The Effectiveness of Distance Delivery Studios in Interior Design Education

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THE EFFECTIVENESS OF DISTANCE DELIVERY STUDIOS
IN INTERIOR DESIGN EDUCATION

by

Tracy A. Fichera

A THESIS

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Technology has affected the way in which we live and work and many Interior Design programs have transitioned at least a portion of their curriculum to an online format; however, for many reasons most have been hesitant to convert the studio. One concern many faculty have is that distance education cannot facilitate the same environment or provide the individualized attention that face-to-face studio offers. In this study, the effectiveness of distance delivery studio courses in interior design education will be explored to find out if they can be as successful as face-to-face studio courses. Standards set forth by the Council for Interior Design Accreditation (CIDA) are utilized to benchmark success in each delivery format. Research data may help readers to decide whether it would be beneficial to transition their own traditional face-to-face studio courses to a distance delivery format and could help with course development for all delivery types.

Keywords: design studio, architecture, interior design, education, online education, hybrid course, face-to-face, distance education.
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To my college professors Karin Kuenstler and Rena Cumby who were two of the major influences and motivators for my returning to school to pursue my education further. Your dedication, commitment and passion for design education was felt so deeply when I was a student that I realized all those years ago; someday I wanted to be at the front of the classroom sharing my passion and commitment with students of my own. Thank you for your willingness to help me along this journey and for your guidance.

To my advisor, Professor Betsy Gabb, you made this process as easy as writing a thesis from a distance could possibly be. Your quick responses, thoughtful suggestions and willingness to read and re-read my work were greatly appreciated. Thank you most of all for your simple words of encouragement and conviction that I would get through this when many times, I doubted I would.
DEDICATION

To all of my colleagues, friends and most of all my family who have encouraged me, listened to me and patiently stood by while I studied or wrote; thank you for your support and for being there for me these last few years.

To my loving husband Anthony; without you, I’m not sure I would have been able to get through this. Thank you so much for learning to do laundry (even though my dresses are shorter and shirts a bit tighter), for vacuuming and food shopping and taking care of Sadie. Thank you for lifting me up when I was down and for believing in me when I forgot how to. I love you very much.
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INTRODUCTION

Long gone are the days when design students spent hours sitting at a drafting table in their studios working on projects from schematic design through construction documentation. Instead, you’ll likely find these students sitting at home at their own computers or in computer labs on campus. They have no T-squares, triangles, vellum or lead pencils to lug around, instead perhaps just a small pocket-sized device called a thumb drive. There is no trace paper trail of design thoughts, intentions and failures to be found, instead, these have been erased with the click of a mouse and dumped to conserve digital space. In this age of digital design, one has to wonder whether we have also lost some of our creative process along with our trace paper trail of thoughts.

Higher education has changed greatly over the years and one cannot ignore the current trend towards online education. Program administrators and design faculty have differing opinions on whether interior design can be successfully taught via distance. Some feel as though the traditional, face-to-face (f2f) studio experience could never be replaced by an online classroom and much like the missing paper trail of thoughts; students would be missing out on something. On the contrary, others believe that distance education (DE) and the online studio provide just as much interaction, collaboration and personalized attention as the traditional f2f counterpart and nothing is lost in translation at all.
DEFINITIONS

In this research study, the following definitions as outlined by the U.S. Department of Education (2010) were utilized to categorize studio types;

**Face-to-face (F2F):** Synchronous learning that takes place in a physical location in the physical presence of other participants, instructors and facilitators.

**Online:** Learning that takes place entirely over the internet. This definition excludes purely print-based correspondence education, broadcast television or radio, videoconferencing, videocassettes, and stand-alone educational software programs that do not have a significant internet-based instructional component. Learning is conducted totally online as a substitute or alternative to face-to-face learning and could include one or both; asynchronous and synchronous forms of communication.

**Hybrid:** Online learning components that are combined or blended with face-to-face instruction to provide learning enhancement. The online component of hybrid learning could also include one or both; asynchronous and synchronous forms of communication.
PROBLEM STATEMENT AND RESEARCH QUESTIONS

In this age when students rely so heavily on technology and an on demand style of learning, many Universities and Interior Design programs across the country have transitioned at least a portion of their curriculum to an online or distance delivery format.

In this study, the effectiveness of distance delivery studio courses in interior design education will be explored to find out if they can be as successful as face-to-face studio courses.

There are two hypotheses for this research;

1. Students are utilizing technology in their face-to-face studio courses and design process as much as those learning by hybrid or online/distance methods.

2. Online/Distance delivery studio courses in interior design education can be as successful as face-to-face studio courses by CIDA standards.

Standards set forth by the Council for Interior Design Accreditation (CIDA) are utilized to benchmark success in each delivery format as well as to measure the amount of technology being utilized in face-to-face and by hybrid or online/distance methods.
CHAPTER 1- LITERATURE REVIEW

HISTORY OF STUDIO

“From its inception, the design studio has encouraged a subculture all its own, a different world with its own values and behaviors” (Anthony 1991, 39). In traditional architecture studio education, students work on semester long projects, meeting weekly with their professors to obtain critique of their design concepts and development. When the semester is coming to an end, students present their final projects to a face-to-face jury which may consist of their peers, faculty and industry professionals (Bloomer 1998). Dating back to the Ecole des Beaux-Arts and the Bauhaus, this collaborative work environment and educational process referred to as studio has become the core of architecture and interior design education today and while the character and content of semester long projects have evolved over time, the studio itself has not changed significantly.

In the Beaux-Arts style of education specifically, students were taught to study and re-study, draw and re-draw and constantly revisit their designs. Daily criticism by both educators and peers aided in the process of review and revision. It is the opinion of A.D.F. Hamlin and Paul Phillipe Cret that though the foundations of Beaux-Arts and Parisian influence have aided American architecture greatly, American education will continue to change and the results will be better and more efficient in the future (1908).

The slogan "Art and Technology: A New Unity" is probably the most popular and most quoted term dating back to Walter Gropius' Bauhaus (Findeli 2000, 39). His greatest
intentions were to unite all creative efforts into one whole “Einheit” (39). This intention was based on the belief that creative artists must themselves be familiar with the production process in order for true unity to occur. The early Bauhaus education was a three-stage process including preparatory, specialized and apprentice work. Figure 1.1 shows a diagram of the Bauhaus curriculum from 1922 while figure 1.2 outlines the curriculum rubric.

Testimony by Andre Gutton, Professor of Theory in 1951, who guided many of the developments within the curriculum, highlights the true state of education at the Ecole des Beaux-Arts. According to Gutton, a major theme of the education at Ecole in contrast to previous models of education (Bauhaus) is that construction courses were no longer divorced from design problems. Education was formatted to teach students to approach each design problem by completing research and by understanding architecture as an art with a social mission. The student learned to combine the “tangible with the intangible”
(Levi 1951, 81). One point of interest was the fact that students were free to choose their own mentor or atelier based on who they thought would help them develop their own design personality and abilities. Also of note was the concept that it takes many opinions, views and ideas to develop successful design. This theory led to the inclusion of professional juries reviewing student work. A strong conviction was conveyed that the professional jury married with healthy competition between students and ateliers led to preparation for future practice. These observations and opinions of testimony by Gutton are merely accounts of his experiences (an interpretation of interpretation) and should be validated. This specific item of recollective evidence can be considered valid considering the close and intimate relationship the interviewer (Gutton) had to the actual curriculum at the Ecole des Beaux-Arts.

In the United States, architectural education began at Ivy League institutions where curriculum was founded on the libraries, referencing back to the Beaux-Arts model of atelier design brought to America in 1865 (Hogben 1989). Hogben points out that other institutions, referred to as professional schools had curriculum centered on the "learning-by-making" laboratory concepts dating back to the Bauhaus model of education by Mies, Gropius and Albers. Of the institutions based on the Bauhaus model, most turned to the Beaux-Art traditions in the late 1960's. This was marked by an abandonment of projects based on the universal basis of design arts (formal exercises on point, line and plan, nine-square composition, cubic spatial explorations etc). Ritual review of projects by instructors based on bias was dissolved and new projects emerged. Revival of students completing an
epic-scale thesis project returned along with this turn towards the Beaux-Arts traditions (41).

Through interpretative “movement of spirit” (Groat and Wang 2002, 145), conclusions can be drawn and parallels made between the history of curriculum at the Ecole des Beaux-Arts, Bauhaus schools of education and the modern day architectural/design studio.

In regard to the modern day interior design studio, Ankerson and Pable (2008) state that “Studio provides the epitome of project based learning exercises, with activities that include research, inquiry and analysis, synthesis, criticism, collaboration and communication” (142). Ankerson and Pable relate the modern day studio and the process of design thinking to a learning theory called Bloom’s Taxonomy from 1956.

<table>
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<tr>
<th>Bloom’s Taxonomy</th>
<th>Level</th>
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<td>Application</td>
<td>3</td>
<td>Interpretation</td>
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<td>Comprehension</td>
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<td>Translation</td>
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<td>Knowledge</td>
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Figure 1.3. Bloom’s Taxonomy of Cognitive Learning represented as a scale of knowledge acquisition. Source: K. Ankerson & J. Pable, Interior Design: Practical Strategies for Teaching and Learning, 2008, p. 44.
Bloom’s highest level of taxonomy (Evaluation) is evident as students work through the design process in studio courses, “drawing, looking and inferring, designers propose alternatives and interpret and explore their consequences” (44). These iterative processes of interpretation, concept development, critique and design proposal are rooted in the traditional framework of studio from the Beaux-Arts and Bauhaus styles of education.

The modern studio rooted in traditions dating back almost one hundred years has evolved but much of the process remains the same.
HISTORY OF DISTANCE EDUCATION

Pioneers in the field of distance education such as Desmond Keegan (1990) defined distance education in five terms; “Separation of teacher and learner, use of media, provision of two-way communication, influence of an educational system and an industrial base operation” (44). Over one-hundred years ago, educators used print media and postal service and called this correspondence education. This type of learning would be the beginning framework for today's distance education and the definition would certainly need to be considered further (Moore and Kearsley, 1996).

Over one-hundred years time, the definition of distance education has evolved and will continue to evolve as society and needs change. “Rapid changes in society and technology are challenging these traditional definitions” (Simonson, Smaldino, Albright, and Zvacek 2009, 35).

According to the Theory of Interaction and Communication- Borje Holmberg “The core of teaching is interaction between the teaching and the learning parties; it is assumed that simulated interaction through subject-matter presentation in pre-produced courses can take over part of the interaction by causing students to consider different views, approaches and solutions and generally interact with a course” (Simonson et al 2009, 47-48). This was just one of Holmberg’s background assumptions however it’s an all encompassing assumption that forces us to consider the ‘bigger picture’ of distance education. The learning experience is more than just teacher and student. A major part of distance education must be the critical interaction between student and student as well. These
different views and solutions are an integral part of the learning process for distance education students.

As time progressed, so did the theories of these leaders in the industry. Holmberg added to his previous theory with eight additional points. One of particular interest was “Distance education is an instrument for recurrent and lifelong learning and for free access to learning opportunities and equity” (Simonson et al 2009, 48). This point was another piece of information missing from traditional thoughts on distance education; the idea that geography did not matter, nor the medium of information delivery. The essence of distance education is this free access, free from time constraints and distance barriers; access to education for persons from all walks of life, anywhere at any time.

Just as the leaders in this field explored and adapted their ideas and theories regarding what distance education is so must society.

Today, distance education is structured learning through synchronous or asynchronous communication. The basis of this learning format as a successful means is largely hinged on effective dialogue and communication between student and instructor and students peer to peer interaction. Distance education occurs for all who desire to learn regardless of time, space and location.

Many in the field believe that it takes more self direction, motivation and dedication to be successful in distance or online education. “One common characteristic of the distance learner is an increased commitment to learning. For the most part, these learners are self-starters and appear to be highly motivated” (Simonson et al 2009, 162).
The importance of interactivity may be one of the most popular topics and research interests regarding distance education however it still deserves additional consideration. Mahle (2007) concluded that “interaction is a primary component of any effective distance education program” (Simonson et al 2009, 75). This conclusion could be perceived differently, depending on one’s definition of interactivity. Was this interaction between a student and teacher? Is it interaction between a student and their peers? One could argue that interactivity occurs simply between student and the method of course delivery, be it teleconference, video, textbook or an online computer platform.

To contrast, Beare (1989) completed research on six different course delivery methods and concluded that the amount of interaction had no impact on student achievement.

Souder (1993) attempted to compare achievement between face-to-face (f2f) students and distance education (DE) students by studying three groups of learners, taking the same course, taught by the same instructor, utilizing the same evaluation techniques. His conclusion was that distance students gained more than traditional students had.

It appears that the importance and effectiveness of interactivity in distance education research could be argued from many different angles.
TECHNOLOGY AND DESIGN EDUCATION

Advanced technologies such as AutoCAD were introduced to the architecture and design industry around 1991 (Bozdoc 2003). Since then, CAD technology has continued to develop in an effort to make the jobs of designers easier by allowing for more efficiency and by attempting to create fewer opportunities for error among design teams. “25 years ago, nearly every drawing produced in the world was done with pencil or ink on paper. Minor changes meant erasing and redrawing while major changes often meant recreating the drawing from the scratch. If a change to one drawing affected other documents you were dependent upon having someone manually recognize the need to make the changes to the other drawings and to do so. CAD has fundamentally changed the way design is done” (Bozdoc 2003, 1).

The intentions for technology being introduced to the design profession were well meaning, however with so much technology coming at designers from every direction, one may begin to wonder if in regard to design process; younger generations are missing out in some way. In professional practice, there are many reasons why technology is beneficial; from reducing error to increasing efficiency however, is technology in fact a useful tool in design education as well?

There are two answers to this question, with technology coming under fire as a detriment to design education yet also as a benefit.

“Lawson expressed concern about a growing deficit of freehand drawing in student work: Increasingly we have students learning from scratch to design with CAD rather than manual drawing…Among those of us who examine such students, there is a growing
feeling that a worrying trend is developing … I have examined design in half a dozen universities in three countries. In each case I found examples of students combining impressive and convincing computer presentations with poor design” (Lawson 2002, as cited in Meneely and Danko 2007, 69). Here lies one potential issue with technology in design education; the fact that students may rely on the technology to create perfectly rendered presentations that lack the fundamental principles of good design.

The schematic design process consisting of freehand sketching yields much less formal, more fluid and perceptually changeable designs. “Pencil and paper yield to the designer, thus, the designer controls the technique” (Brandon and McLain-Kark 2001, 28). CAD drawings on the other hand are much more finite in appearance and seemingly more set in stone. In an assessment of student designers using CAD techniques, Brown (1987) found students relied heavily on the computer’s available design features when producing designs. They relinquished control over their own decision-making processes by relying more on the computer’s inherent design solutions (Brandon and McLain-Kark 2001).

“McLain-Kark and Rawls (1988) concluded that CAD may have adverse effects on the design process by possibly suppressing the right-brain capabilities, which some believe dominate during schematic design phases. Computer configuration is similar to left-brain processing mode-logical and sequential-which may be better suited for the production of construction drawings and specifications” (as cited in Brandon and McLain-Kark 2001, 28). With technology taking the center stage in design education today, more responsibility lies on the instructors to ensure that the valuable design process is not lost to the technology. Instructors should frame their course work to ensure that students are first
mastering the critical elements of good design before diving head first into a techno-centric design process. When design students understand that different tools are best utilized at different stages of the process, technology no longer becomes a detriment to their education or to design.

As stated earlier, the real goal of technology is not to complicate or hinder design but instead to support and foster it. Moving beyond pencil, paper and even 2D CAD, designers now work with advanced technologies which help to quickly construct a vision into reality for clients.

Huy Sinh Ngo, Chair, Architecture Department and Director of Electronic Design Savannah College of Art and Design stated; “Traditionally, before the invention of CAD and building information modeling (BIM), architects designed in 2D first, and then moved to 3D. Using Revit Architecture, our students think in 3D, design in 3D, work in 3D, says Ngo. Then, from the 3D model, they can easily extrapolate all the necessary 2D information. This is a major shift in the design paradigm that we want our students to embrace and thrive on while they are pursuing their academic careers at the Savannah College of Art and Design” (Renaissance Designers 2010, 1).

It has been argued that technology not only equips students with the fundamental knowledge and skills they need to compete in today’s design industry but that it is also as an extreme time saver in the scheme of the design process.

The benefits to working with 3D modeling programs are immense when utilized appropriately and at the correct time within the design process. Design documentation becomes a much simpler process as changes can be quickly made across the board.
“Whenever a student changes anything, Revit Architecture automatically updates all the 2D information—such as floor plans, elevations, and detail drawings. Everything is connected. Students appreciate that a lot, says Ngo. It saves them a tremendous amount of time and lets them focus on design, instead of on tedious manual tasks” (Renaissance Designers 2010, 2).

Meneely and Danko outlined an analogy that captures the essence of this debate. All of the tools that have been afforded to help designers with their work are only as beneficial or as detrimental to the process as they are allowed to be.

“By definition, tools should empower us, but they also encumber if they are not thoughtfully applied. For example, grid paper empowers a designer to quickly measure and sketch orthographic relationships; however, if a designer is not mindful of their actions, their final design solution could become inadvertently influenced by the uniformity of the grid lines. Also, grid paper may not be well suited for all phases of design thinking, and one could employ it at an unbefitting time. While the limits of grid paper are readily apparent compared with the limits of a computer the analogy demonstrates that any tool by itself is neither directly beneficial nor detrimental; instead, its utility depends on the interaction of person, tool, and context, and on one’s ability to assess his or her goals and monitor his or her actions” (70).

Hillier and Willis suggest that design educators must ensure that students are not mastering technology for the sake of the technical skills at hand. “While technical skills are needed to wield technology, students must also be armed with critical reflection skills. Critical reflection is a process where students learn to identify and challenge the assumptions underlying their actions, allowing them to monitor and regulate their use of technology more effectively” (as cited in Meneely and Danko 2007, 72).
In accordance with Hillier, Willis, Meneely, Danko and many others, technology can be an extremely useful tool in a designers skill set. The fundamental reasons why others object to this position do not hold ground when technology as a tool is used appropriately. There is a time and place for every resource a designer utilizes whether it is a pencil and paper, a 2D/3D AutoCAD program or teleconferencing webcast technology, all of these can be critical in helping a designer get his or her concepts across successfully to their clients. The same could be argued for students of design.
DESIGN AND DISTANCE EDUCATION

Design programs across the nation have transitioned curriculum to an online or distance format with successes and difficulties.

The Consortium for Design Education (CODE) project is one such example of an international design experience between multiple institutions between the United States, Canada and Mexico. The purpose of the project was to expose interior design students to a broader, global perspective on design as well as to encourage virtual collaboration and the use of technology.

“Zimmerman and Stumpf (2004) acknowledged the importance of international study as a means of broadening students’ global perspective and presented a case to enrich study abroad programs through collaborations with other disciplines” (Kucko, Prestwood, and Beacham 2005, 28). “Global Perspective for Design” happens to be one of the sixteen standards that the Council for Interior Design Accreditation (CIDA) requires of design programs seeking accreditation and is thereby an important aspect of education young design students should be experiencing. CIDA expects programs to provide students with opportunities to develop knowledge of other cultures as well as to expose students to the concept of designing for end users of different socio-economic backgrounds.

This particular project (CODE) not only afforded students global learning opportunities but also brought the concept of a studio without physical boundaries to light. A two day, virtual design charrette took place among students from all three countries. They utilized virtual chat rooms, e-mail, scanners and the online learning platform Blackboard to communicate their thoughts, ideas and criticisms back and forth to one
another. In the two days, students communicated virtually, worked through the design problem, devised numerous potential solutions and came up with a final concept and presentation. A videoconference was held at the conclusion of the experience and all faculty and student participants were able to see one another. The videoconference was also an opportunity to invite jurors from outside of the institutions to participate in reviewing student work and providing critique, again, with a global perspective in mind.

There were difficulties associated with the project, the most challenging being technology (Kucko et al 2005). As students and faculty relied almost entirely on technology to communicate with one another, failures created setbacks and frustration. If users all logged on at the same time or the system became overburdened, it would automatically log students off, disrupting communication and work flow. The students who participated in this project however had positive feedback regarding the experience, even if technology was occasionally a struggle. One student is quoted, “…the focus wasn’t only on the design outcome, but also on group dynamics allowing for great interaction and exploration of design in other cultures” (33). Another student referred to the experience as “…a step into the future of interior design and a global world coming together”. This student goes on to say, “It was a fascinating opportunity for me as a student to come out of my box of design and reach across the continent and interact with others. I experienced the reality of a world with such variety and creativity coming together visually to create a holistic and fulfilling design” (33).

At the University of British Columbia, Dr. Jerzy Wojtowicz has been involved in virtual design studios (VDS) for some time and “finds it no longer a big deal.” (Laiserin
In a recent collaboration between UBC and Kumamoto University in Japan, remote faculty critiqued student work synchronously utilizing software such as Microsoft NetMeeting, and asynchronously with design software such as Adobe Photoshop, AutoCAD, form•Z, ArchiCAD and VectorWorks.

Florida International University and other universities in Latin America participated in a grant funded program called the Internet Studios Initiative (ISI). This program explored low bandwidth technology and its ability to emulate the face-to-face studio and the “very intense interpersonal environment which students may learn from each other as they search for design solutions” (Andia 2001, 297). Donald Schon refers to studio learning as tacit as it is not fully structured, nor can it be fully explained (297). The goal of the ISI was to explore new media technologies that might enhance distance learning and help to create a similar real-time learning experience for participants.
Figure 1.5 shows a screen shot of typical weekly synchronous communication by videoconference over traditional internet connection. Students also relied on real time web-chat to obtain on the spot feedback from peers, faculty, and jurors from around the world.

Projects such as CODE, VDS and the ISI are examples of how technologies have already been utilized to create collaborative environments, suitable for peer-to-peer communication and allowing real-time access to the studio itself regardless of location, space or time.
LITERATURE REVIEW CONCLUSIONS

The modern design studio rooted in traditions dating back almost one-hundred years has evolved but much of the process remains the same; the iterative process of interpretation, concept development, critique and design proposal are rooted in the traditional framework of studio from the Beaux-Arts and Bauhaus styles of education. Though the process and framework for studio have remained largely the same, the students have changed.

Students today are relying heavily on technology and demand a style of learning that takes that into consideration. As evidenced by projects such as CODE and ISI, distance education is one such on demand style of learning that today’s students and faculty alike are interested in.

Similar to the history of design studio, forms of distance education (DE) have been available for one-hundred years yet the definition and components of DE have evolved greatly over that period of time. Today, the learning experience is more than just teacher and student or materials for independent review and study. A major part of distance education is the critical interaction between student and student as well. It is the different views and solutions by educators and peers that are an integral part of the learning process for distance education students, and equally critical process for design students.

Distance education could not have evolved from print and mail materials to webcast and virtual document exchange without the advanced technologies that are available today.

There have been cases made for technology and its benefit or detriment to design students learning process. From Lawson (2002) observing perfectly computer rendered
design presentations that lack fundamental design qualities to Hillier and Willis suggesting a students need to not only master technological skills but also to learn the process of critical reflection that is sometimes lost to technological tools. There is a time and place for every tool or resource a designer utilizes and the same could be argued for students of design.

Though the traditional face-to-face design studio has largely remained unchanged, it is clear that today’s students and their expectations for education have greatly evolved. As evidenced by pioneers in the field of both design and distance education, faculty and program administrators strive to balance providing quality design education for students while incorporating the advanced technologies and modern course delivery methods that today’s students demand.
CHAPTER II - METHODOLOGY

COLLECTION OF DATA

In an effort to measure success in studio courses taught in face-to-face, hybrid and by online/distance methods, a faculty survey was distributed to members of the Interior Design Educators Council (IDEC). The online survey consisted of twenty questions and was available for response for three weeks.

Success was measured based on responses to survey questions formulated around the Council for Interior Design Accreditation (CIDA) standards. CIDA outlines sixteen standards that an interior design program must comply with to obtain accreditation. As this research study focus is on the design studio specifically, the following standards, which relate to studio curriculum, were utilized:

- Standard Two - Global Perspective for Design
- Standard Three- Human Behavior
- Standard Four- Design Process
- Standard Five- Collaboration
- Standard Six- Communication
- Standard Nine- Space and Form
- Standard Ten- Color
- Standard Eleven- Furniture, Fixtures, Equipment and Finish Materials
To test hypothesis one: “Students are utilizing technology in their face-to-face studio courses and design process as much as those learning by hybrid or online/distance methods”; data was filtered based on respondents who selected "1" to Q1a (face-to-face), Q1b (hybrid), and Q1c (online). Once the data was filtered by studio delivery type, responses to survey questions fifteen and sixteen specifically were compared to decide whether f2f courses are using technology as much as hybrid and online studios.

To test hypothesis two: “Online/Distance delivery studio courses in interior design education can be as successful as face-to-face studio courses by CIDA standards”; data was filtered based on respondents who selected "1" to Q1a (face-to-face), Q1b (hybrid), and Q1c (online). Once the data was filtered by studio delivery type, comparisons were drawn between each for every survey question. Responses from f2f studio faculty were compared to hybrid studio faculty responses and then to online studio faculty responses. If the mean response and/or response range was similar, then no significant differences could be noted between delivery formats. If the mean response and/or response range varied significantly then differences between delivery formats were noted.
ANALYSIS OF DATA

Survey questions two and five were related to standard two:

Global Perspective for Design:

<table>
<thead>
<tr>
<th>Standard 2. Global Perspective for Design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entry-level interior designers have a global view and weigh design decisions within the parameters of ecological, socio-economic, and cultural contexts.</td>
</tr>
</tbody>
</table>

Student Learning Expectations

Student work demonstrates understanding of:
- the concepts, principles, and theories of sustainability as they pertain to building methods, materials, systems, and occupants.

Students understand:
- the implications of conducting the practice of design within a world context.
- how design needs may vary for a range of socio-economic stakeholders.

Program Expectations

The interior design program provides:
- exposure to contemporary issues affecting interior design.
- exposure to a variety of business, organizational, and familial structures.
- opportunities for developing knowledge of other cultures.

Figure 2.1 CIDA program accreditation standard two- Global Perspective.

<table>
<thead>
<tr>
<th>2. Students are expected to incorporate sustainable initiatives, concepts or materials into their projects.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>C</td>
</tr>
</tbody>
</table>

Figure 2.2 Faculty survey question two.
Faculty respondents who taught face-to-face studio had a mean response of 4.63 (.547 SD) on a likert scale of 1 to 5 with 1 being “Strongly disagree” and 5 being “Strongly agree”. Responses ranged from “Neither agree nor disagree” to “Strongly Agree”

Faculty respondents who taught hybrid studios had a mean response of 4 (.816 SD). Responses ranged from “Neither agree nor disagree” to “Strongly agree”

Faculty respondents who taught online studios had a mean response of 4 (0.00 SD) meaning all respondents “Agreed”.

The mean response from all three delivery types was 4.21 meaning most faculty agreed that students incorporated sustainable initiatives into their studio projects. Based on this data, one could conclude that there were no significant differences between delivery types and that all three are meeting components of CIDA standard two in this study.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither agree nor disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
</tbody>
</table>

Figure 2.3 Faculty survey question five.

Face-to-face studio faculty had a mean response of 4.46 (.741 SD) with responses ranging from “Disagree” to “Strongly Agree”.

Hybrid studio faculty had a mean response of 3.5 (1.0 SD) with responses ranging from “Disagree” to “Agree”.

5. Creative research outside of the studio classroom is required. (Field trips, site visits, design competitions, guest lectures, etc.)
Online studio faculty had a mean response of 3.0 (.816 SD) with responses ranging from “Disagree” to “Agree”.

The mean response from all three delivery types was 3.65 so the average faculty response fell between “Neither agree nor disagree” and “Agree”. Standard deviations were high for all three delivery types with responses for all types ranging from “Disagree” to “Agree” or higher. There were no major differences in response to note between delivery modes and therefore, one can conclude that no significant difference exists between delivery mode and CIDA standard two.

Survey question three was related to standard three:

**Human Behavior:**

<table>
<thead>
<tr>
<th>Standard 3. Human Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>The work of interior designers is informed by knowledge of behavioral science and human factors.</td>
</tr>
<tr>
<td>Student Learning Expectations</td>
</tr>
<tr>
<td>a) Students <em>understand</em> that social and behavioral norms may vary from their own and are relevant to making appropriate design decisions.</td>
</tr>
<tr>
<td>Student work demonstrates:</td>
</tr>
<tr>
<td>b) the <em>ability</em> to appropriately <em>apply</em> theories of human behavior. ¹</td>
</tr>
<tr>
<td>c) the <em>ability</em> to select, interpret, and <em>apply</em> appropriate anthropometric data.</td>
</tr>
<tr>
<td>d) the <em>ability</em> to appropriately <em>apply</em> universal design concepts. ²</td>
</tr>
</tbody>
</table>

Figure 2.4 CIDA program accreditation standard three- Human Behavior.  
Figure 2.5 Faculty survey question three.

Face-to-Face studio faculty had a mean response of 4.66 (.591 SD) with responses ranging from “Neither agree nor disagree” to “Strongly agree”.

Hybrid studio faculty had a mean response of 3.50 (.577 SD) with responses ranging from “Neither agree nor disagree” to “Agree”.

Online studio faculty had a mean response of 4.50 (.577 SD) with responses ranging from “Agree” to “Strongly Agree”.

The mean response for all three delivery types was 4.22 so the average faculty response fell between “Agree” and “Strongly Agree”. There were no significant differences in response range between delivery types, therefore based on this data; all three delivery types are meeting components of CIDA standard three in this study.
Survey questions four, six and seven were related to standard four:

**Design Process:**

<table>
<thead>
<tr>
<th>Standard 4. Design Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entry-level interior designers need to apply all aspects of the design process to creative problem solving. Design process enables designers to identify and explore complex problems and generate creative solutions that support human behavior within the interior environment.</td>
</tr>
</tbody>
</table>

**Student Learning Expectations**

Students are able to:
- a) identify and define relevant aspects of a design problem (goals, objectives, performance criteria).
- b) gather, evaluate, and apply appropriate and necessary information and research findings to solve the problem (pre design investigation).
- c) synthesize information and generate multiple concepts and/or multiple design responses to programmatic requirements.
- d) demonstrate creative thinking and originality through presentation of a variety of ideas, approaches, and concepts.

**Program Expectations**

The interior design program includes:
- e) opportunities to solve simple to complex design problems.
- f) exposure to a range of design research and problem solving methods.
- g) opportunities for innovation and creative thinking.
- h) opportunities to develop critical listening skills.

Figure 2.6 CIDA program accreditation standard four- Design Process.

<table>
<thead>
<tr>
<th>4. Students spend a good portion of time (multiple hours) completing pre-design investigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
</tr>
<tr>
<td>C</td>
</tr>
</tbody>
</table>

Figure 2.7 Faculty survey question four.

Face-to-face studio faculty had a mean response of 4.46 (.657 SD) with responses ranging from “Disagree” to “Strongly Agree.”
Hybrid studio faculty had a mean response of 3.75 (1.26 SD) with responses ranging from “Disagree” to “Strongly Agree”.

Online studio faculty had a mean response of 4.0 (.816 SD) with responses ranging from “Neither agree nor disagree” to “Strongly Agree”.

The mean response of all delivery types was 4.07 meaning the average faculty member response fell between “Agree” and “Strongly Agree”. Responses were similar for face-to-face studio and hybrid studio, ranging from “Disagree” to “Strongly Agree” however the range of responses from online studio faculty ranged from “Neither Agree nor disagree” to “Strongly Agree”. None of the online studio faculty disagreed with the statement regarding students spending significant portions of time on pre-design investigation. Based on this data, all three delivery types are meeting components of CIDA standard four however the online studio faculty respondents have indicated their students are spending significant portions of time on pre-design investigation while faculty from both face-to-face studio and hybrid studio have disagreed with the statement.

6. Students are expected to produce multiple design solutions and present design process concepts.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither agree nor disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Figure 2.8 Faculty survey question six.

Face-to-face studio faculty had a mean response of 4.57 (.698 SD) with responses ranging from “Disagree” to “Strongly Agree”.

Hybrid studio faculty had a mean response of 4.50 (.577 SD) with responses ranging from “Agree” to “Strongly agree”.
Online studio faculty had a mean response of 4.75 (.500 SD) with responses ranging from “Agree” to “Strongly Agree”.

The mean response of all delivery types was 4.61 meaning the average faculty member response fell between “Agree” and “Strongly Agree”. Responses were similar for hybrid studio and online studio, ranging from “Agree” to “Strongly Agree” however the range of responses from face-to-face studio faculty ranged from “Disagree” to “Strongly Agree”. Based on this data, all delivery types are meeting components of CIDA standard four however some face-to-face faculty respondents disagreed that students are expected to produce multiple design solutions and present those concepts while both hybrid and online studio faculty agreed that this was their experience in the classroom.

![Figure 2.9 Faculty survey question seven.](image)

7. As part of their design process, students are expected to produce parti diagrams, adjacency diagrams, bubble diagrams, matrices, written program etc.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither agree nor disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face-to-face studio</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hybrid studio faculty</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Online studio faculty</td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

Face-to-face studio faculty had a mean response of 4.89 (.323 SD) with responses ranging “Agree” to “Strongly Agree”.

Hybrid studio faculty had a mean response of 4.75 (.500 SD) with responses ranging from “Agree” to “Strongly Agree”.

Online studio faculty had a mean response of 5.0 (0.00 SD), with no range in responses; all “Strongly Agreed”.

The mean response of all delivery types was 4.88 meaning the average faculty member response fell between “Agree” and “Strongly Agree”. Response ranges for all delivery modes were similar in that all respondents agreed that students were expected to produce parti, adjacency and bubble diagrams as well as matrices, written programs etc. Based on this data, all delivery modes are meeting components of CIDA standard four and there are no significant differences to note between delivery modes.

Survey questions nine, ten, eleven and thirteen were related to standard five:

Collaboration:

<table>
<thead>
<tr>
<th>Standard 5. Collaboration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Entry-level interior designers engage in multi-disciplinary collaborations and consensus building.</strong></td>
</tr>
</tbody>
</table>

**Student Learning Expectations**

Students have awareness of:

a) team work structures and dynamics.

b) the nature and value of integrated design practices.¹

**Program Expectations**

The interior design program includes learning experiences that engage students in:

c) collaboration, consensus building, leadership, and team work.

d) interaction with multiple disciplines representing a variety of points of view and perspectives.²

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Figure 2.10 CIDA program accreditation standard five- Collaboration.


---

<table>
<thead>
<tr>
<th>9. In general, during design development, students seem to work independently on their concepts as opposed to working with their peers.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
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<td>C</td>
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</table>

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Figure 2.11 Faculty survey question nine.
Face-to-face studio faculty had a mean response of 3.60 (.946 SD) with responses ranging from “Disagree” to “Strongly Agree”.

Hybrid studio faculty had a mean response of 3.25 (.957 SD) with responses ranging from “Disagree” to “Agree”.

Online studio faculty had a mean response of 3.33 (1.16 SD) with responses ranging from “Disagree” to “Agree”.

The mean response of all delivery types was 3.39 meaning the average faculty member response fell between “Neither agree nor disagree” and “Agree”. Standard deviations were high for all three delivery modes due to the range of responses varying widely from “Disagree” to “Agree” or “Strongly Agree” for all three delivery modes.

The majority of faculty (sixty-one percent) observed students working independently as opposed to collaborating with peers during design development. This behavior of working independently is contrary what CIDA standard five sets out to instill in design students. Despite these behaviors being contrary to standard five criteria, there were no significant differences in response between delivery modes.

<table>
<thead>
<tr>
<th>10. I have observed students discussing project details, program or technical logistics, issues and requirements with their peers.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
</tr>
<tr>
<td>☐</td>
</tr>
</tbody>
</table>

Figure 2.12 Faculty survey question ten.

Face-to-face studio faculty had a mean response of 4.26 (.919 SD) with responses ranging from “Disagree” to “Strongly Agree”.
Hybrid studio faculty had a mean response of 4.0 (0.00 SD) all respondents “Agreed”.

Online studio faculty had a mean response of 4.75 (.500 SD) with responses ranging “Agree” to “Strongly Agree”.

The mean response of all delivery types was 4.34 meaning the average faculty member response fell between “Agree” and “Strongly Agree”.

Responses were similar for hybrid studio and online studio, ranging from “Agree” to “Strongly Agree” however the range of responses from face-to-face studio faculty ranged from “Disagree” to “Strongly Agree” causing a higher standard deviation. Based on this data, all delivery types are meeting components of CIDA standard five however some face-to-face faculty respondents disagreed that they had observed students discussing project details and logistics while both hybrid and online studio faculty agreed that this was their experience in the classroom.

<table>
<thead>
<tr>
<th>11. There are opportunities for teamwork and collaboration among students.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strongly Agree</strong></td>
</tr>
<tr>
<td>C</td>
</tr>
</tbody>
</table>

Face-to-face studio faculty had a mean response of 4.63 (.547 SD) with responses ranging from “Neither agree nor disagree” to “Strongly Agree”.

Hybrid studio faculty had a mean response of 4.50 (.577 SD) with responses ranging from “Agree” to “Strongly Agree”.

Online studio faculty had a mean response of 4.50 (.577 SD) with responses ranging from “Agree” to “Strongly Agree”.

The mean response of all delivery types was 4.54 meaning the average faculty member response fell between “Agree” and “Strongly Agree”. Responses were similar for hybrid studio and online studio, ranging from “Agree” to “Strongly Agree” however the range of responses from face-to-face studio faculty ranged from “Neither agree nor disagree” to “Strongly Agree”. Based on this data, all delivery modes are meeting components of CIDA standard five and despite the difference in response range; there are no significant differences to note between delivery modes.

<table>
<thead>
<tr>
<th>13. In studio, there are opportunities for cross-disciplinary student collaboration.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strongly Agree</strong></td>
</tr>
<tr>
<td>[ ]</td>
</tr>
</tbody>
</table>

Figure 2.14 Faculty survey question thirteen.

Face-to-face studio faculty had a mean response of 3.17 (1.18 SD) with responses ranging from “Strongly Disagree” to “Strongly Agree”.

Hybrid studio faculty had a mean response of 2.75 (.957 SD) with responses ranging from “Disagree” to “Agree”.

Online studio faculty had a mean response of 2.25 (.957 SD) with responses ranging from “Strongly disagree” to “Neither agree nor disagree”.

The mean response of all delivery types was 2.72 meaning the average faculty member response fell between “Disagree” and “Neither agree nor disagree”. Response
ranges varied widely for all three delivery types causing high standard deviations. Face-to-face and hybrid studio respondents had similar response ranges with faculty both agreeing and disagreeing while no online studio faculty respondents agreed that there were opportunities for cross-disciplinary student collaboration. Thirty-five percent of all faculty agreed with the statement, thirty-three percent neither agreed nor disagreed and thirty-two percent disagreed. Results from this question highlight a seemingly widespread issue among all delivery types in that many may not be meeting the cross disciplinary interaction component of CIDA standard five within the studio classroom.

Survey questions eight, twelve, sixteen and seventeen were related to standard six:

Communication:

<table>
<thead>
<tr>
<th>Standard 6. Communication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entry-level interior designers are effective communicators.</td>
</tr>
<tr>
<td>Student Learning Expectations</td>
</tr>
<tr>
<td>a) Students <strong>apply</strong> a variety of communication techniques and technologies appropriate to a range of purposes and audiences.</td>
</tr>
<tr>
<td>Students are <strong>able</strong> to:</td>
</tr>
<tr>
<td>b) express ideas clearly in oral and written communication.</td>
</tr>
<tr>
<td>c) use sketches as a design and communication tool (ideation drawings).</td>
</tr>
<tr>
<td>d) produce competent presentation drawings across a range of appropriate media.</td>
</tr>
<tr>
<td>e) produce competent contract documents including coordinated drawings, schedules, and specifications appropriate to project size and scope and sufficiently extensive to show how design solutions and interior construction are related.</td>
</tr>
<tr>
<td>f) integrate oral and visual material to present ideas clearly.</td>
</tr>
</tbody>
</table>

Figure 2.15 CIDA program accreditation standard six- Communication.

### 8. Student work is juried by professionals from outside of the school and considered as part of the final studio grade.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither agree nor disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 2.16 Faculty survey question eight.</td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

Face-to-face studio faculty had a mean response of 3.46 (1.29 SD) with responses ranging from “Strongly disagree” to “Strongly Agree”.

Hybrid studio faculty had a mean response of 3.50 (.577 SD) with responses ranging from “Neither agree nor disagree” to “Agree”.

Online studio faculty had a mean response of 2.25 (1.26 SD) with responses ranging from “Strongly disagree” to “Agree”.

The mean response of all delivery types was 3.07 meaning the average faculty member response fell between “Neither agree nor disagree” and “Agree”. Response ranges varied widely for face-to-face and online studio respondents causing higher standard deviations. Hybrid studio respondents had a smaller range of responses with faculty either responding “Neither agree nor disagree” or “Agree”. No hybrid studio faculty respondents disagreed regarding outside professional juror involvement while both face-to-face and online studio faculty disagreed. Just over half (fifty-one percent) of all faculty agreed with the statement while twenty-one percent neither agreed nor disagreed and twenty-eight percent disagreed. The wording of this particular question could have caused more respondents who neither agreed nor disagreed as professional outside jurors may have been invited to review and critique student presentations however their feedback may or may not be considered as part of students final grade. There is no explicit requirement by CIDA.
standard six that requires outside juror feedback however it is a common practice in many design studios and is a part of developing a comfort level for students presenting their design concepts.

12. Students are required to formally critique their peers work.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither agree nor disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

Figure 2.17 Faculty survey question twelve.

Face-to-face studio faculty had a mean response of 4.0 (1.00 SD) with responses ranging from “Strongly disagree” to “Strongly Agree”.

Hybrid studio faculty had a mean response of 3.50 (1.00 SD) with responses ranging from “Disagree” to “Agree”.

Online studio faculty had a mean response of 4.25 (1.50 SD) with responses ranging from “Disagree” to “Strongly Agree”.

The mean response of all delivery types was 3.92 however all three delivery types had high standard deviations due to wide response ranges. More than three quarters of all respondents (seventy-seven percent) agreed that students were required to formally critique one another while only a small percentage (eleven percent) disagreed. This summary of data and percentages of faculty who agreed vs. disagreed was similar among all three delivery types when broken down and therefore, there is no significant difference to note between delivery types.
Eighty-two percent of face-to-face studio faculty responded that student presentations were completed digitally leaving only eighteen percent completing handmade boards.

One-hundred percent of faculty respondents teaching hybrid studio stated that presentations were completed digitally while seventy-five percent of faculty teaching online studios stated presentations were completed digitally and twenty-five percent stated presentations were manually created. The combined percentages for both hybrid and online studio were eighty-seven and one half percent seeing digital presentations and twelve and one half percent seeing handmade presentations.

This data suggests that students and faculty are relying on technology equally between studio delivery types. Therefore, the original hypothesis stating that students are utilizing technology in their face-to-face studio courses and design process as much as those learning by hybrid or online/distance methods cannot be rejected.
Ninety-four percent of face-to-face faculty stated that students were required to present visually with face-to-face verbal while only three percent stated visually with audio and three percent visually only.

Seventy-five percent of hybrid faculty stated that students were required to present visually with face-to-face verbal while twenty-five percent stated they were required to only visually present.

Fifty percent of online studio faculty stated that students were required to present visually with audio, twenty-five percent stated visually only and twenty-five percent stated visually with face-to-face verbal which by definition in this study, would be considered a hybrid studio as a blend of face-to-face and online contact was required.

Ninety-three percent of all surveyed faculty stated that student presentations required some form of both visual and oral presentation. A lower number of online studio faculty stated that students were required to present orally and therefore, this is one area where face-to-face and hybrid studio responses appear to contribute more towards components of CIDA standard six by requiring that students integrate oral and visual materials into a cohesive presentation.
Survey question fifteen was related to standard nine:

**Space and Form:**

<table>
<thead>
<tr>
<th>Standard 9. Space and Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entry-level interior designers apply elements and principles of two- and three-dimensional design.</td>
</tr>
</tbody>
</table>

**Student Learning Expectations:**

Students effectively apply the elements and principles of design to:

a) two-dimensional design solutions. \[1\]

b) three-dimensional design solutions. \[1\]

c) Students are able to evaluate and communicate theories or concepts of spatial definition and organization. \[1\]

---

The following three figures show responses to survey question fifteen for face-to-face, hybrid and online faculty. In regard to CIDA standard nine, Space and Form, the related deliverables that would be required of students were 2D drawings, 3D renderings, a scaled handmade model and computer animation/simulation.

**15. Which elements were part of student design process and final project presentation?**

- [ ] 2D Drawings (Hand Drafted)
- [ ] 2D Drawings (Computer Drafted)
- [ ] 3D Renderings (Hand Rendered)
- [ ] 3D Renderings (Computer Rendered)
- [ ] A scaled, handmade model
- [ ] Computer animation/simulation
- [ ] Materials, Furniture, Fixtures and Equipment
- [ ] Contract Documents

---

*Figure 2.20 CIDA program accreditation standard nine- Space and Form.

*Figure 2.21 Faculty survey question fifteen.*
Figure 2.22 Face-to-face studio faculty responses to survey question fifteen.

Figure 2.23 Hybrid studio faculty responses to survey question fifteen.

Figure 2.24 Online studio faculty responses to survey question fifteen.
Based on CIDA standard nine, space and form should be explored by the use of two dimensional (2D) and three dimensional (3D) methods and students should be applying their design concepts in both manners. The table below illustrates percentages of faculty responses to survey question fifteen, highlighting only deliverables related to space and form that are required of students in all three studio delivery formats. Differences to note between delivery formats are in the 3D rendering, handmade model and computer simulation categories which all happen to be 3D deliverables.

<table>
<thead>
<tr>
<th></th>
<th>2D Drawings</th>
<th>3D Renderings</th>
<th>Model (Handmade)</th>
<th>Simulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>F2F Studio</td>
<td>100%</td>
<td>97%</td>
<td>51%</td>
<td>26%</td>
</tr>
<tr>
<td>Hybrid Studio</td>
<td>100%</td>
<td>75%</td>
<td>25%</td>
<td>25%</td>
</tr>
<tr>
<td>Online Studio</td>
<td>100%</td>
<td>100%</td>
<td>75%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Figure 2.25 Percentage of faculty responses to Space and Form components of survey question fifteen.

Almost all faculty in both face-to-face and online studios required 3D renderings from students while only three quarters of hybrid studio faculty required the same.

About half of the face-to-face faculty required handmade models and more than three quarters of online faculty required the same while only one quarter of hybrid faculty required handmade models, significantly less than other delivery formats.

About one quarter of face-to-face and hybrid faculty required computer animation/simulations from students while none of the online faculty respondents stated this as a requirement.

Based on this data, there are notable differences between delivery formats and 2D/3D exploration requirements with face-to-face and online responses being similar to one another and hybrid studio faculty responses lacking in 3D exploration methods.
Survey question fifteen was related to standard ten:

**Color:**

![Table](image)

Figure 2.26 CIDA program accreditation standard ten- Color.


Based on CIDA standard ten, students should not only be applying color appropriately in the designed environment but also in their visual communication and presentations. The table above illustrates faculty response percentages; highlighting deliverables related to color that are required of students in all three delivery formats.

Almost all faculty in both face-to-face and online studios required 3D renderings and materials, furniture, fixtures, and equipment from students while only three quarters of hybrid studio faculty required the same.
Based on this data, there is a notable difference between delivery format and color application requirements related to visual communication between face-to-face and online responses (being similar to one another) and hybrid studio faculty responses which in comparison were lacking in color application and visual presentation requirements.

**Survey questions fourteen and fifteen were related to standard eleven:**

**Furniture, Fixtures, Equipment and Finish Materials:**

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td><strong>Entry-level interior designers select and specify furniture, fixtures, equipment and finish materials in interior spaces.</strong></td>
</tr>
<tr>
<td><strong>Student Learning Expectations</strong></td>
</tr>
<tr>
<td>Students have <em>awareness</em> of:</td>
</tr>
<tr>
<td>a) a broad range of materials and products.</td>
</tr>
<tr>
<td>b) typical fabrication and installation methods, and maintenance requirements.</td>
</tr>
<tr>
<td>c) Students select and <em>apply</em> appropriate materials and products on the basis of their properties and performance criteria, including ergonomics, environmental attributes, and life cycle cost.</td>
</tr>
<tr>
<td>d) Students are <em>able</em> to layout and specify furniture, fixtures, and equipment.</td>
</tr>
</tbody>
</table>

Figure 2.28 CIDA program accreditation standard eleven- Furniture, Fixtures, Equipment, and Finish Materials.

14. Students have access to appropriate furniture, fixture, equipment and material samples for inclusion in their projects.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither agree nor disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
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</tbody>
</table>

Figure 2.29 Faculty survey question fourteen.

Face-to-face studio faculty had a mean response of 4.51 (.818 SD) with responses ranging from “Disagree” to “Strongly Agree”.

Hybrid studio faculty had a mean response of 4.0 (0.00 SD), all respondents “Agreed”.

Online studio faculty had a mean response of 3.75 (.500 SD) with responses ranging from “Neither agree nor disagree” to “Agree”.

The mean response for all delivery types was 4.09 meaning the average faculty member response fell between “Agree” and “Strongly Agree”. Responses were similar for hybrid studio and online studio, with one-hundred percent of hybrid faculty and seventy-five percent of online faculty agreeing that students had access to appropriate furniture, fixture, equipment and material samples. The range of responses from face-to-face studio faculty however ranged from “Disagree” to “Strongly Agree”. Though a small percentage of f2f faculty disagreed, ninety-two percent agreed that students had access to appropriate furniture, fixture, equipment and material samples. Based on this data, all delivery types are meeting components of CIDA standard.
Based on CIDA standard eleven, students should be able to select and incorporate appropriate materials, furniture, fixtures and equipment (MFF&E) into their design projects and presentations. The table above illustrates faculty response percentages; highlighting deliverables related to MFF&E that are required of students in all three delivery formats.

All faculty in both face-to-face and online studios required materials, furniture, fixtures, and equipment from students while only three quarters of hybrid studio faculty required the same.

Based on this data, there is a notable difference between delivery format and MMF&E application requirements between face-to-face and online faculty responses.
(being similar to one another) and hybrid studio faculty responses which in comparison were lacking MMF&E requirements.

**Question eighteen was not related to a CIDA standard directly however was intended to solicit the most effective resource or practice occurring in all delivery modes.**

![Figure 2.32 Faculty survey question eighteen.](image)

Common themes from face-to-face faculty surveyed were as follows;

- One-on-one interaction (desk critique)
- Collaboration (peer-to-peer and with outside professionals)
- Technology (digital resources, computer skills)
- Physical work space (sense of community, closely linked to collaboration)

Similar themes were found in both hybrid and online faculty responses.

Hybrid;

- Collaboration (both in physical space and online)
- Technology (to repeatedly review materials and to collaborate with peers)
- Physical work space (to connect with peers; closely linked to collaboration)
Online;

- One-on-one interaction (personalized critique)
- Collaboration (peer-to-peer and group critique)
- Technology (blackboard for collaboration/feedback, video and screen capture technologies)

It was clear from all responses that the top two themes among all delivery formats were collaboration and technology; two things which are possible and available no matter which delivery format studio was offered.

**Question nineteen was also not related to a CIDA standard directly however was intended to solicit the least effective resource or practice occurring in all delivery modes.**

![Figure 2.33 Faculty survey question nineteen.](image)

Common themes from face-to-face faculty surveyed were as follows;

- Too many deliverables required
- Time management (not enough time, not using studio time efficiently)
- Technology (students relying too heavily on it for design, MFF&E)
- Lecture (traditional lecture and instruction has not been successful)
• Collaboration (forcing student collaboration, design competitions)

Similar themes were found in both hybrid and online faculty responses.

Hybrid;

• Too many deliverables required (material should be chunked or broken into multiple studios)
• Technology (problems and lack of)
• Time Management (students underutilizing studio time)

Online;

• Technology (can affect level of finish in presentation, outdated materials/resources on blackboard)
• Too many deliverables required (sessions are too short)
• Time Management (students who aren’t present in studio)

Based on this data, the top three least effective practices or resources for all delivery formats were time management, too many deliverables required and technology.

It is important to note that technology was also listed as one of the top themes for most effective practice or resource for all delivery formats. Some of the benefits of technology were based on their ability to allow for collaboration, outside feedback, quick 3D exploration and presentation while some of the detriments were a lack of access to technology, issues with reliability and students relying too heavily on technology to design.
Question twenty was not related to a CIDA standard directly however was intended to gauge faculty interest in online education and related technology.

20. I would be interested in developing or teaching;

Check all that apply
- an online lecture course
- an online studio course
- a hybrid lecture course (online with some face-to-face)
- a hybrid studio course (online with some face-to-face)
- I’m not interested in online education

Figure 2.34 Faculty survey question twenty.

<table>
<thead>
<tr>
<th></th>
<th>Online lecture</th>
<th>Online studio</th>
<th>Hybrid lecture</th>
<th>Hybrid studio</th>
<th>Not Interested</th>
</tr>
</thead>
<tbody>
<tr>
<td>F2F Studio</td>
<td>40%</td>
<td>26%</td>
<td>46%</td>
<td>49%</td>
<td>29%</td>
</tr>
<tr>
<td>Hybrid Studio</td>
<td>50%</td>
<td>25%</td>
<td>100%</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>Online Studio</td>
<td>75%</td>
<td>75%</td>
<td>100%</td>
<td>100%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Figure 2.35 Percentages of faculty response to question twenty; interest in online education.

Overall, seventy-one percent of face-to-face faculty respondents said they were interested in developing or teaching some form of distance education.

One-hundred percent of hybrid and online faculty respondents said they were interested in developing or teaching a hybrid lecture and/or a hybrid studio course.

Sixty-two percent of hybrid faculty said they were interested in online lecture courses while fifty percent said they would be interested in developing or teaching an entirely online studio.
Seventy-five percent of online faculty said they were interested in online lecture and online studio course development or teaching.
FINDINGS AND DISCUSSION

The majority of data collected from the research survey concludes that there were a few significant differences when comparing face-to-face, hybrid and online faculty responses. Of those differences however, no obvious conclusion could be drawn suggesting one delivery mode was more successful than another. Some differences between delivery modes were as follows;

- More pre-design investigation occurred in online studios than f2f and hybrid studios.
- More design iteration and process were presented in hybrid and online studios than f2f studios.
- Hybrid and online faculty noticed additional student collaboration and communication than in f2f studios.
- Online studios offered no cross disciplinary collaboration whereas both hybrid and f2f studios did offer some.
- Online studios did not require oral presentations while the majority of f2f and hybrid studios did.
- Hybrid studios lacked requiring deliverables regarding student exploration of 3D space and form as well as color in comparison to f2f and online studios.
To revisit the two original hypotheses for this research;

**Hypothesis one: Students are utilizing technology in their face-to-face studio courses and design process as much as those learning by hybrid or online/distance methods.**

Eighty two percent of face-to-face studio faculty responded that student presentations were completed digitally and only eighteen percent were completing handmade boards. The combined percentages for hybrid and online studios were eighty seven and one half percent seeing digital presentations and twelve and one half percent seeing handmade.

One-hundred percent of face-to-face, hybrid and online studio faculty respondents stated that 2D CAD drawings were required of students at final presentation. Ninety-seven percent of face-to-face and eighty-eight percent of hybrid and online faculty stated that 3D renderings which were computer generated were required of students. Twenty-six percent of face-to-face and twelve percent of hybrid and online faculty stated that computer animation/simulations were required of students for final presentation.

This data suggests that students and faculty are relying on technology equally between studio delivery types. Therefore, the original hypothesis stating that students are utilizing technology in their face-to-face studio courses and design process as much as those learning by hybrid or online/distance methods cannot be rejected.
Hypothesis two: Online/Distance delivery studio courses in interior design education can be as successful as face-to-face studio courses by CIDA standards.

According to the U.S. Department of Education (2010), “Results from Bernard et al. (2004) and other reviews of distance education literature (Cavanaugh 2001; Moore 1994) indicate no significant differences in effectiveness between distance education and face-to-face education, suggesting that distance education, when it is the only option available, can successfully replace face-to-face instruction” (6).

The results from Bernard, Cavanaugh, Moore and others align with findings from this research study in that no significant differences were found to exist between face-to-face, hybrid and online studio delivery methods and therefore, the findings support the original hypothesis; online/distance delivery studio courses in interior design education can be as successful as face-to-face studio courses by CIDA standards.

The research survey was distributed to five-hundred thirty-six potential candidates who were members of the Interior Design Educators Council (IDEC). From that number, there was an additional requirement that faculty needed to have taught studio courses via face-to-face, by hybrid or online/distance methods. Forty-three responses were received, a low number, potentially due to the time of year the survey was distributed and collected (May, end of school year/semester for many faculty). Additional research is necessary to further test the original hypotheses. Additional candidates could be reached by publishing the survey on social media outlets such as the American Society of Interior Designers (ASID), International Interior Design Association (IIDA), IDEC and LinkedIn websites or
blogs. Expanding the potential pool of respondents may provide additional input from faculty members who hold adjunct positions or those who may not be members of IDEC.

While additional research is necessary, the results of this study do indicate that distance or online studios may be viable alternatives to the traditional face-to-face model.

Despite almost one third of face-to-face faculty respondents stating that they had no interest in developing or teaching any form of distance education and twelve percent stating that physical space was a critical component to a successful studio experience, the concerns of many design faculty that an online studio “could never replace traditional studio” have been challenged by results of this study.

The research concluded that in many ways, hybrid and online studios are requiring not only as much as but in some cases, more than what face-to-face studios are requiring of students. Online studios excelled in comparison to face-to-face studios in requiring pre-design investigation, design iteration and process presentation and in observation of student collaboration and communication. The results may be surprising for many face-to-face faculty, as those who stated that a physical studio space was a requirement for a quality studio experience backed up their statements with the resonation that physical space was a place where students could collaborate and obtain feedback from critique and from overhearing peer critiques. The data from this research suggests that not only are students in hybrid and online courses collaborating and communicating with peers, they are excelling and participating in collaboration above and beyond that which face-to-face faculty have observed in the physical studio classroom.
The research in this study concludes that there are no significant differences in regard to the quality of design studio education by CIDA standards and delivery format, and therefore, interior design program administrators may choose to consider offering additional design courses (including studio) or full design programs via hybrid or online methods in an effort to reach a wider network of students, peers and jurors. Offering distance courses for students who previously may not have had access to a traditional face-to-face, brick-and-mortar interior design program would likely lead to a more diverse student population and therefore, more diversity in student approach, design solution, collaboration and communication. This is where distance education and interior design education are similar; both are most successful, as previously stated, when different views and solutions by educators and peers are discussed and considered.

It is the conclusion of this research that communication and collaboration are two of the most critical components of learning and success in design studio as opposed to the physical meeting space or delivery format.
REFERENCES


APPENDIX A

CERTIFICATE OF EXEMPTION
May 14, 2012

Tracy Fichera  
Architecture Program

Betsy Gabb  
Dean's Office of Architecture  
232 ARCH, UNL, 68588-0107

IRB Number: 20120512705 EX  
Project ID: 12705  
Project Title: The Effectiveness of Distance Delivery Studios in Interior Design Education

Dear Tracy:

This letter is to officially notify you of the certification of exemption of your project by the Institutional Review Board (IRB) for the Protection of Human Subjects. It is the Board's opinion that you have provided adequate safeguards for the rights and welfare of the participants in this study based on the information provided. Your proposal is in compliance with this institution's Federal Wide Assurance 00002258 and the DHHS Regulations for the Protection of Human Subjects (45 CFR 46) and has been classified as Exempt Category 2.

You are authorized to implement this study as of the Date of Exemption Determination: 05/14/2012.

1. Please include the IRB approval number (IRB# 20120512705 EX) in the email invitation and reminder messages. Please email a copy of the messages, with the number included, to bfreeman2@unl.edu for our records. If you need to make changes to the messages please submit the revised messages to the IRB for review and approval prior to using them.

We wish to remind you that the principal investigator is responsible for reporting to this Board any of the following events within 48 hours of the event:

* Any serious event (including on-site and off-site adverse events, injuries, side effects, deaths, or other problems) which in the opinion of the local investigator was unanticipated, involved risk to subjects or others, and was possibly related to the research procedures;

* Any serious accidental or unintentional change to the IRB-approved protocol that involves risk or has the potential to recur;

* Any publication in the literature, safety monitoring report, interim result or other finding that indicates an unexpected change to the risk/benefit ratio of the research;

* Any breach in confidentiality or compromise in data privacy related to the subject or others; or

* Any complaint of a subject that indicates an unanticipated risk or that cannot be resolved by the research staff.

This project should be conducted in full accordance with all applicable sections of the IRB Guidelines and you should notify the IRB immediately of any proposed changes that may affect the exempt status of your research project. You should report any unanticipated problems involving risks to the participants or others to the Board.
If you have any questions, please contact the IRB office at 472-6965.

Sincerely,

Becky R. Freeman

Becky R. Freeman, CIP
for the IRB
APPENDIX B

INFORMED CONSENT - EMAIL INVITATION
The Effectiveness of Distance Delivery Studios in Interior Design Education

IRB approval number (IRB# 20120512705 EX)

The purpose of this survey is to gain an understanding of how critical components of the interior design studio class are being taught in the traditional face-to-face model, via an online or distance method and/or in hybrid format. The critical components of studio in this research study are based on standards set forth by the Council for Interior Design Accreditation. Survey results and analysis will be published as part of a Master’s thesis from the University of Nebraska-Lincoln. If you are 19 years of age or older and have taught interior design studio courses by traditional, face-to-face methods, via online/distance education or by means of a hybrid format, you may participate in this research.

Participation in this study will require approximately five to ten minutes of your time. You will be asked to complete a web-based survey consisting of twenty questions. Participation will take place at your chosen location and the survey will be open to participation for two weeks. There are no known risks or discomforts associated with this research. There are no direct benefits associated with this research. The results of this study may however provide the indirect benefit of assisting with studio course development for both traditional and distance delivery methods.

Your responses to this survey will be kept anonymous and confidential. No identifiable data will be collected and all responses will be saved on an encrypted website for security purposes. You may ask any questions concerning this research at anytime by contacting Tracy Fichera, tracy.ortado@huskers.unl.edu. You may also contact Betsy Gabb, bgabb1@unl.edu. If you would like to speak to someone else, please call the Research Compliance Services Office at 402-472-6929 or irb@unl.edu.

Participation in this study is voluntary. You can refuse to participate or withdraw at any time without harming your relationship with the researchers or the University of Nebraska-Lincoln, Interior Design Educators Council or in any other way receive a penalty or loss of benefits to which you are otherwise entitled.
You are voluntarily making a decision whether or not to participate in this research study. By completing and submitting your survey responses, you have given your consent to participate in this research. You should print a copy of this page for your records.

A link to the survey is included below;

http://app.fluids-surveys.com/surveys/idstudio/interior-design-studio-student-survey/

Sincerely,

Tracy Fichera
APPENDIX C

FACULTY SURVEY
Interior Design Studio: Faculty Survey
Please complete this survey if you have taught interior design studio courses in the traditional/face-to-face format, in a hybrid manner or via online/distance education.

When responding to questions, please answer for ONLY one format. (For example, you may have taught both face-to-face and online however are asked to respond to the survey with only one or the other in mind).

1. My responses to this survey apply to the following studio format

<table>
<thead>
<tr>
<th>Face-to-Face</th>
<th>Hybrid</th>
<th>Online/Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
<td>☑</td>
<td>☐</td>
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</table>

2. Students are expected to incorporate sustainable initiatives, concepts or materials into their projects.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither agree nor disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
<td>☑</td>
<td>☐</td>
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</tbody>
</table>

3. Universal design concepts are introduced and applied in student projects.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither agree nor disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
<td>☑</td>
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</tbody>
</table>
4. Students spend a good portion of time (multiple hours) completing pre-design investigation

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither agree nor disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
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<tbody>
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5. Creative research outside of the studio classroom is required. (Field trips, site visits, design competitions, guest lectures, etc.)

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither agree nor disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
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6. Students are expected to produce multiple design solutions and present design process concepts.

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<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither agree nor disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
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</table>
7. As part of their design process, students are expected to produce parti diagrams, adjacency diagrams, bubble diagrams, matrices, written program etc.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither agree nor disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
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<tbody>
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</table>

8. Student work is juried by professionals from outside of the school and considered as part of the final studio grade.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither agree nor disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
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</table>

9. In general, during design development, students seem to work independently on their concepts as opposed to working with their peers.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither agree nor disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
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<tbody>
<tr>
<td></td>
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</table>
10. I have observed students discussing project details, program or technical logistics, issues and requirements with their peers.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither agree nor disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
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11. There are opportunities for teamwork and collaboration among students.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither agree nor disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
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<tbody>
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</table>

12. Students are required to formally critique their peers work.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither agree nor disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
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<td></td>
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</tr>
</tbody>
</table>
13. In studio, there are opportunities for cross-disciplinary student collaboration.

Ie. with architecture, graphic, landscape, engineering, business students etc.

14. Students have access to appropriate furniture, fixture, equipment and material samples for inclusion in their projects.

15. Which elements were part of student design process and final project presentation?

Check all that apply

- 2D Drawings (Hand Drafted)
- 2D Drawings (Computer Drafted)
- 3D Renderings (Hand Rendered)
- 3D Renderings (Computer Rendered)
☐ A scaled, handmade model
☐ Computer animation/simulation
☐ Materials, Furniture, Fixtures and Equipment
☐ Contract Documents

16. Graphic presentations are typically created;

☐ By hand (physically mounted drawings and FF&E samples on boards)
☐ Digitally (drawings, FF&E are digital images composed on virtual boards)

17. How were students required to present midterm/final projects for critique?

☐ Visually only (by email, posting, uploading etc)
☐ Visually and with audio (by email, posting, uploading etc)
☐ Visually with face-to-face verbal

18. The MOST effective resource or practice in my studio class is/has been;

What in your opinion has been especially helpful to the students ability to be successful in this class?
19. The LEAST effective resource or practice in my studio class is/has been;

What in your opinion has either not been helpful or has hindered students ability to be successful in this class?

20. I would be interested in developing or teaching;

Check all that apply

☐ an online lecture course
☐ an online studio course
☐ a hybrid lecture course (online with some face-to-face)
☐ a hybrid studio course (online with some face-to-face)
☐ I'm not interested in online education

Online Questionnaire Tools powered by FluidSurveys