them by clicking on the button or image
When users mouse-over a project, they can view information about it and the number of comments

Figure 30: Crit-Chat studio page
Figure 31: Crit-Chat project critique page, all comments hidden
The first two comments is now turned on and the virtual tracing paper is now viewable
The second and third comments are turned off and now their virtual tracing paper is hidden

Figure 32: Crit-Chat project critique page, one visible comment
This is the work being critiqued

Past iterations are kept within the critique and can be viewed by clicking on them

This is the feedback that the host of the critique is hoping to receive

Users can join this critique and add comments by clicking on the “critique this project” button

Users can turn comments on and off by clicking on the eyeball. This acts like virtual tracing paper

Users can view a project that has been compared to this project by clicking on the thumbnail

Users can listen to recorded feedback from another user by pressing the play button

**Figure 33: Crit-Chat project critique page, two visible comments**
Figure 34: Crit-Chat add critique and comments to a project with the necessary tools.

1. Magnifying tool to zoom in on work
2. Text tool to type comments directly on the work
3. Post-it tool to place a small field of color to write or draw on
4. Arrow and line tool to create arrows and lines directly on the work
5. Pencil tool to draw free-form on the work
6. Highlighter tool to highlight something on the work
7. Stamp tool to place predetermined shapes such as checks or exes on the work
8. Recording tool to record your comments orally
9. Black sheet of paper to draw on to suggest something to the person whose work is being critiqued
10. Compare and contrast tool to compare this work to another work
11. Field to enter general comments on the side of the image
12. Users can toggle on and off other user’s comments
13. Users can view past iterations of this work and compare elements of them
This is the work being critiqued

Past iterations are kept within the critique and can be viewed by clicking on them

This is the feedback that the host of the critique is hoping to receive

Users can join this critique and add comments by clicking on the “critique this project” button

Users can turn comments on and off by clicking on the eyeball. This acts like virtual tracing paper

Users can view a project that has been compared to this project by clicking on the thumbnail

Comments can be viewed at specific time markers in the video’s timeline.

Figure 35: Crit-Chat project critique page, video critique
Figure 36: Crit-Chat critique and comment on a project with the necessary tools, for video
Chapter 9
Future Goals and Research

Topics to be Further Researched

Community

More research is needed on how students connect with one another and the necessary level of security settings. Additionally, what happens when students graduate needs to be considered, explored, and planned for.

Time-Management

More research should be done on time-management since this was only slightly touched upon in this study. Perhaps this site could be developed even further and help students find study buddies based on the students’ geographical area, courses, and similar breaks in their schedules. Additionally, the idea of generating production schedules for students could be explored to help students create more realistic expectations for how long specific steps of assignments would take them to complete.

Inspiration

Accessing an environment where students’ work can be viewed, provides inspiration and clarity for students, much like a large class critique. However, this could potentially lead to intellectual property theft and plagiarism if students try to copy the work that they see. Students would need to understand that they cannot simply copy other students’ work and call it their own. Additionally, viewing other students’ projects can cause tunnel vision. Sometimes when students view example work early on in a project, they begin to think that there is only one way to solve the problem instead of thinking about it for themselves. While these are significant issues, they already exist in large group critique settings, though to a lesser extent, since the instructor can interject immediately. Perhaps when joining the site, students will be required to take a quick course or read an article on intellectual property and proper ways to use inspiration. These issues need to be further examined and minimized if possible.
Critique Environment

Special attention should be made to the critique environment during testing. The site as it is designed now, is open and allows students to type what they want without a significant amount of guidance. Students have to write what kind of feedback they are looking to receive, but it is up to the person providing feedback whether to pay attention to that or not. It is possible that students will want more guidance when giving feedback than is currently being provided.

There is a potential risk with this environment that someone might suggest a change, and then that student would incorporate the change without thinking about it. This risk exists in classroom settings as well. However, I think that this is less likely to happen with peer-review. While ninety percent of students surveyed said that they value their peer’s feedback, students said that they value their instructors opinion first, then their own opinions, and then their peers. It would therefore seem that students would be less likely to take their peers advice at face value, and would evaluate the feedback and question it before implementing it. This is an issue that should be further explored.

Additionally, the usability of this prototype needs to be explored. The prototype will have to go through rounds of testing to see what tools are most effective for critique and what tools users feel most comfortable using.

Proposed Testing Plan

This project currently ends with detailed wireframes of a potential design solution. This solution was the best guess at what would be effective based on the research. The next steps would need to include rounds of testing and modifications to the design.

1. Paper prototyping would be conducted using the wireframes created in order to gain valuable feedback from potential users. Feedback should indicate how users understand what this network would do, and if they would find it useful. Ideally, testing should take place with students from each of the four universities that were included in this study.

2. The design would be modified according to the feedback from the paper prototyping. If needed, additional research might be conducted and incorporated into the design.
3. If needed, there can be multiple rounds of paper prototyping. This would help the design to be more functional and user-friendly.

4. The site would need to be fully developed and programmed.

5. Once developed and fully functional, the site would be tested again with real users. Ideally, this would happen with a small group of students from multiple universities in similar courses during the full duration of a semester. This would help see how students actually use the site and interact with it.

6. If needed, design and programming modifications would be made based on feedback and observations.

7. More students would be encouraged to join and participate for another semester, slowly helping the site to grow. The site would be monitored, and the students would be asked for feedback. This round would include students in different universities in a few different types of courses.

8. If needed, design and programming modifications would be made based on feedback and observations.

9. The site would be fully launched, and design students across the country would be encouraged to join and participate.
Chapter 10
Conclusion

Research from this study uncovered key skills for design students’ professional development. These include: communication and time-management skills, the ability to work with peers, the drive to learn independently, personal responsibility, and the ability to take initiative. However, many design students struggle to master these skills. Students have difficulty with ideation and are afraid of making mistakes. They are also uncomfortable with exploration and experimentation. Students often do not know where to turn for help or where to look for inspiration. Many students lack confidence in their work and in-class critique becomes a crutch. Students often wait for the instructor’s approval and do not learn to take initiative, self-evaluate, or ask others for feedback on their own.

Students who participate in critique learn and clarify design principles, understand project objectives, learn to self-evaluate, become inspired, and push themselves to improve their work and critiquing abilities. Since students spend large amounts of their time on their computers, there is no doubt that an online platform is a good space to create a tool to help students build these skills.

Online critique can be used specifically to give students more of an opportunity to provide and receive constructive feedback from their peers; this increase in opportunity, in turn, can lead students to become less dependent on faculty critiques by learning to evaluate their own work as they evaluate the work of other students. When students are able to become less dependent on faculty in terms of their ability to critique their own work, they become better prepared for a professional design career (Piersanti, 2010, p. 13).

While interviewing design instructors, there were two strong views expressed. Many instructors saw the value of peer-based learning. However, a few instructors expressed concern regarding peer-based learning. They felt that students would misguide one another since they lack knowledge and experience. They felt that it was like the blind leading the blind. However, what is the goal of a university education? Is the goal for students to graduate with a great portfolio, or is the goal for students to graduate with the necessary skills to succeed in a professional career? I would argue that the skills students learn in university are more important than their design
work. If they develop good skills, good design work should follow. Design work is important, but without adequate skills, they will struggle with their careers. *Crit-Chat* is meant to act as a supplement to what already exists in the classroom. Therefore, students’ misconceptions and misguided designs will get addressed during class by the instructor just as they always have. The instructor-student relationship is important and should not be replaced. Instructors have knowledge, expertise, and experience to share with their students that their peers do not. *Crit-Chat* is meant to be a supplemental tool for design students to be used as an additional resource to their instructor, not in place of their instructor.

*Crit-Chat* is intended to be a community of practice or learning community for design students and would not be affiliated with any particular university. This space would be for all university-level design students without the oversight of instructors or professional designers, creating a stress-free environment. There would be a time-management component aimed to help students visualize their time and keep track of their responsibilities. *Crit-Chat* would have a place for inspiration to help students begin projects more quickly and procrastinate less. Additionally, *Crit-Chat* would have a critique component to help students learn to communicate about design, work with peers, and evaluate design work for themselves. The critique environment should help students build confidence in their design work and critiquing abilities. Students would have the opportunity to interact with peers who have various levels of expertise from different geographical locations. Students could mingle, learn from, and teach each other. Students who are normally uncomfortable or unable to participate during class, would have the opportunity to interact with peers online in an environment in which they feel comfortable. *Crit-Chat* would greatly benefit design students and provide them with a way to reach out for help and a network that would foster professional connections between future designers.
Appendix A
Design Programs Involved in this Study
### Design Programs Involved in this Study

<table>
<thead>
<tr>
<th>CLEVELAND STATE UNIVERSITY</th>
<th>KENT STATE UNIVERSITY</th>
<th>THE OHIO STATE UNIVERSITY</th>
<th>UNIVERSITY OF CINCINNATI</th>
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<td><strong>LOCATION</strong></td>
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<td>BA or BFA in visual communication design</td>
<td>BS in visual communication design</td>
<td>BS in graphic communication design</td>
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<td>No portfolio requirement</td>
<td>No portfolio requirement, but high GPA from high school, top class rank, and good SAT/ACT scores</td>
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<td>Freshman GPA requirement</td>
<td>Review after freshman year to pick 18 students to continue in the program. Students not accepted can continue on for a minor.</td>
<td>Students have periodic reviews to check in with students progress. A student might be asked to retake a course.</td>
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<td>Under the school of Communication and Information</td>
<td>Under the school of Arts and Sciences</td>
<td>Under the school of Design with is under DAAP which includes Design, Architecture, Art, and Planning</td>
</tr>
<tr>
<td><strong>STUDENTS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mostly commute</td>
<td>Mixture of Commute and live on/near campus</td>
<td>Mixture of Commute and live on/near campus</td>
<td>Mixture of Commute and live on/near campus</td>
</tr>
<tr>
<td><strong>BUILDING</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Closed at night</td>
<td>Closed at night</td>
<td>Open 24/7</td>
<td>Open 24/7</td>
</tr>
</tbody>
</table>

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## Design Programs Involved in this Study

<table>
<thead>
<tr>
<th>CLEVELAND STATE UNIVERSITY</th>
<th>KENT STATE UNIVERSITY</th>
<th>THE OHIO STATE UNIVERSITY</th>
<th>UNIVERSITY OF CINCINNATI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WORKSPACE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>There is a lounge for</td>
<td>Students use open</td>
<td>Freshman &amp; Freshman &amp;</td>
<td>There are a few areas</td>
</tr>
<tr>
<td>students to work, but</td>
<td>classrooms to work and</td>
<td>sophomores share a</td>
<td>for students to work in</td>
</tr>
<tr>
<td>not much space.</td>
<td>there is some lounge</td>
<td>studio room, but have</td>
<td>the building. They also</td>
</tr>
<tr>
<td></td>
<td>type space, but not</td>
<td>lockers to store their</td>
<td>have lockers to store</td>
</tr>
<tr>
<td></td>
<td>much space.</td>
<td>things if they chose.</td>
<td>their things if they</td>
</tr>
<tr>
<td></td>
<td>There are lockers that</td>
<td>Junior and Seniors</td>
<td>want.</td>
</tr>
<tr>
<td></td>
<td>students can use to</td>
<td>have their own studio</td>
<td></td>
</tr>
<tr>
<td></td>
<td>store their things.</td>
<td>space and desk to work</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>and store their things.</td>
<td></td>
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</tr>
<tr>
<td><strong>INTERDISCIPLINARY</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students have some</td>
<td>Photo-illustration</td>
<td>Visual communication</td>
<td>Interdisciplinary</td>
</tr>
<tr>
<td>foundation courses with</td>
<td>majors share some</td>
<td>designers have courses</td>
<td>interaction is</td>
</tr>
<tr>
<td>students from fine arts,</td>
<td>foundation courses,</td>
<td>with and share a</td>
<td>encouraged and</td>
</tr>
<tr>
<td>but otherwise there is</td>
<td>but otherwise there is</td>
<td>building with interior</td>
<td>promoted among</td>
</tr>
<tr>
<td>no interdisciplinary</td>
<td>no interdisciplinary</td>
<td>design and industrial</td>
<td>students. They have</td>
</tr>
<tr>
<td>interaction</td>
<td>interaction</td>
<td>design students. There</td>
<td>mixed studio courses</td>
</tr>
<tr>
<td></td>
<td></td>
<td>is a fair amount of</td>
<td>with all three sections</td>
</tr>
<tr>
<td></td>
<td></td>
<td>interaction between the</td>
<td>of design as well as</td>
</tr>
<tr>
<td></td>
<td></td>
<td>students.</td>
<td>industrial designers,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>fashion designers, and</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>architect students.</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>COLLABORATION</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students work on</td>
<td>Students work on</td>
<td>There is a combination</td>
<td>There is a combination</td>
</tr>
<tr>
<td>projects individually</td>
<td>projects individually</td>
<td>of individual and</td>
<td>of individual and</td>
</tr>
<tr>
<td></td>
<td></td>
<td>collaborative projects</td>
<td>collaborative projects</td>
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</tr>
<tr>
<td><strong>INTERNSHIPS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Optional</td>
<td>At least one is</td>
<td>Optional</td>
<td>Required Co-op Program</td>
</tr>
<tr>
<td></td>
<td>required</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Appendix B

Overview of Research Methods
Overview of Research Methods

<table>
<thead>
<tr>
<th>PURPOSE</th>
<th>ACTIONS</th>
<th>OUTCOME</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stage #1: Initial Exploration</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Literature Review</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gain a broader and deeper understanding of the topic from an academic point of view.</td>
<td>- Topics explored: critique culture, peer-based learning, participatory culture, how people give and receive feedback, gen. Y, online learning communities, and asynchronous learning spaces. - Sources included journals, scholarly articles, books, publications, and Theses.</td>
<td>- Understand background information to bring clarity and create a preliminary understanding of important topics for this project.</td>
</tr>
<tr>
<td><strong>In-Person Observations</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understand what is happening in design classrooms. Watch how students interact with one another as well as with the instructor during critique.</td>
<td>- Observations were made during various design classes. - Observations took place at: Kent State University, Cleveland State University, The Ohio State University, and University of Cincinnati. - There was at least one Freshman, Sophomore, Junior, and Senior level course observed. - Activities observed include: classroom critiques, working sessions, AIGA Mentoring, working on homework, etc.</td>
<td>- Understand what is happening during critique and how students approach their work both in and out of class. - Make a connection with students to interview and hand out journals.</td>
</tr>
<tr>
<td><strong>Online Observations</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understand what does and does not work well with online critique from my personal experience teaching two online design courses.</td>
<td>- Dissected my personal experience teaching two different online design courses. Both courses were taught online using Blackboard. - Observed: How students interacted with one another, how discussion functioned online, and how the format fosters productive dialogue among the students.</td>
<td>- Gain a better understanding of what it is like to critique work online and have conversations with strangers. - Understand the pros and cons of the systems that currently exist.</td>
</tr>
</tbody>
</table>
## Overview of Research Methods

<table>
<thead>
<tr>
<th>PURPOSE</th>
<th>ACTIONS</th>
<th>OUTCOME</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Surveys</strong></td>
<td>Validate/invalid assumptions as well as gather contacts for further research steps.</td>
<td>One survey per target audience was created: design students, instructors, and professionals. Surveys asked about: design critique, computer habits, social networks, peer interactions, and other topics. Surveys were sent out through University liservs and through instructors to their students. Design professionals were contacted via LinkedIn or AIGA membership lists. Surveys were hosted on Qualtrics.com</td>
</tr>
</tbody>
</table>

**Journal Activity**

Understand more about student's day-to-day lives concerning their design education. Uncover information that gets left out of interviews and cannot be observed. Small blank journals were given to students at: Kent state University, Cleveland State University, and The Ohio State University. Instructions were given to record events from their day regarding their design work and education. Students kept journals for 2 weeks. Receive information directly from students to better understand what drives them and how they feel about certain things. Gather information that was left out in interviews or surveys.

**Interviews**

Gain a deeper understanding of various topics from different perspectives in a one-on-one setting. Design students, instructors, and professionals were contacted from: Kent State University, Cleveland State University, The Ohio State University, and University of Cincinnati. Experiences from different universities were compared. Understand where students struggle most. Understand what skills instructors think students need. Understand what skills professionals think are necessary to be successful in the workplace.
Overview of Research Methods

<table>
<thead>
<tr>
<th>PURPOSE</th>
<th>ACTIONS</th>
<th>OUTCOME</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stage #2: Understanding Critique Methods</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| **Mock Critique** | Understand how students go about critiquing each others work. | - Students were given a few compositions and a pen.  
- Students were told to critique the work as if their peer was not present, providing all their comments on the sheet of paper. | - Understand how the mechanical process of critiquing works on paper, and how it might be converted into a digital process.  
- Understand what tools would be necessary for an online critique. |
| **Card Sort** | Understand what tools students think would be important to be able to successful critique work in an online environment. | - Students were handed a stack of note cards with tools written.  
- They were asked to sort the tools from most helpful to least helpful for critiquing work digitally. | - A better understanding of what tools would need to be included in an online critique environment to have a successful critique platform online. |
| **Stage #3: Existing Design Networks** | | |
| **Comparative Analysis** | Understand what websites and networks already exist. | - Searched and looked at various design networks as well as file sharing and social media sites.  
- Some of these sites came from survey and interview responses. Others came from my own search. | - Understand what exists already, what is useful, and what could be adapted to make a better system to achieve the goals for this thesis. |
### Overview of Research Methods

<table>
<thead>
<tr>
<th>PURPOSE</th>
<th>ACTIONS</th>
<th>OUTCOME</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stage #4: Organization of Information</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Research Summary</strong></td>
<td>To compile and synthesize research for ideation.</td>
<td>- Compile and synthesize research.</td>
</tr>
<tr>
<td><strong>Persona Development</strong></td>
<td>Organize research and make users seem more realistic and understandable.</td>
<td>- Identify extreme types of design students in the target group.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- List characteristics for each student type based on collected research for various categories.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Craft personas using this information</td>
</tr>
<tr>
<td><strong>Experience Models</strong></td>
<td>Understand the larger experience of working on a design project.</td>
<td>- The experience was broken down using the “Five E Experience model” and then personas were run through the models.</td>
</tr>
<tr>
<td><strong>Stage #5: Prototype Development</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Prototype Development</strong></td>
<td>Create prototypes based on the research and findings that could be viable solutions.</td>
<td>- Brainstorm, then create and build prototypes leading up to a final prototype.</td>
</tr>
</tbody>
</table>
Appendix C
Design Student Survey Responses
Design Student Survey Responses

ABOUT THE PARTICIPANTS

What University do you attend?
- University of Cincinnati
- Cleveland State University
- Kent State University

Do you live on-campus?
- Yes
- No

What year are you in the design program?
- Freshman
- Sophomore
- Junior
- Senior
- Graduate

If you live off-campus, how far away do you live?
- <5 Miles
- 5-10 Miles
- 10-20 Miles
- 20-30 Miles
- 30+ Miles

How many days a week are you on campus?
- 1-2 Days
- 3 Days
- 4 Days
- 5+ Days

Do you live with other design students?
- Yes
- No

HOMEWORK

How far in advance do you work on homework?
- The night before it's due
- As soon as I receive it
- A few days in advance

How many hours a day do you spend on your computer?
- 10+ Hours
- 7-10 Hours
- 4-6 Hours
- 1-3 Hours

What do you do when you need help completing an assignment?
- Reach out to a peer via the internet
- Reach out to a peer in-person
- E-mail your instructor
- Other: (Google/tutorials)
- Reach out to a non-designer (friend/family)
- Leave it alone and ask for help next class
- Go to your instructor’s office hours
- Get tutoring

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**Design Student Survey Responses**

**PEERS**

**How do you prefer to contact your peers?**

- During Class
- Text massage
- Social Media
- In the hallways
- On the phone
- Video chat
- I don’t

**Where do you work with your peers?**

- During Class
- In a study group
- At home
- Social media
- E-mail
- I don’t
- Other
- Video chat

Other:
- Library
- Studio room
- Dorm
- Dorm Lounges
- Art building

**Do you discuss your design work with peers OUTSIDE of class?**

- Occasionally
- Almost never
- Almost always

**Do you value your peer's feedback on your design work?**

- Yes
- No
- Unsure

**Do you discuss your design work with peers DURING of class?**

- Occasionally
- Almost never
- Almost always

**Do you feel confident providing feedback to your peers about their design work?**

- Yes
- No
- Unsure

**INSPIRATION**

**Where do you look for design inspiration?**

- Websites
- Magazines
- Social media
- Books
- Museums
- Events
- Speakers
- Other (below)
- Pod-casts
- No inspiration

Other:
- TED, Journals, VIMEO
- Blogs
- Surroundings
- Nature, buildings
- Music
- Video Games
- Instagram
- Pinterest
- Real life
- Peers
- Nature, Comics, Movies
- MY LIFE

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Design Student Survey Responses

IN-CLASS CRITIQUE

Who provides the most feedback during critique?
- Your instructor
- You
- Your peers

Who raises the most questions during critique?
- Your instructor
- You
- Your peers

What are the biggest issues for in-class critique?
- It’s too long
- Afraid to say wrong things
- Unsure how to participate
- Can’t remember later
- Uncomfortable speaking
- Uneasy participating
- Unsure what to contribute
- No chance to participate
- Not prepared
- Cannot hear what is said
- Other

How do you feel during an in-class critique?
- Interested
- Tired
- Nervous
- Happy
- Confident
- Anxious
- Proud
- Intimidated
- Excited
- Bored
- Shy
- Embarrassed
- Scared
- Other

Whose opinion do you value most when receiving feedback on your design work?
- At home/dorm/apartment
- At school
- In class
- Recreational Activities
- In transit
- Sleeping
- In the library
- At work

TIME SPENT

Where do you spend the majority of your time?
- At home/dorm/apartment
- At school
- In class
- Recreational Activities
- In transit
- Sleeping
- In the library
- At work

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Design Student Survey Responses

DIGITAL COMMUNICATION AND SOCIAL MEDIA

What is your preferred form of communication?

- In person
- Text message
- E-mail
- Phone
- Social media

What online design communities are you part of?

- None
- AIGA
- Behance
- Deviant Art
- Other: Tumblr, SEGD, LegendZero

How often do you check your email?

- 10+ times daily
- 6-10 times daily
- 2-5 times daily
- Once a day
- No more than a day

What social media sites do you regularly visit?

1. Facebook
2. Twitter
3. Tumblr
4. Instagram
5. Pintrest
6. Deviant Art

Only 2% said that they do not use any social media sites.

How long do you expect to wait for an instructor’s reply to an e-mail?

- A few days
- A few hours
- No more than a day
- A few days
- Once a month
- Once a week
- Once a day
- 6-10 times daily
- 2-5 times daily

Have you taken an online class?

- Yes
- No

Why do you use social media?

- Communicate with friends
- Browse posts
- Connect with new people
- Professional networking
- Other
- I don’t use social media

Other:
- It’s a filthy habit, that’s why
- Inspiration/Pinterest/Tumblr

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**Design Student Survey Responses**

**PROBLEMS AND CHALLENGES FOR STUDENTS IN DESIGN EDUCATION**

*What do you see as the biggest challenges with your design education? What are the biggest problems or frustrations that you experience?*

- **Not having enough time with other students** when class isn’t going on.
- **Communication** in English.
- Too many gen. ed. classes and not enough time spent on skills and philosophies of the ever-growing industry.
- Actually finding a proper job in this field.
- During critique **peers often only criticise** because we are looking for flaws. Sometimes I just want someone to say, “your work is good, just fix a few things”. I also feel as if I am expected to know how to do certain things that I was never taught.
- The constant struggle to meet the high standards of the professors. I can’t remember the last time I got an A on a project... but I guess that’s what keeps me motivated.
- Completing my education in a **timely manner**, because balancing work and school.
- The biggest challenge I see is to **stay confident** and strong after getting a grade or critique you aren’t happy with, my biggest problem is confidence.
- **Not enough interactive design** components.
  - **Time**, I don’t have enough time to become truly great.
  - I have the hardest time with critiques. It isn’t that I don’t want to participate. I really, really do. But I **can never think of what to say**. It’s very frustrating. I also find myself becoming very intimidated at times. You are your worst critic...
  - Having to **work full time** to support myself while completing my degree.
  - Not knowing how to deal with competition, not knowing what to say about other’s work, not feeling certain about design choices, **failing to reach deadlines** with multiple projects.
  - Classes are large. The classes are too long yet we don’t get enough critique time. Also, some **professors give confusing feedback** with little explanation as to the reason for our grades.
  - The amount of work
  - My biggest challenge would be trying to stand out. There is also the stress of the sophomore and junior reviews that make me very nervous.
  - **Time management** and distractions.
  - Being confident in my work, and hearing other people complain about the classes or the projects we do.
  - **Not enough digital/web experience**. I need to be an asset in some of the jobs I am seeking. Between work and classes I **cannot find time to teach myself either**.
  - I’ve never been that great with **hands-on things**.
  - Focus and **time management**.

- **Too many classes and not enough time**.
- **Applying critiques** and revisiting the same ideas/project over and over again.
- I wish it was more interactive. I **want to talk more and see good examples**.
- I feel sometimes the **feedback I get is a little vague**, or that I don’t get as much feedback as I would like.
- Biggest frustration: students who passed sophomore review that shouldn’t have. I’m sick of peers that don’t put in effort and complain their stuff doesn’t look good.
- I always feel as if my work is inadequate even if I put hours of work into a project.
- **My professors are not clear with their instructions**. I also think that critiques could be more engaging.
- Some teachers seem to be more relaxed than others in their expectations for students.
- **Experimentation** is sometimes hard. I have trouble coming up with many different variations of one thing.
- The fine line between teaching programs and technology, verses strict design theory.
- I think the biggest challenge with my design education is teachers/peers **being too nice in critiques**. It is not helping me. When they tell me to change one aspect of my design, but I still get a bad grade, I am extremely frustrated. I wish students and teachers would be **completely honesty when giving feedback** on your work. I do realize that we need to make some of our decisions, but I’d like to know if my work is horrible.
- Biggest issues would be trying to get everything right while **pleasing the professors**.
- The **pre-design sketching process** is difficult for me. It’s easier for me to experiment on the computer. Doing things by hand is **too time consuming** for my busy schedule. I often don’t have time to do my best.
- Challenges are finding **inspiration**. Problems are the **lack of peer-to-peer critiques** going on at the crucial levels of Sophomore and Freshman years.
- **I really hate working alone** but it seems like that is the only option. Internships in design have only reinforced the idea that I have only isolation to look forward to.
- **Design tastes** change and **technology** advances. Sometimes not clear what is expected of us.
- Some of the biggest frustrations that I experience is working with teachers one-on-one. I think that I almost feel better discussing my work in front of a group rather then receiving on-on-one critique from a professor.
- I have so much other stuff going on that I feel like I wait until the last minute to do homework and I wish I had more time. I feel like I could have done better. Sometimes I have trouble getting motivated.
**Design Student Survey Responses**

<table>
<thead>
<tr>
<th>ONLINE DESIGN COMMUNITY</th>
<th>ONLINE CLASSES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What do you gain from being part of an online design community?</strong></td>
<td><strong>If you took an online class, how did you find the learning experience of that online class? What did you like or dislike about the experience?</strong></td>
</tr>
<tr>
<td>- Inspiration.</td>
<td>- Interaction.</td>
</tr>
<tr>
<td>- Collaboration.</td>
<td>- Judgements.</td>
</tr>
<tr>
<td>- Community/networking.</td>
<td>- Time.</td>
</tr>
<tr>
<td>- Up-to-date on trends.</td>
<td>- Motivation.</td>
</tr>
<tr>
<td>Being updated about trends, events, conferences, etc., being connected.</td>
<td>Classes that are dependent on discussions fail to have the same impact online.</td>
</tr>
<tr>
<td>Worldwide exposure of art &amp; ideas.</td>
<td>You do not interact with your peers or instructor.</td>
</tr>
<tr>
<td><strong>Expanding my experience</strong> on how to design something by looking at what others have created.</td>
<td>Even with discussion groups, classroom is better.</td>
</tr>
<tr>
<td>I love seeing what my peers are able to create. I love reading about events and competitions going on.</td>
<td>It was very independent.</td>
</tr>
<tr>
<td>Inspiration and different input.</td>
<td>If I was willing to put in the work, then it came easily.</td>
</tr>
<tr>
<td>Inspiration and exposure.</td>
<td>Online classes allow you to work at your own pace, however, it allows you to slack off until the very last second. Online classes are easy to forget about.</td>
</tr>
<tr>
<td>Inspiration and laughs.</td>
<td>I enjoyed being able to work alone and at my own pace. No commute was a huge plus.</td>
</tr>
<tr>
<td>Insight into other design solutions, people's ideas, and upcoming trends.</td>
<td>I hated the experience. There was little chance to ask the teacher questions. I had a hard time watching videos as a learning tool. I learn better in class.</td>
</tr>
<tr>
<td>Inspiration, Insight</td>
<td>I disliked it. It's much easier for me to pay attention and get things done in an actual classroom setting. I find myself often getting distracted by social media.</td>
</tr>
<tr>
<td>Inspiration and a sense of involvement</td>
<td>It just wasn't practical.</td>
</tr>
<tr>
<td>Experience and Inspiration</td>
<td>It was nice to create my own hours to complete the work and to have weekly assignments due. No interaction just lectures.</td>
</tr>
<tr>
<td>The option to participate in local events or webinars. There are a lot of people to be met and this helps narrow down who.</td>
<td>Gave me the time to do it anytime and anywhere.</td>
</tr>
<tr>
<td>See well done art and get new ideas for my work.</td>
<td>It's just a little tougher than a regular class.</td>
</tr>
<tr>
<td>Inspiration.</td>
<td>It was a lot of self motivated work and it was very difficult to make the time for it.</td>
</tr>
<tr>
<td>I get to look a others for inspiration and know that later I have a way to get connected with other professionals.</td>
<td>The information was presented clearly, however I did not learn well with the lack of human interaction.</td>
</tr>
<tr>
<td>Inspiration, mostly.</td>
<td>I liked being able to do things at my own pace, I missed not having a professor there to ask questions.</td>
</tr>
<tr>
<td>Collaboration and feedback from people who I may not ever get a chance to meet in person. Also you gain a view of design from people outside of our little Kent community.</td>
<td>I hated it. The teacher was unavailable and didn’t teach us anything.</td>
</tr>
<tr>
<td>I think any sense of community gives you first of a sense of pride in what you are doing/ creating. Also it reminds you that you aren’t alone, there are always people out there just like you who you can reach out to.</td>
<td>I have never really learned from an online class. It seems to almost force you to just load the test and try and cram through it. It is hard to have a meaningful discussion about topics.</td>
</tr>
<tr>
<td>It allows a chance for you to see other peoples art that are not in the same school as yourself.</td>
<td>I dislike that you have to teach yourself, and communicating with teachers can be difficult.</td>
</tr>
<tr>
<td>Inspiration.</td>
<td>I can learn at my own speed, and learning is deeper.</td>
</tr>
<tr>
<td>Viewing a lot of other people’s work in a broad setting is really nice to be able to do freely.</td>
<td>The learning was terrible.</td>
</tr>
<tr>
<td>I have to say I’ve gained very little, and I’m not sure why that is.</td>
<td>The ability to work on my own time is wonderful but I find that I end up learning less.</td>
</tr>
<tr>
<td>Exposure to people and information from a more vast group.</td>
<td>Independent. Information was not explained well enough. Hated the lack of communication.</td>
</tr>
<tr>
<td></td>
<td>I like the experience of an online class. It allows me to work at my own pace.</td>
</tr>
</tbody>
</table>

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### What is design?
Design is a form of art utilized to portray an idea. It can be stylized or simplified, all type or all imagery. Design is intended to be clearly understandable by all.

Design is the creation of a composition having a meaning or purpose throughout its creation.

It is an activity which shape behaviors, change social dynamics and impact people’s lives in and individual and collective way, through products (objects and services, alone or in combination).

Design is art that can only have one meaning.

### What does a designer do?
The designer is an artist who has the skills and imagination necessary to create dynamic and aesthetic works.

Take information and make it visually appealing to the world!

A designer is a communication strategist that has the knowledge to use form, color, texture and shape.

It depends on what type of job that person is doing, but a designer may make a process simpler, organize information in a clear manner, advertise, make the viewer not have to “think”.

A designer analyzes the users needs first then adds a creative twist to the project. The difference between art and design is that design focuses on the user.

A designer creates compositions that convey a message or serves function.

Creates compositions to help convey a purpose or meaning in a more literal way.

A (good) designer makes people’s life easier, faster, more convenient. Designers see, hear, imagine, relate to people, talk to them, get involved in their activities and step back to rethink, reorganize, brake paradigms, reconnect, project, solve, develop, deploy.

A designer can do a number of things, from creating a logo used by a company to creating a typeface used on highway signs.

### What skills do designers need?
Imagination is the most important. On top of that, the designer needs a strong sense of composition, along with technical skills in various traditional (drawing, painting, crafting) and digital (digital drawing, typography, photomontage) fields.

A lot! Computer skills on multiple platforms, and always learning and keeping up to date with software. Good communication skills, good time-management skills, and many other qualities I can’t think of at the moment.

He needs to be global and local, needs to understand that his work is not subjective but objective, has to be able to work on any design environment on any design discipline, needs to understand the basics of design, has to be aware that function comes first.

A designer needs to be organized, understanding, open minded, creative, able to finish projects on time, a person.

Most importantly a designer must possess passion, dedication, and a drive to always be learning. Drawing, drafting, reading, building, etc, are all skills that a designer does not intuitively possess but can be perfected with practice, like all skills.

A designer needs to possess a good eye for what makes a good composition as well as the ability to view ordinary objects and areas from a different point of view in order to bring out interesting or unusual qualities in them.

Some artistic ability or interest, such as imagination.

Open mind, good listener, ability to set non linear processes and follow each step, systematic thinking, good observer, ability to create new connections between old facts, the ability to see further the surface and instead of fixing the problem, understand the cause to change the process, if needed.

Needs an eye for compositions, a grasp on the basics of design and the ability to come up with separate variations of one idea.
Appendix D

Design Instructor Survey Responses
Design Instructor Survey Responses

ABOUT THE PARTICIPANTS

What University do you teach at?

- Kent State University
- Cleveland State University
- University of Cincinnati
- The Ohio State University

What is your teaching status?

- Full-time faculty
- Part-time faculty
- Adjunct faculty

How many years of teaching experience do you have?

- 3-5 Years
- 10+ Years

What level design courses do you teach?

- Freshman
- Sophomore
- Junior

OFFICE HOURS

How many hours a week do you have office hours per course?

- By appointment only: 17%
- 1-2 Hours: 17%
- 3-4 Hours: 33%
- 5-6 Hours: 33%

How many students do you typically see during your office hours?

- 1-2 Student
- 3-5 Students
- 11-12 Students
- None
**Design Instructor Survey Responses**

### CRITIQUE

**Who provides most feedback during critique?**
- The instructor
- A few particular students
- The students as a whole

**Do you encourage students to form peer groups?**
- The instructor
- A few particular students
- The students as a whole

### PEERS AND PERFORMANCE

**Do you think that students are able to sufficiently help one another with design homework?**
- Yes
- Unsure

**Do you value your peer’s feedback on your design work?**
- Yes

**Do you notice a difference in class participation between students who work together with peers outside of class and those who do not?**
- Yes, student who work together participate more in class
- No, I see no difference in participation levels
- Unsure

**Do you notice a difference in class performance between students who work together with peers outside of class and those who do not?**
- Yes, student who work together perform better
- No, I see no difference in performance levels
- Unsure

### INSPIRATION

**Where do you look for design inspiration?**

<table>
<thead>
<tr>
<th>Source</th>
<th>Never use</th>
<th>Often use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Websites</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Magazines</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Books</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Events</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social media</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speakers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (blogs/spaces)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pod-casts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Museums</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No inspiration</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**Design Instructor Survey Responses**

**EMAIL**

**How do you take to reply to a student's email?**
- A few days
- A few hours
- A few minutes
- No more than a day

**How long do you wait for a student to reply back?**
- A few hours
- A few days
- No more than a day

**Do you reply to student emails at night?** (After 6pm)
- Almost never
- Occasionally
- Almost always

**Do you reply to student emails over the weekend?** (Saturday and Sunday)
- Occasionally
- Almost always
- Almost never

**ADVICE TO STUDENTS STRUGGLING WITH THEIR WORK**

**Where do you expect students to turn for help with design homework?**

- Reach out to a peer
- Email the instructor
- Other (see below)
- Instructor's office hours
- Leave it until the next class
- Go to tutoring
- Ask a non-design friend

**Where do you suggest to student who are struggling with their project?**

- Come to office hours
- Work with a peer
- More time on homework
- Read about the topics
- Do extra homework
- Other (see below)

**Other:**
- Try something new and unexpected, more iterations of sketch phase
- Seek online resources such as YouTube or support message boards
- If it is consistent and pervasive, ask them to consider withdrawing.
- Spend more time with student in class or right before/after class
- Help them prioritize and focus on moving forward.

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**Design Instructor Survey Responses**

**STUDENTS STRUGGLES**

What do you see as the biggest issues that students experience in their design education?

- Design skills
- Critical thinking
- Time-management
- Peer interaction/collaboration
- Personal responsibility
- Confidence

Resources!

Time management and the understanding (actually the desire) to fail often in order to succeed.

Dealing with scale transition... from computer screen to actual applied sizes and context.

Time management.

Work/school time compromise due to more students working to support their education, not enough interaction amongst peers, not enough time to reflect on their readings, not enough time to participate in speaking events and social events offered during their 2-4 years on campus, disconnect with classmates.

Time management.

That they are designing for other people. Design is not about artifacts. It is not about designing for your family, friends, and your teacher in the classroom. It is about designing for them (the user, people, audience).

Knowing how to frame a thesis or research question.

Learning to look at their own work critically and understand how to constructively criticize their peers’ work (and understanding the correlation between that skill and improving their own work).

Effective time and project management skills. An expectation of job training rather than a holistic approach to learning.

Maturity: personal responsibility / confidence / information and visual literacy / the ability to identify and act on an opportunity

Good design is more complex than they first think, and they take a lot of time to come to terms with that. It requires thinking and research, and many think it’s simply about ‘looking good.’

**VALUABLE SKILLS**

What do you see as the most valuable skills that you try to teach your students?

<table>
<thead>
<tr>
<th>Skill</th>
<th>Valuable</th>
<th>Not valuable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other (below)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication skills</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learn independently</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-evaluation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design principles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working with peers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ability to design</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Joint reflection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical skills</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Other:
- Being Curious about everything
- User-centered design
- Curiosity, commitment to excellence, humility
- Understanding and respect of people and culture
Appendix E

Professional Designer Survey Responses
Professional Designer Survey Responses

**About the Participants**

**What kind of company do you work for?**
- In-house design
- Large design company
- Freelance
- Personal business
- Small design firm

**How many years of experience do you have?**
- < 1 Year
- 1-2 Years
- 3-5 Years
- 6-10 Years
- 10+ Years

**Have you ever been part of the hiring process for an entry-level designer?**
- Yes
- No

**Do you come in contact with recent graphic design college graduates?**
- Yes
- No

**Valuable Skills for a Designer**

**What are the most valuable skills for a designer to possess?**

- Ability to design
- Communication skills
- Other (below)
- Work with peers
- Design principles
- Learn independently
- Technology skills
- Self-evaluation
- Joint reflection
- Evaluate peer’s work

**Inspiration**

**Where do you look for inspiration?**

- Websites
- Magazines
- Books
- Social media
- Events
- Museums
- Speakers
- Podcasts
- No inspiration

**Email**

**How long do you expect to wait for a reply to a work-related email?**

- A few hours
- A few minutes
- A few days
- No more than a day

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### Professional Designer Survey Responses

<table>
<thead>
<tr>
<th>EVALUATION EXPECTATIONS</th>
<th>EVALUATION REALITY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>In the workplace, are designers expected to give feedback and critique colleagues’ projects?</strong></td>
<td><strong>Do you find that recent graduates are able to effectively evaluate colleagues’ work?</strong></td>
</tr>
<tr>
<td>- Almost never was not selected by anyone</td>
<td>- Yes</td>
</tr>
<tr>
<td>- Occasionally</td>
<td>- Unsure</td>
</tr>
<tr>
<td>- I am the only designer</td>
<td>- No</td>
</tr>
<tr>
<td>- Almost always</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Do you expect entry level designers to be able to evaluate and offer feedback on colleagues’ work?</strong></th>
<th><strong>Do you find that recent graduates are able to effectively communicate about their own work?</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>- Yes</td>
<td>- Yes</td>
</tr>
<tr>
<td>- No</td>
<td>- No</td>
</tr>
<tr>
<td></td>
<td>- Unsure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Do you expect entry-level designers to be able to self-evaluate their own design work?</strong></th>
<th><strong>Do you find that recent graduates are able to effectively self-evaluate their own work?</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>- Yes</td>
<td>- Yes</td>
</tr>
<tr>
<td>- No</td>
<td>- No</td>
</tr>
<tr>
<td></td>
<td>- Unsure</td>
</tr>
</tbody>
</table>

### FEEDBACK

*When you need help or feedback on a design-related project, what do you do?*

<table>
<thead>
<tr>
<th>1st choice</th>
<th>2nd choice</th>
<th>3rd choice</th>
<th>4th choice</th>
<th>5th choice</th>
<th>6th choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ask your colleague</td>
<td>Look at books</td>
<td>Search the internet</td>
<td>Leave it &amp; return later</td>
<td>Ask your boss</td>
<td>I don’t ever need help</td>
</tr>
</tbody>
</table>

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### Professional Designer Survey Responses

#### COLLABORATION

<table>
<thead>
<tr>
<th>Are designers expected to work collaboratively?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occasionally</td>
</tr>
<tr>
<td>Almost Never</td>
</tr>
<tr>
<td>I am the only designer</td>
</tr>
<tr>
<td>Almost always</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Who do you work with on a regular basis?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other designers</td>
</tr>
<tr>
<td>No one, I work by myself</td>
</tr>
<tr>
<td>People from other disciplines</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Do you think it’s important for designers to be part of a design community?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>Unsure</td>
</tr>
<tr>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>What design communities do you think students should join?</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIGA</td>
</tr>
<tr>
<td>Deviant Art</td>
</tr>
<tr>
<td>Other: LinkedIn/Twitter groups, Behance</td>
</tr>
</tbody>
</table>

---

### Why do you think that it is important to be part of a design community?

Being known in the community opens doors, and being able to collaborate on projects. They provide a network of professional tools and outlets for inspiration. Enables them to develop the professional vocabulary they will need as well as expose them to business issues. Helps make valuable networking opportunities; inspiration. It helps to build your network and gain a better understanding of the opportunities available in your field. The most successful designers not only work their profession. It’s an integral part of daily life. Work and play. It’s important for students to be surrounded by design oriented people to learn new things. It’s important to have a support group. The design community here is small and it’s important to network. Networking...learn what different job titles involve and learn about the good/bad about local companies. To be inspired to get better—though communities can be insular as well. Don’t put all your eggs in one basket. It’s good to be surrounded by like-minded people, sharing ideas, talking about trends, being inspired, etc. Networking. The design business is all about WHO you know. Because out in the real world, you can easily become isolated from the community you came to depend on when in school. A community not only gives you networking opportunities, but they always challenge you. A community can help in many ways. Supplement your learning and share your ideas. To know about design trends, to build a network and Learn from peers. You learn from other designers ... struggles, achievements etc. The design community expands one’s horizons. Learn from the experiences of others. Stand on shoulders of giants, see how others solved similar problem.

---

### If you do not think it is important for designers to be part of a design community, explain why:

Just speaking personally, I have not found any additional value to the organizations that were listed. There are more focused professional networks a student can explore - AdClubs for example—that might be of value for networking. I would also encourage students to explore Toastmasters clubs to improve their speaking and presentation skills.

In my experience, fee’s are often expensive for a college student and the payoffs aren’t necessarily beneficial. I was involved with AIGA as a student cabinet member. I can honestly say that seeing the occasional inspirational speaker or visiting a small studio, or whatever, only goes so far without your own personal motivation. Those outlets are great for those interested, but I also feel the same level can be achieved without them.

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## Professional Designer Survey Responses

### STUDENTS STRUGGLES

**What were the biggest issues that YOU experienced as an entry-level designer?**

- Design skills
- Communication
- Time-management
- Feedback/approval/clients
- Constraints
- Attitude

Realizing that some people will like your work while others may not.

Lack of production knowledge. Preparing files for printing, budgeting time, sourcing materials, and nuances of each phase.

Ability to adjust to a client-based approval process.

The fast-paced atmosphere and short deadlines.

Adjusting to work schedule and "paid time", and to cubicle life—not seeing the others so easily.

How to accommodate multiple people giving different feedback on the same project.

I was unprepared for the reality of paying clients in the concept/design development process. And the frustration of revisions to the work from those clients.

**Working fast.** Not understanding the big picture.

**Speed of the business** and working within the real-world constraints of a design problem.

Learning production skills to avoid mistakes.

Not being proficient enough in all programs.

Transition from slow pace to billable hours.

Not having a strong mentor.

None; had internships/got lucky with my first job.

**Negotiating** the sometimes complex politics of working in a big organization, especially since everyone is an amateur designer.

They don’t dress appropriately and they won’t admit to not knowing something.

In college, you get to pretend design the coolest things for pretend clients, but in the real world you’re designing (sometimes) not-so-cool pieces for clients that may not always appreciate good design. Hard to learn not to take everything personally.

I wanted my designs to be chosen even if they weren’t the best choice.

No matter how talented you are, if you can’t effectively communicate with clients, you aren’t going to do well.

You may not have a creative environment.

**Communication** in a kind and respectful way always, no matter how rude the other side is.

Learning when it was OK to push back with a client and when not to ... SO HARD to learn at first.

Learning to focus my creative skills during a standard 9-5 workday. Sitting at a desk and being creative during certain hours was strange at first.

### What are the biggest issues you find with entry-level designers?

#### Design Skills

- Understanding the importance of client relations and creating work appropriate for individual clients.
- They are slow at creating concepts.
- Lack of production skills
- There is still so much that they do not know when it comes to using design software.

#### Working with Clients

- Students are spending more time learning design applications than they are design principles. Portfolios are filled with projects that have little practical value.
- Weak typography skills.
- Determining differences between designing for real world vs. college projects (client objectives, budgets).
- Lack of “real life” projects — very few have internships, to see a lot of school “type books” which have no relevance to the type of work they’ll be doing every day.
- Understanding of client’s inclusion on the team.
- Lack of real world experience or even simulated real world. Most student work revolves entirely around a company they made up in their head.

#### Work Ethic

- Lack of work ethic, manners and basic professionalism. Showing up at interviews late, not dressed appropriately, portfolio not put together.
- When hired, not responding to e-mails, being responsible for the tasks assigned, lacking basic office etiquette and manners.
- Expectations
- Lack of willingness to spend the time to research and brainstorm multiple solutions to a problem.
- Lack of professionalism and immaturity.
- They see design as “one-off” and not part of a system.
- They have a sense of entitlement and don’t really want to do entry level work.
- Attitude—they think every project is going to be some portfolio-worthy design masterpiece and are shocked when they need to design something lackluster. Also, a lack of understanding how to prepare final art files.
- They’re idealistic; they forget they’re not the client.
- Lack exposure to practicality. Unaware of current design trends.

#### Communication

- Communication about the design problem being solved and what choices were made in the solution.
- Not-asking enough questions.
- Entry level designers don’t ask enough questions.
- They tend to wait to be told to do something rather than taking initiative to speak up and let someone know they don’t have anything to do.
### Professional Designer Survey Responses

#### BENEFITED YOU

**What was the most beneficial thing that you learned in university that prepared you for your professional career?**

- Critique/feedback
- Communication
- Design skills/craft/Attention to detail
- Technical skills
- Time-management
- Attitude

Criticizing and the ability to accept and learn from negative feedback.

Having a professional portfolio, and understanding that I am my own most important client to market to the workplace.

The technical skills.

**Attention to minuscule details**, like perfect craftsmanship when turning in assignments and meeting all deadlines. Group critiques, Business etiquette addressed during portfolio senior classes.

How to multi-task and prioritize to meet deadlines.

There's no substitute for putting in the hours, and that hard work can often trump talent.

How to think creatively.

Building a network of relevant design professionals while still in school. Group projects

Design basics and ability to pay attention to detail

My computer classes that taught me how to use design programs and then actual design classes that taught me the principle of design.

Be able to back-up your design work. Have confidence in your work. Not just because it looks cool, but because it has a purpose.

Think creatively on the fly; critiquing; hand skills

Disciplined thought. Problem solving methodology.

The importance of getting an internship!

Constructive studio critique sessions make one better able to rationally evaluate work quality—one's own or that of others.

I used to be a tour guide and I took multiple speaking courses, these best prepared me to be vocal and to communicate my point effectively.

Humility, Someone will always have an opinion and it may not be the same as yours.

The ability to keep on learning.

I learned a strong design foundation that carried me through my career so far. Without the fundamentals, you aren't creative for very long.

Critiques, Attention to detail, Time management.

Collaborating with other people.

Doing an internship prepared me for deadlines, budgets. Also, intro. level basic design courses!

---

#### ADVICE FOR STUDENTS

**What should students do to better prepare themselves for the workplace?**

- **Attitude**
- **Communication**
- **Internships**
- **Design skills**
- **Professional skills**
- **Collaboration**

Let go of your work, the client will reject/change it.

Be visual communicator AND verbal communicator.

Learn to present yourself and your work. A lot of time is spent justifying your work and decisions.

Polish their presentation skills, craftsmanship, brush up on professional etiquette, dress appropriately, have an open mind, do not take constructive criticism personally and expect that critiques will happen at all points of a design career, expect collaborative sessions and be able to work with others' ideas, expect to meet deadlines.

Work together more, in schools there is too much dependency on one self, and not use the other designers as a collective mind to solve problems.

Enhance communication and writing skills.

Understand that beginners require more time to develop solutions than experienced pros do.

Be prepared to do a lot of production work and do your own work on the side so you stay well rounded.

Study the companies they are intending to work at and learn about their business.

Pay more attention to production skills and preparing work for final execution. Be thorough, review details.

Learn to be social and learn outside of the classroom.

Be professional and look professional. Most of all be prepared to back-up your work. Ask questions.

Be adaptable and be willing to learn. Designing for the real world is different than for school projects. Design must be tailored to sell and work for the client.

Get an internship! School work is a poor indicator of how a designer will really perform.

Try to get a lot of experience with figuring out what inarticulate clients want.

Understand what can be mailed. It doesn't matter how great of a design is, if it can't be mailed it's useless.

Intern at more than one place to see what the real world is like, shadow. Gain real-world experience.

Get a thick skin, know it's not personal

Learn compromise and communication.

Build connections, participate in collaborative projects at school, go to AIGA events, and similar organizations and groups, practice communication.

Strong design skills, ability to communicate their ideas, willingness to work on small and large projects, have experience quoting a job, good attitude
Appendix F
Images and Quotes from Student Journals
Images From Student Journals

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Inside I am Panicking
I worry I did too much

FRANKEN-DEA
Taking the working elements from good ideas
and replacing them with overthought, generic
complicated elements. This process creates
a monster of an idea.

GROUP PROJECTS ARE A DISEASE
In stage production we were assigned a
group project today. The class was split in
half with about 15 or so people in each
group. Our project is to brand our group
as a studio and come up with one large
tie-cut for the group and smaller individual
pieces for each person.

Our group started out with some good ideas
but inevitably the strange. In an effort
to water down some good ideas, a few members
pulled our group members coupled a really bad idea
with a good one which puts them in the grey matter...
Quotes From Student Journals

PROcrastination

• I've been procrastinating a lot!
• I went on tumblr and looked at the graphic design tab. It's helping me formulate ideas
• I was going to do work today, but it's stressing me out. I wanted to accomplish SOME sketches, but I ended up on the Internet and my plan went out the window.
• I'm just stressed out and put too little pressure on myself to stop procrastinating.
• I looked at tumblr and YouTube for awhile. I'll work in VCD later.
• I guess I kind of procrastinated on this. Probably because I don't really like the project.
• Well, it's almost 10pm, and I have yet to even start (homework). It seems I really need to work on this procrastination habit...damn Stumble Upon.
• I have no motivation to work.
• As suspected I got nothing done today. I just sat around surfing the internet.
• Look at that, I overslept again.
• I'm starting to think that my procrastination will be the death of me.
• I procrastinated on the second part of this project...and now that I have a job, I'm not sure if I'll have enough time to do this...
• So I'm looking at this again, not sure what I want to do. Procrastination seems to be settling in.
• I procrastinated on getting anything done. I still have to work on stuff due tomorrow and the final due Thursday.

Peers

• I should get input from my peers, my classmate, but I'm too afraid of coming off as not knowing enough about design and perhaps not worthy of being in the program
• My friends came in and were a bit distracting, but it was nice being able to just ask a 3rd party whether or not my design looked good even though they clearly don't know what to look for. I just wanted some critic and it was nice to have someone to say nice things about them for once. They even told me to change a few things. It's good to have a non-bias opinion.
• I now need a critic, so I'm going to try to get my neighbor, who is also a VCD major, to help me narrow down to three class-worthy sketches.
• I didn't ask opinions of my peers because they all seemed pretty into their own work.

Instructors Expectations

• I'm not sure if I can ever reach this particular instructor's expectations
• I felt like I owed it to my professor to actually put in some effort on at least a few of them, so spent more time in the individuals than I had the previous night.

In Class Working Session

• Getting frustrated as the teacher is getting bogged down by questions and cannot get around to help everyone.
• I HAVE NO IDEA WHAT SHE WANTS...It seems like whenever we ask questions, the answers end up adding to our confusion even more...the feedback was pretty ambiguous.
• I finished three out of six assigned ideations in class. I feel like I used time wisely.
• It was hard to focus in class because it was so early (7:45) and we sit for so long.
• Productive. Worked solo.
• Worked to music and felt pretty good.
• The more you get done in class the better. That way I can just show the instructor my progress at the end of class. Also, it makes no sense to waste that time, so I always try to make the most of it.
Quotes From Student Journals

AIGA MENTORING

• I came for one last critique today for final opinions...It was worthwhile and made me feel better.

IN-CLASS CRITIQUE

• I spent a lot of time and effort on this assignment so I was looking forward to critique. During the critique, both my peers and instructor gave me a lot of positive feedback. So it looks like I was in the right direction.
• I knew that I hadn’t done well, so I fully expected a bad critique.
• My peers didn’t hold back, as expected, but it still stung a bit.
• Our teacher always asks us questions related to it. No one ever answers and it is painfully awkward.
• Everyone was so shy and passive.
• We are getting to the end of this project so everyone is kind of stressed out and grumpy.
• There are a couple of girls who coincidently do some of the work (in my opinion), and they are so rude, like abusive in critique. Instead of saying constructive criticism like “I like this but I don’t think this is working, maybe you could try ______,” these girls just say things like “I don’t like that. It doesn’t even make any sense. Why would you even do that?”
• Happy I know what needs improvement.
• It felt good hearing suggestions and being able to implement them.
• Good tips mostly provided by the instructor.
• Quick to nitpick at self for simple things.
• Hate critiques, feel anxious and sick. Can see all my flaws
• I forget what the professor and class say.
• There are too many voices and it gets confusing.
• Sometimes people’s comments aren’t needed.
• We did a big group critique. I am not fond of this...I got a lot of opinions...none of which I could honestly take.
• We had another big group critique. Not a lot of people said anything for mine.
• Critique is dragging because everyone keeps asking questions that the instructor already answered. No one listens and it annoys me.
• For such an extensive project, I was disappointed I didn’t get a lot of feedback.
• During critique I felt pretty good overall because I felt like I prepared a lot better than others and was ahead of the game.
• Usually I hate going to class because it is at 7:45am, but lately I don’t mind it because the instructor has been giving me really good feedback, and I don’t leave critiques feeling like I don’t have anything good.
• I feel frustrated with people blurting out “I like” or I don’t like”. Tell me why and actually make yourself useful.
• I feel really focused this critique for some reason. I think it’s because I actually feel like what I put up isn’t shit.
• I skipped critique...I knew what I had was shit and I didn’t want anyone to see it.
• The instructor seems uninterested and unenthused, so that makes me feel the same.
• It felt good knowing that my peers and instructor thought I had good work.
• I didn’t think mine was very good until everyone complimented the type and materials I used.
• Students are too loud and my teacher is too quiet. Everyone just talks over each other. It is impossible to figure out what to listen to.
• Everyone is overwhelmed
Quotes From Student Journals

**HOMEWORK**

- After two hours, I would really have liked to have more done.
- I love working in the library at OSU...I feel like when I am away from my room and my house I have less things to distract me and I can really buckle down to work.
- Worked until 4:30am last night doing renderings in Photoshop and downing 5 hour energy drinks. Woke up at 8:00am and I’m off to the library to study for a midterm today.
- My computer is going so slow I don’t even want to do my homework.
- Still working on my puzzle, what a dumb project.
- Took a long time to prepare final project with many shoddy cuts.
- Worked on HW while watching TV.
- I finished my additional three iterations. Wasn’t satisfied.
- I couldn’t take doing the ones with the lines, so I stopped. Didn’t accomplish too much.
- I felt like my squares, which are supposed to be entering their final stages, are still quite rough.
- When I critiqued their work, I could better see where I might improve.
- Even though this project seems less challenging, I’m still rather scared of it.
- It doesn’t look like I will be getting anything down for this tonight.
- I did it! I managed to do a bit of work! Not much, but I am proud of myself for what I accomplished!
- Inside I am panicking.
- Put on music to see if it helps inspire.
- The people in the lounge are being loud. I find them to distracting. I would love to be the only one in my room again. My roommate’s stuff makes me feel closed off and unwelcome in my own room.
- Project is feeling lost.
- Felt rushed.
- Went to bed feeling uneasy.
- Working with a fashion major friend. Considering working with him more to concentrate better.
- Got a lot done. Worried about over-thinking again.
- After getting frustrated for three hours straight, I gave up. Hope critique will help me...
- My grasp on hierarchy is very slim.
- I’m very confused and stressed out.
- After walking away from my work, I was able to get inspiration.
- After trying to fix my final, I second guess whether I will pass or not.
- I started working on my blocks project today. I’m a bit frustrated because I feel like I don’t know what my teacher wants from me.
- My friends came in and were a bit distracting, but it was nice being able to just ask a 3rd party whether or not my design looked good even though they clearly don’t know what to look for. I just wanted some critic and it was nice to have someone to say nice things about them for once. They even told me to change a few things. It’s good to have a nonbias opinion.
- Not sure how to fix it...I’ll look at it again tomorrow.
- I’m looking at this composition and not knowing what to do. Maybe I’ll look at it in a couple of hours.
- I made some more sketches...Hopefull it is what she (the instructor) wants.
- I finally sat down and reworked everything so it’s cohesive and has nice type. Feeling much better about everything.
- I’m stressing out about this project, I’m not sure if I grasp the concepts.
- I think it turned out pretty well. I feel like I’m starting to understand what the heck I’m doing.
Quotes From Student Journals

WEEKENDS

• Fridays are my “sloth days.” Sloth days are when I just take a day to do nothing. I try to catch up on sleep and pretty much just take a mental health day. So, my plan is to watch like 6 movies and drink hot chocolate and good food.
• So I ended up not doing ANY work this weekend.
• Weekends are so precious as work times.
• No work day. I shove VCD critiques as far from my head as I can. Today is about getting a fresh point of view.
• On the weekends, I try not to think of VCD too much.
• This weekend needs to be stress free...Monday I’ll stress some more.
• I am so happy I can go home and sleep off the week.

STRESS/ANXIETY

• No one else feels confident with what they’ve learned this semester
• I learned we are both extremely stressed and feel like we are behind
• I have problems asking questions.
• My stress level is at an all time high! This second part is difficult, I don’t understand and I need help.
• Thinking about our current project just gives me anxiety.
• I feel better about this project because I put in the necessary research and know my concept/direction.
• It’s only Monday and I already want to die.

TIME-MANAGEMENT

• I regularly feel frustrated by the fact that I have to work so much to pay bills that it affects how creative I can be on a projects due to time constraints.
• Every week I feel like I’m just juggling responsibilities for all four days and then when it hits Thursday after class I just drop everything and just fall over in exhaustion.
Appendix G

Comparative Analysis of Existing Design Networks
### Comparative Analysis of Existing Design Networks

<table>
<thead>
<tr>
<th>SITE</th>
<th>DESCRIPTION/ANALYSIS</th>
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<tbody>
<tr>
<td><strong>Behance</strong></td>
<td>This is mostly a gallery site. People post work that is finished. There is a section for work in progress, but even those things looks very completed. It seems that this site is mostly professionals trying to get a pat on the back about their work. There are groups on this site, but only about six universities and again, the work is very complete. It seems more like a show and tell type of site. There is no real way of providing meaningful feedback, the best you get is a text box beside the image with thumbnails of the other variations. Most of the comments are generic likes or dislikes without any advice or real feedback.</td>
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<tr>
<td><img src="Image" alt="Behance" /></td>
<td></td>
</tr>
<tr>
<td><strong>Deviant Art</strong></td>
<td>This feels like a gallery site. There are a lot of groups to sort the art by which is nice. Groups are mostly by type of art. Once you get to a section and click on an image, you can comment below in a text box. Again, no real way to provide meaningful feedback like you would with a paper and pen. It seems that most pieces on this site do not have comments. When pieces do have comments, they are not meaningful comments, but rather “beautiful”, or “that’s awesome!” Additionally, there are no works in progress, everything is finished.</td>
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<tr>
<td><img src="Image" alt="Deviant Art" /></td>
<td></td>
</tr>
<tr>
<td><strong>The Whole 9</strong></td>
<td>This is more of a professional portfolio showcase of specific designers’ work. Seems more like a job-hunting website than anything else. There are no comments on work, and does not seem like there is any way to do so.</td>
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## Comparative Analysis of Existing Design Networks

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<tr>
<td>Blue Canvas</td>
<td>This site seems to be more fine art focused than design. People post images of their work, but there is no space to comment. The site includes people’s art, blogs, events, and a shop. This is not a site meant for critiquing or providing feedback, again this seems more like a show and tell type of environment.</td>
<td><a href="http://www.bluecanvas.com/community">http://www.bluecanvas.com/community</a></td>
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<tr>
<td>Portfolio Friend</td>
<td>This is a portfolio housing website. It is nice because it organizes work by category of design. However, work is not actually displayed on this site, it simply links to people’s personal portfolio sites. People can rank designers and leave comments, but it seems that no one really leaves comments. The work is beautiful, but again seems like a show and tell.</td>
<td>http:// portfoliosfriend.com</td>
</tr>
<tr>
<td>Design:Related</td>
<td>This site is meant as a portfolio site to find a job. Again a show and tell type of site. What is interesting though, is that it includes an inspiration section. Work is viewed by each person’s portfolio. There is not way to comment on work, but the way they organize the photos is really nice. You must request an invite to join, it is not a completely open site.</td>
<td><a href="http://designrelated.com">http://designrelated.com</a></td>
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<tr>
<td>Shown’d</td>
<td>This is a site to showcase your portfolio. What is nice is that it includes an article section that includes articles on different design topics. In the portfolio section, you can search by type of design, but portfolios are viewed by designer. Again, more of a show and tell gallery space with no way to leave comments or feedback. All work is very complete.</td>
<td><a href="http://shownd.com">http://shownd.com</a></td>
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<tr>
<td>Coroflot</td>
<td>This site is a portfolio site that seems focused around jobs. There is a large job board as well as ways to contact designers directly. Portfolios are very finished looking and it seems that many people on this site are experienced professionals. There is a way to comment on work, but most comments say things like, “I love it!” or “Good job!” There are convenient ways for searching for designers with experience levels and specialty skills.</td>
<td><a href="http://www.coroflot.com">http://www.coroflot.com</a></td>
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<tr>
<td>Core77</td>
<td>This website is more of an information site than a portfolio site. This site includes articles, discussions board, event calendar, a database of design firms, schools, vendors and services. Core77 is linked with Coroflot for hosts portfolios, job listings. There are posted design competitions as well. There is a lot offered on this site, but there seems to be a community aspect missing.</td>
<td><a href="http://www.core77.com">http://www.core77.com</a></td>
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<tr>
<td><strong>Tumblr</strong></td>
<td>This is a blog site. When you first sign in, there is a blog feed. The latest posts in the most popular blogs or the blogs that you follow pop up on the home page. Like the news feed in Facebook. People post photos, videos, audio, and text. It is easy to comment on posts in a text field below the blog post. People can search for blogs to follow or view by author, topic, or popularity.</td>
<td><a href="http://www.tumblr.com/">http://www.tumblr.com/</a></td>
</tr>
<tr>
<td><strong>Flickr</strong></td>
<td>This site is an image gallery site. People post their images for others to view. There are many ways to organize and search for images including photographer, location, topic, groups, etc. Once an image is selected, you can comment below with text or an image. Sometimes there are multiple images, but only one area to comment on all of them. They way Flickr handles thumbnails of images is nice, but the comment section is weak especially when multiple images are on one page. Most of the time, there are not productive comments, people comment that they like the images. No one seems to be looking for feedback. Again, more of a finished gallery space.</td>
<td><a href="http://www.flickr.com">http://www.flickr.com</a></td>
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<tr>
<td>Pinterest</td>
<td>This site is a place to find inspiration. The home page is a collage of images that people have posted. Most images are posted from the web, but they could be images that people took themselves. You can browse other people's pin boards or make your own. You can search images by categories or by popularity. People can leave comments in a text field below an image. People can also like images or re-pin an image to their own pin board.</td>
<td><a href="http://pinterest.com">http://pinterest.com</a></td>
</tr>
<tr>
<td>Hunie</td>
<td>Hunie is a site where professional designers can showcase their work, search for jobs with startups, connect with startups, and critique work. They emphasize connecting designers with startups, but seems to lack a way of connecting designers. Additionally, the critique aspect of this site relies solely on a comment box at the bottom of all the images. The design work is polished and comments are positive with little actionable feedback.</td>
<td><a href="http://hunie.co">http://hunie.co</a></td>
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<tr>
<td>Instagram</td>
<td>“It’s a fast, beautiful and fun way to share your photos with friends and family. Snap a picture, choose a filter to transform its look and feel, then post to Instagram. Share to Facebook, Twitter, and Tumblr too – it’s as easy as pie. It’s photo sharing, reinvented.”</td>
<td><a href="http://instagram.com">http://instagram.com</a></td>
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<tr>
<td>Dropbox</td>
<td>This is a file sharing system. People share folders and can view them on other computers, or share folders with other people. You place any file type in there, but are limited to 5 gigabytes of free space. You can pay for more space though.</td>
<td><a href="https://www.dropbox.com">https://www.dropbox.com</a></td>
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<td>Google Drive</td>
<td>This is a file sharing system as well. People can share documents and edit documents simultaneously. It is also possible to use good drive as a way of passing files from one person to another. You can share files that are too big to email. You can share up to 5 gigabytes worth of files for free, and pay for more space as needed.</td>
<td><a href="https://drive.google.com">https://drive.google.com</a></td>
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<tr>
<td>Twitter</td>
<td>This is a social networking site. Users can send text based messages up to 140 characters called ‘tweets’. People can follow users and then their ‘tweets’ show up on their home page.</td>
<td><a href="https://twitter.com">https://twitter.com</a></td>
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<tr>
<td>Facebook</td>
<td>This is a social media site that people use to connect with their friends. They share images, videos, and text with their ‘friends’. People can like images, text, or videos. They can also comment. Media can be shared publicly or with specific ‘friends’ of your choice. People gather ‘friends’ and jin networks. There is a news feed where the most recent media is posted. Otherwise, you can search by ‘friend’, and view media in that way.</td>
<td><a href="https://www.facebook.com">https://www.facebook.com</a></td>
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Appendix H

Summary of Data Points Collected From:
Observations, Surveys, Interviews, and Student Journals
**WHAT IS DESIGN**

**STUDENTS**

Students think that design is a form of art that is centered around communication, sharing ideas, and being functional. Some students understand that design is concerned with user’s needs. However, most students think that design is about taking information and making it visually appealing to the audience.

**INSTRUCTORS**

Instructors think students view design as art. However, instructors view design as a method of action. “Design is not a noun, it’s a verb.” Design is less about the artifact and more about the process of problem solving and filling a need. Design focuses on user’s needs and is part of a larger picture and goes so much deeper than just the aesthetics.

**PROFESSIONALS**

Professionals think that students do not understand what design is and therefore have unrealistic expectations. Professionals view design as an iterative process. Design is about meeting the user’s needs, objectives, and working within their parameters. Design is not art and it is not personal like many students think. Design is meant to meet a need and sell. It is business focused.

Most students do not understand design and think that design is about the end artifact and that it is a form of art. However, both instructors and professionals view design as a method of action. “Design is not a noun, it’s a verb.” Design is less about the artifact and more about the process of problem solving and filling a need.

**WHAT A DESIGNER SHOULD BE / SKILLS A DESIGNER SHOULD POSSESS**

**STUDENTS**

Students think that designers needs to be artistic and possess good communication skills. They should be imaginative, passionate, and have a good understanding of design principles as well as technical skills. The field is constantly changing and students understand the drive to constantly be learning is important. Last but not least, students understand that being organized and having good time-management skills are crucial.

**INSTRUCTORS**

Instructors think that having a good understanding of design is important. Designers must have pride in their work, but not be so attached that they cannot edit or refine it. They think that designers must be investigative and curious in nature. Designers need to be able to learn independently and possess critical thinking skills to analyze problems. Additionally, designers need to have good interpersonal and communication skills as well as effective time-management skills.

**PROFESSIONALS**

Professionals think designers should be hard working, confident, and initiate things on their own. Designers work within constraints and work towards an objective. They manage their time effectively and work on many projects simultaneously. Designers are constantly learning on their own and must have a good understanding of both design principles and technical skills. Designers work with one another, evaluate each other’s work, and possess critical thinking skills to effectively analyze problems. They have a thick skin and are able to adapt based on feedback from peers and superiors. Designers must possess strong communication skills and act professionally.

Students, instructors, and professionals all agree that a designer needs to be imaginative and passionate, have a good understanding of design, possess good communication and time-management skills, and have the ability and drive to learn independently. Instructors and professionals added that designers must have confidence, be hard working, be able to work collaboratively, be able to self-evaluate and evaluate the work of others, and possess good critical thinking and analytical skills.
### Summary of Data Points Collected from Observations, Surveys, Interviews, and Student Journals

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<tr>
<th>STUDENTS</th>
<th>INSTRUCTORS</th>
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<tbody>
<tr>
<td><strong>TIME MANAGEMENT</strong></td>
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<td>Students struggle with time management. They have a hard time balancing their responsibilities between school, work, and their personal lives. Students also struggle with procrastination. Additionally, students typically have a bad workflow or process and then homework taking longer than expected.</td>
<td>Instructors acknowledge that many students struggle with time-management. They are aware that students also struggle with workflow and process. Instructors constantly hear students complain that they do not have enough time to do their homework because of their jobs. Additionally, instructors notice that students seem to always be tired.</td>
<td>Professionals think that students struggle with time-management, do not know effective ways to work, and are unaware of many shortcuts that can help with their workflow. Professionals notice that students have a hard time adjusting to the idea of ‘paid time’ and tracking the hour that they work on projects. Students struggle to prioritize and work on multiple projects at once.</td>
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*Everyone is in agreement that students struggle with time-management and typically do not have the most effective workflow or design process.*

| **INTERNSHIPS** | | |
| (I never directly asked students about internship experiences and students did not comment about internship experiences.) | Instructors think that internships help students to mature more quickly. | Professionals think that internships help students see what the real world is like. They help students be better prepare for a career in design. |

*Instructors and professionals both value internships and think that they help students to mature and be better prepared for a career in design. Students did not comment about internships.*

| **MOTIVATION** | | |
| Students seem to be plagued by procrastination. They have a hard time starting to do work, and procrastinate when they are unsure how to proceed with a project. The physical space and people around them affect student’s motivation. For some, the competition within the program keeps them motivated. Other students find that setting goals keeps them motivated. Most students seem to struggle with motivation especially when they dislike a project. Typically when students do put in the time and effort, they feel better about their work. | Instructors think that students struggle with personal responsibility and taking initiative. Students today have more resources at their disposal than ever before, and yet students struggle with motivation. They expect everything to come easily to them, and they don’t value struggling through something to overcome the challenge. They do not understand that you need to struggle in order to succeed. | Professionals think that students are not motivated. Professionals are disappointed and turned off by students who do not personalize resumes and cover letters. They feel that students have an ego and do not want to put in any extra effort. |

*Students, instructors, and professionals all agree that students struggle with motivation. Students procrastinate a lot, and have difficulty with personal responsibility and taking initiative. Students do not value the struggle in learning and tend to give up or procrastinate when things get difficult.*
Summary of Data Points Collected from Observations, Surveys, Interviews, and Student Journals

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<tr>
<td><strong>IDEATION</strong></td>
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<tr>
<td>Students know that they struggle with ideation. Students are often unsure of how to begin a project or come up with ideas. They do not always value sketching or put in the necessary amount of time or thought into it. Students typically get attached to an idea too quickly and have difficulty pushing past their initial idea. Students fear trying new things. They feel like they need to please the instructor and create something that matches the instructor’s style or taste. Once students come up with multiple ideas, they have a difficult time selecting and editing their best idea. Another issue with ideation for some students is that they can become overprotective of their ideas and not work with people or reach out when they need help. Students often do not know where to look for inspiration. Some students look at blogs, Pinterest, Instagram, Vimeo or TED for inspiration. Some students find inspiration from their peers. Others get inspired by their surroundings or music that they listen to.</td>
<td>Instructors know that ideation and creativity becomes easier with time and experience. Students are rather inexperienced and therefore struggle with ideation. Students expect that their first idea will be their best, when in fact most of their ideas will be disregarded. That is the way the process works. Students do not understand that design is a process that they need to put a lot of time and energy into in order to push past their initial ideas. Instructors find that students are so focused on rules and grades that they are uncomfortable with experimentation. Students become so afraid of making mistakes that they do not try anything new. Instructors often encourage and suggest places or topics for students to look at for inspiration. However, many students do not like inspiration initially. It overwhelms them and makes them think that everything has already been done before. Students have a difficult time understanding how to use inspiration instead of copying it.</td>
<td>Professionals think that it will always take novice designers longer than more experienced designers to come up with ideas. However, they think that students are especially slow at ideation for a number of reasons. They think that students fear making mistakes which gets in the way of ideation. Students often get hyper-focused on one idea and try to refine it even if it is not a good idea. They do not push past their initial ideas. People are inspired by those around them. However, some students are either too shy or intimidated to ask for advice or have too much of an ego to seek advice. This slows the ideation process greatly. Professionals think looking for inspiration is an important part of the ideation process. Professionals seek inspiration from things like magazines, websites, books, events, and social media.</td>
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**STUDENTS**

**STRESS**

Students experience a lot of stress, especially when they do not understand project descriptions or what is expected of them. They second-guess their abilities, lack confidence in their work, and feel like everyone knows something that they don’t. Students become overwhelmed when working on multiple projects simultaneously. Portfolio reviews to stay in a program causes additional stress for students. Also, many students do not get enough sleep.

**COMMUNICATION**

Students prefer to communicate in-person during class or online through email, texts, and social media. Students are afraid of looking stupid and therefore have a hard time asking for help. At times students are unsure of what is expected of them and therefore do not know what to say. They also have a hard time using design terminology and explaining their reasoning behind their designs.

**INSTRUCTORS**

Instructors notice that students are often stressed. When students are taken out of their comfort zone, they become very nervous since they fear mistakes. Students have a lot to balance with school and jobs and struggle to stay on top of everything. Students’ lack of time management skills as well as weak workflow and process, cause them additional stress.

**PROFESSIONALS**

From speaking with professionals, I do not think that the stress ever goes away. They work on many projects simultaneously. They work on projects with very short deadlines. Working with clients can be stressful as well. Learning to deal with your stress and not letting it get in the way of your work seems to be an important skill to master in order to be successful.

Instructors believe that communication is a crucial skill for designers to possess. They think that good communication in design is not only about visual communication, but also verbal communication. Instructors find that they need to encourage and probe students to externalize their thoughts and get them to explain their reasoning behind their design choices. Students also need help learning what kinds of comments to make during critique.

Professionals think that both verbal and visual communication skills are imperative for designers to master. Designers need to be able to effectively communicate with designers, clients, and other professionals. Communication skills do not come naturally to most. These skills must be learned and practiced. Most students have weak communication skills, and need to learn to communicate in a positive and tactful manner. They also need to learn how to explain their rationale for design choices.

Both instructors and professionals believe that visual, verbal, and written communication skills are imperative for designers to master. They both think that students generally have weak communication skills and need to learn to explain their rationale for design choices and learn to use design terminology.

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*Summary of Data Points Collected From Observations, Surveys, Interviews, and Student Journals*

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### Summary of Data Points Collected from Observations, Surveys, Interviews, and Student Journals

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<thead>
<tr>
<th><strong>STUDENTS</strong></th>
<th><strong>INSTRUCTORS</strong></th>
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<tr>
<td><strong>PEER INTERACTIONS</strong></td>
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<tr>
<td>Students find working with new people to be intimidating. It takes time to get to know people and build trust. It takes time for students to feel comfortable reaching out to their peers. Students will speak to peers in their classes, but do not typically reach out to anyone else. Peer interactions mostly take place in the classroom. Some students meet up with peers outside of class to do homework, but most do homework alone. If they communicate with one another, it usually happens online or via text messages. Most students say they trust their peers’ feedback, but there are some that are more skeptical. Students who have interacted with peers in different disciplines have valued the experience. They value the different opinions and outlooks that their peers have. Students dislike assigned groups because they are unreliable since not everyone is there to learn.</td>
<td>Most instructors encourage their students to reach out to one another and promote peer collaboration. They believe that students are able to help one another. Instructors see improved class performance and participation by students who work together with their peers outside of class. Most instructors found that students support and encourage one another with design and technical issues. Instructors think that it is helpful for students to bounce ideas off one another, and that peer interaction can help everyone to improve. Instructors think that there are many benefits to be gained from peer interaction between peers at different levels and different disciplines as well. However, instructors find that peer interaction often needs to be facilitated in order for it to happen. While most instructors seemed to think that peer interaction is beneficial for students, I did encounter instructors that think peers are not capable of helping one another and in fact mislead each other unknowingly. These instructors seem to be the minority though.</td>
<td>Working collaboratively is both important and expected of professional designers. Designers often work on interdisciplinary teams. It is important for designers to be able to work together with others and with ideas that are not their own. Work environments tend to be as collaborative as you make them. Often people will work alone and then turn to their colleagues for help or feedback. It is impossible to know everything yourself, so designers rely on their colleagues’ expertise. The people around you push you to grow. Professionals think it is important to be part of a design community. They feel that being part of a design community, like AIGA for example, can help designers find inspiration, track trends, hear new perspectives, learn from others, network, and build relationships. A designer should not be shy, but rather a ‘go-getter’ and reach out to those who share their professional interests. Professionals talked about how they had peer groups in school that helped them succeed and learn how to work with others. They mentioned these peer groups in a positive light.</td>
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</table>

Many students work alone, but form peer as they progress in the program. It takes time to build trust and for students to feel comfortable reaching out to their peers. Both instructors and professionals think being able to work and communicate with peers is important and that everyone gains something from peer interaction. Designers often rely on their colleagues’ expertise. Additionally, many professionals and instructors think that joining a design community like AIGA is important since it helps designers build relationships, network, learn from others, and find inspiration. Some students join AIGA and like feeling part of a community, but many students find AIGA too intimidating, and therefore do not participate or join.
**Summary of Data Points Collected from Observations, Surveys, Interviews, and Student Journals**

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<tr>
<td><strong>HOMEWORK</strong></td>
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<td>Most students work alone while doing homework. Many find it distracting to work with others. Some students will ask non-design friends or family for feedback since they do not live with other design students. Some students reach out to their peers and do homework together in a dorm lounge or in the art building. Some students find they need the extra feedback and suggestions that their peers can provide. As deadlines approach, students find themselves wanting more feedback. Many students get stuck or frustrated while working on their homework and will give up and leave it.</td>
<td>Instructors encourage students to work together or collaborate with homework. When students struggle with their homework, they sometimes email their instructor. About half of instructors respond to their emails at night, and even fewer respond to their emails over the weekend. If a student is relying on a response, they may not get one with enough time to do anything before class. Often, instructors will suggest that students come to their office hours or see them before or after class for extra help.</td>
<td>Professionals remember class being so long that they received all the help that they needed during class, and then worked on homework alone. Some professionals said they worked with peers. Professionals remembered having a group of ‘trusted peers’ that they went to when they needed help with work.</td>
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*Most students work on their homework alone in their home. Some students work with peers in dorm lounges or in the art building. Many students get stuck or frustrated while working on their homework and will give up and leave it to discuss in class. Instructors encourage students to work together, but when they struggle, they recommend that the student come to their office hours or meet with them before or after class.*

**STRUGGLES**

Students struggle with time-management, motivation, and confidence. They have a hard time adjusting to new information and new ways of thinking. Students are hard on themselves and struggle with competition. Students forget things that they already learned, and they struggle to please their instructors. Students struggle throughout their design education. However, students do not usually expect to struggle and when they do, they tend to want to give up.

Students struggle with time-management, personal responsibility, and confidence.

Professionals think that students struggle with ideation, time-management, and taking initiative. They also think that students struggle with self-evaluation and evaluating colleagues.

Instructors know that there are many areas in which students struggle, but they think that it takes struggling through something in order to get good at something. Students do not understand that they need to fail in order to succeed. Students want to just jump to the end of the process, but design does not work like that.

Students need to not be afraid to try. They should work to overcome these struggles. Professionals think that people should always push themselves to improve.

*Everyone agrees that students struggle with time-management, motivation, ideation, taking initiative, and confidence. Instructors and professionals think that students struggle with self-evaluation and communication as well. The process of learning requires struggling, however, most students do not expect to struggle, and when things get difficult, they want to give up. Additionally, students are afraid to try new things and don’t understand that failure is necessary to success.*

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## Summary of Data Points Collected from Observations, Surveys, Interviews, and Student Journals

### STUDENTS

**NING/LORE/ONLINE CLASS ENVIRONMENT**

Students spend at least four to six hours on their computers daily. Students use various social media sites like Facebook, Twitter, Tumblr, Pinterest, Instagram, Deviant Art, etc. Additionally, students use Google to find answers. Students take online classes and have online components of classes like a Ning or Lore sites. Students appreciate the ability to learn at their own pace and convenience. However, discussions do not work well and the sites feel empty and inactive. Students dislike Ning and Lore because of its lack of connectivity and continuity. Each time a class uses it, users make a new account. It does not connect users’ previous courses in any way. It just becomes one more thing to check.

Some Instructors use an online component to their class which is meant to act as an online community for the students of that course. These sites can be useful for students to view inspiration and comments that the instructor posts. It is easy for students to find and review things. However, many classes do not take advantage and use these sites. Most often, students use the site to contact the instructor and not their peers. Instructors notice that students participate in an online environment, when they feel a sense of ownership over the site and feel safe and not worried about looking stupid. Typically, online environments are great for shy students. It gives them a way to participate without being overly nervous.

(No comments from professionals about Ning/Lore.)

### CRITIQUE

**instructors**

Students think that the instructor leads critique and provides the most feedback. Students value their instructor’s opinions over anyone else’s. They are concerned with pleasing the instructor and seeking the instructors approval. Therefore, students become focused on the instructor’s style and make choices accordingly. Students often approach their instructor for extra help.

Instructors believe that they offer the most feedback during critique. They try to engage the students as much as possible by asking questions and calling on students. Instructors provide clarity by explaining design principles and concepts, and offering tips and advice. Some instructors talk about general principles and allow students to extrapolate and apply the feedback from other projects to their own. Other instructors talk about each student’s project individually providing specific feedback to each student.

Professionals think that is the instructor’s role to lead and facilitate critique. They should lead critique in a positive manner and encourage student participation. Instructors should help students understand design and improve their work. However, some professionals think that critique is a crutch the way it is currently handled. It causes students to wait for approval from their instructor before proceeding. Students do not learn to take initiative, self-evaluate, or ask others for feedback.

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*Students like online environments for the ease of access and convenience they provide. However, the lack of interactivity and connectivity on these sites dissuade students from using them. Instructors think that these sites provide good opportunities for reviewing notes and comments, viewing inspiration, and gives shy students a chance to participate.*

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<tbody>
<tr>
<td>Everyone thinks it is the instructor's job to help students understand design principles and concepts. However, professional think that critique becomes a crutch because students wait for the instructor's approval. Therefore do not learn to take initiative, self-evaluate, or ask others for feedback.</td>
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CRITIQUE feedback

During critique, students can be reluctant to give feedback because they do not want to expose other students in front of the instructor or give them more work to do. Some students feel uncomfortable and self-conscious during critique because they are uncomfortable showing their work in progress to people. Some students find critique environments to be high pressure environments and therefore do not want to participate. Additionally, some students have a hard time participating during critique. They often feel that they do not know what to say or how to contribute.  

Instructors typically provide the majority of the feedback. Before critique begins, some instructors re-explain the objectives. As critique begins, the instructors walk around the room, point to things on the wall, and even draw on sketches. Students often need to be coerced to participate. When students do participate, instructors usually think that they are not critical enough. Students are not accustomed to formally evaluating one another and need to learn to be intelligently critical. Students need to learn how to give feedback to other, self-evaluate, and take initiative for their own learning. Students often have interesting ideas, but need to learn to focus on the objective.  

Professionals think that students do not always take feedback well. Students often get offended or insulted, and do not always listen to feedback given. The ability to accept and learn from constructive criticism is crucial for a designer. People will always have different opinions, and students need to learn to accommodate multiple opinions into one project. Additionally, feedback should not begin with the details. First, it must be determined if the work meets the stated objectives of the project. Professionally, it is a given that work will be designed well.  

Everyone agrees that the instructor generally runs critique and offers the most feedback. Some students feel uncomfortable and self-conscious during critique and do not know what to say. Other students do not want to give other students more work. In general, students are not accustomed to formally evaluating one another. Students need to learn to be intelligently critical and give feedback. Additionally, students do not always receive feedback well. They get offended and need to learn to accept and grow from constructive criticism.  

CRITIQUE large group critique

Students like large group critiques because students can see everyone’s work at once and see where they stand. However, large critiques can be hard for students because they become overwhelmed with information and feedback.  

Instructors think that students benefit from seeing each others work all at once. However, instructors acknowledge that students fear being judged and so large group critiques can cause anxiety for some students.  

(No comments from professionals)

Both students and instructors think that students benefit from a large group critique. When students see everyone’s work at once, it is easier for students to notice what works and where they stand in comparison to the group. It can be motivating. However, some students become overwhelmed by the amount of information and feedback, and fear being judged in front of everyone causing anxiety.
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<tr>
<td><strong>CRITIQUE</strong> small group critique</td>
<td>Instructors know that students are at varying levels, especially during freshman/sophomore year. These students require more individualized attention and therefore individual or smaller group critiques can be more beneficial for students.</td>
<td>(No comments from professionals)</td>
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**Students and instructors see value in small critiques since they allow students to have more individualized attention. It is also easier for some students to process information and feedback when it is coming from fewer people. Additionally, students think that people are more open and honest in a smaller group.**

<table>
<thead>
<tr>
<th>CRITIQUE positive outcomes of critique</th>
<th>(No comments from instructors)</th>
<th>(No comments from professionals)</th>
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<tr>
<td>Students value critique and the clarification it provides. Critique helps clarify design principles and project objectives. Additionally, Seeing everyone’s work provides students with students inspiration and helps them realize what is or is not working in their own project as well as others’ projects. Participating in critique helps students learn to see issues with their own work, and see where they stand in comparison to the group. Critique helps students to move forward and to push themselves to improve their work and critiquing skills.</td>
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**Students value critique and the clarification it provides. By participating in critique, students learn and clarify design principles, understand project objectives, notice what is or is not working with their project (learn to self-evaluate), and become inspired and push themselves to improve their work and critiquing skills.**
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<tr>
<td><strong>CRITIQUE</strong> issues that arise with critique</td>
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<td>(No comments from professionals)</td>
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Students have some bad behaviors that affect the impact of critique. Some students come unprepared to class and therefore do not receive much feedback. Other students check their phones, have side conversations, or come and go during class. Therefore they miss valuable information. Additionally, many students do not take notes and therefore have a hard time remembering what was said. Typically, energy and enthusiasm is low during critique. Critique often focuses on the issues and can seem very negative and upset students. Additionally, Critiques are often very long and students lose focus. There are many students in one class, and at times students feel that they do not receive enough feedback either because they were too shy to ask, or they ran out of time. This leaves students confused after critique is over. There are issues with the logistics as well. In many classrooms, the acoustics are bad and it is therefore difficult to hear the feedback being given.

Students today desire a lot of personal attention. Students tend to be unmotivated and want to be shown how to do things instead of exploring and figuring things out for themselves. Some students complain that they do not receive enough feedback, and others display bad behaviors that can inhibit their learning during critique. Students check their phones, have side conversations, and come and go during class. Also, many students do not take notes. These things cause students to miss information. There can also be issues with the logistics, which can make it difficult for students to hear the feedback being given. Additionally, critiques are often very long and students lose focus. Even though critique is long, there are times when instructors run out of time and must rush.
References


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