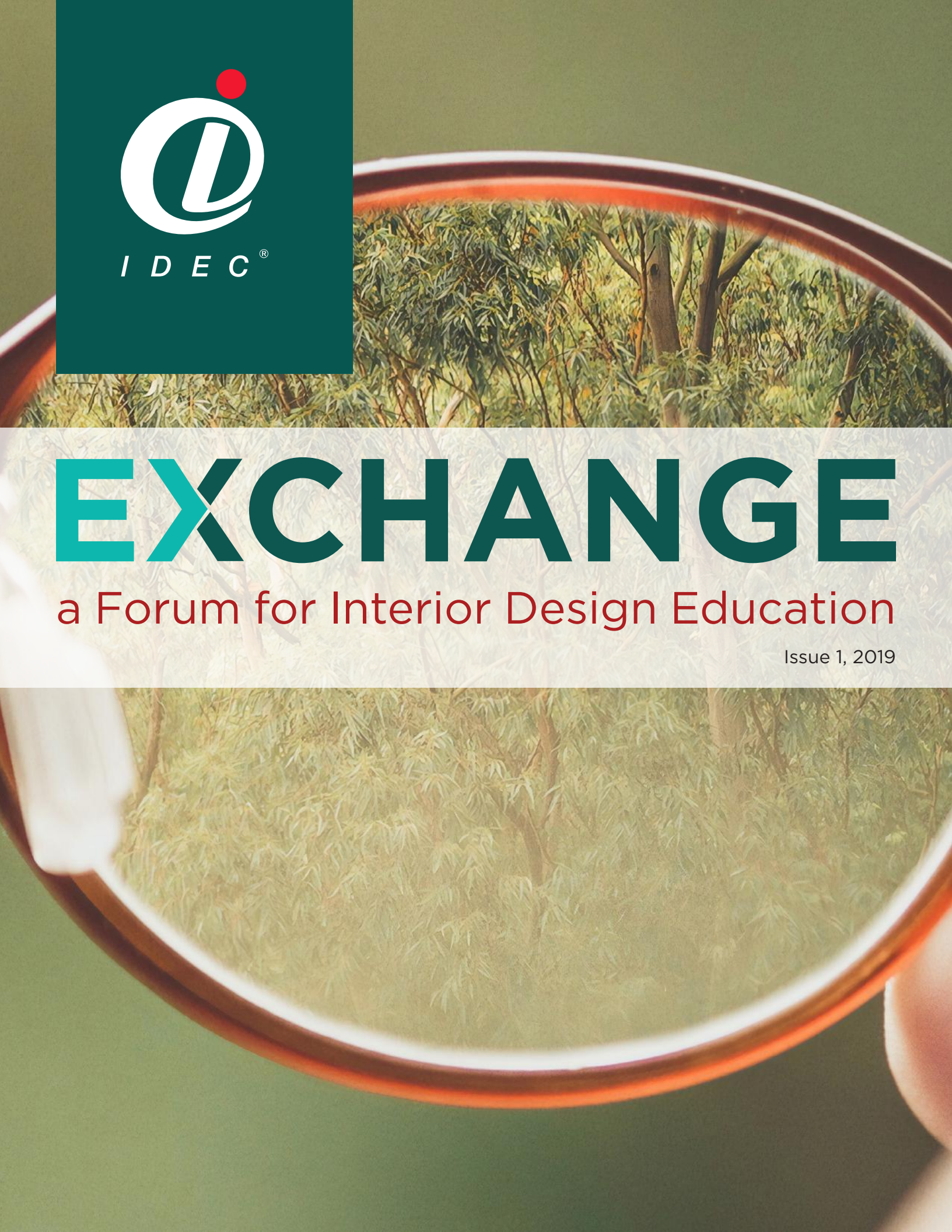

IDEC®

EXCHANGE

a Forum for Interior Design Education

Issue 1, 2019

MESSAGE FROM THE PRESIDENT

Hepi Wachter, IDEC

I have just returned from the IIDA Educator Roundtable sponsored by Milliken and my mind is racing a hundred miles an hour enthused by the energy, conversations, the uncovered opportunities, the inspirations I am bringing back from the time I had with other design and education professionals. All of it is adding to my "educator high" and to the very invigorating IDEC annual meeting and conference only a few weeks back. So many of the topics overlap at the events I have visited this year and many of the discussions are of course spilling over from last year's meetings. Many themes have emerged over the past which I hope will continue to be highlighted in our classroom or workplace interactions and discussions. We must continue to seek minority voices and bring them to the table and into the forefront of our conversations. We need to continue to dismantle the inequities minorities face and be encouraged to use our design abilities and our influence in creating better places by design and because we are designers. We can do that and enable change by reaching into our communities and participate knowingly as interior designers, sharing design thinking, through design and stewardship.

I left Charlotte stimulated by the high level of quality I observed in the presentations. The keynote and a warm-hearted Julieanna Preston inspired me more than I could have imagined. Smiling and content because of the new friendships I made and because of those I was able to strengthen and confirm. I felt uplifted and encouraged by the network happy hour, the designer career pathway panel ASID sponsored, and the community service outreach charrette many attendees contributed to. I think we explored some of the game changers, the peripheries interior designers can influence.

But I also left with a heavy heart. Inclusivity, that is my hope, is what most of us strive for, though I left our host city knowing that we could not provide the inclusivity we want to see. Some IDEC members were not able to participate in the numerous events and the many experiences I have described above. Their home states or universities could not provide funds for traveling to North Carolina, because of laws enacted in the host state preventing inclusivity. I do not take this lightly. Not all of our values at IDEC can be achieved without disruption. I hope we continue finding ways to make our advocacy for diversity and inclusivity visible. We can do a lot in our teaching and in our support and service work within the Interior Design Educator Council community. You will hear about service opportunities in the coming months and I hope you will find it important to become a change agent and to serve across our organization. IDEC needs your leadership.

Hepi Wachter
IDEC President 2018-19

MESSAGE FROM THE PRESIDENT-ELECT

Susan Ray-Degges, IDEC

Past – Present – Future + Charting Your Course to Success

A wise woman once said to me you should be a teacher. My candid response was — no thank you! That was 30 + years ago and the wise woman just recently turned 90. Lesson learned (of many in my lifetime): never say no to an opportunity that will lead you down a pathway that will provide unforetold lifetime experiences!

Looking at the students in your classroom it may be hard to reflect back to the day when you were in their shoes but we all started at the point where we were curious, afraid, and excited to learn new information. When you head to the lecture hall, studio, or pin up wall, are you energized to engage the students? Do you look forward to what you are going to share with the students and feel satisfied and fulfilled at the conclusion of the class period, the end of the week, or end of semester?

When we prepare our curricula for our students do we create materials only because it addresses outcomes, meets current industry demands, embraces the newest technologies, or are we engaged in demanding the best of our students? Is that the key that is missing from making us feel satisfied and fulfilled? Or are we just going through the motions?

If you have been in higher education for a while, are you satisfied with your growth and new opportunities for engagement that you may have been able to take on? Or if you are relatively new to academia, do you see a clear path to where you are headed? No matter the season of your career, reflecting on the past can be an interesting exercise to give you clues to help you figure out where you want to go and how to get there.

> **"...We keep moving forward—opening up new doors and doing new things—because we're curious. And curiosity keeps leading us down new paths."**
>
> *(Disney, para. 8)*

What common threads do you see in your professional history and your fulfillment as an educator, researcher, mentor, or supervisor? As IDEC looks to implement a new strategic plan and deploy new materials to facilitate membership engagement — take advantage of the resources that will enhance your research and teaching while making you feel valuable and satisfied. As we concluded another successful IDEC Conference in Charlotte, North Carolina, I was once again renewed to return to my institution, colleagues, and students to engage in new dialogues, and share exciting ideas and go forward to the future. As each of you end the academic year — it is a great time to reflect on the past — look at the present — and set yourself up for a successful future in academia.

Susan Rey-Degges
IDEC President, 2019-2020

Disney. (n.d.). Walts Quotes. Retrieved from https://d23.com/section/walt-disney-archives/walts-quotes/

MESSAGE FROM THE EDITOR-IN-CHIEF

Bryan D. Orthel

The future of interiors requires ideas and technology.

Education is inherently about what comes next. This issue of the Exchange asks how technology has changed the character and focus of interior design. What are the specific ways technology has altered the discipline?

In preparing this issue, I have been thinking about the future of interior design education. The most-pressing ideas we address today — sustainability, wellbeing, social justice — are distinct from the technology we use to craft space. The future of interior design education relies on these two paths — the ideas we explore and the means for how we explore. In the last issue, I noted how human cognition differed from machine processing. Ideas alone are insufficient in the same way that isolated technology produces meaningless widgets.

The future of interior design education requires ideas and means. While we each have our biases or focus our efforts towards one or the other, we know our students need both. The studio environment often provides the integrated opportunity to mesh the two. As digital and computational technologies have changed how we communicate (e.g., BIM, VR, AR) and what we communicate (e.g., algorithmic query, AI), the focus of design and the world has seemed to shift.

Our forebearers faced these same challenges. The future of interior design education requires not standing still. The future also requires recognizing fundamental ideas within new technology. Although drawing media has changed, the drawings still convey information. Although the ways we understand and manipulate space has changed, these spaces still affect human health, safety, welfare, and wellbeing. As educators and students, we must strive for greater awareness of others, so that we think and act. These principles would seem familiar to the many designers who preceded us.

The eight essays in this issue ask fundamental questions about how interior designers use technology. The essays explore technology in the design process (Turkman), highlight which innovations are developing currency (Huber & Waxman, and Swearingen), and remind us that interior design begins and ends with the human connections we make (Cho and Lee). Sarah Urquhart cautions us that while technology is ubiquitous access to technology is uneven. Two submissions, written by 2019 Foundation Graduate Scholars who presented at the Charlotte conference, ask us to think carefully about discrete ways technology and humans touch in the built environment (Xu Jin, University of Florida, and Dawn Loraas, University of Missouri). The final essay in this issue concludes "Design is a deeply personal, human art that cannot be replaced by technology — only improved" (Wood). The issue also includes reports from the Council of Fellows, the *Journal of Interior Design,* and the Service Collaborative. A column from Stantec reminds us of the experience of students entering the profession. We hope you find the discussions interesting and thought-provoking.

This is my last issue with the Exchange's editorial team. Over the past four years as associate editor and editor, I have tried to foster conversations around how we look, think, and act around design and the world.

Photo by Lucrezia Carnelos on Unsplash

The questions we focus on — and the reasons we select those questions — are telling for what we value. For the future of interior design, I hope ID educators choose the harder questions. On the pages of the Exchange, the next round of discussions will be led by the new editor Dana Vaux (University of Nebraska at Kearney) and the talented team of associate editors. For me, working with the associate editors to encourage discussion of ideas we thought interior design educators should explore (i.e., diversity and technology) has been an honor.

The Exchange relies on the work of many people. Sarah Urquhart, Dan Harper, and Gloria Stafford (the associate editors) are considerate, engaged, and passionate about the conversations we should have. The graphics team at IDEC headquarters polishes our raw product into an attractive document. The educators and professionals who contribute to each issue literally make the Exchange. I am grateful to have worked with all of you.

The future of interior design requires ideas and technology. Be aware, think, then act.

Bryan D. Orthel, PhD
Editor-in-Chief, IDEC Exchange, 2017-2019
Indiana University

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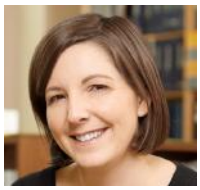

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Dan Harper
Assistant professor of interior architecture, Ohio University

Gloria Stafford
Assistant professor of interior design, University of Northern Iowa

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JID NEWS

JID Writer's Workshop on Creative Scholarship

At the annual conference in Charlotte, the *Journal of Interior Design* presented a workshop on how to craft a visual essay focused on creative scholarship. Julieanna Preston facilitated the robust hands-on workshop that asked participants to bring images of their work and begin developing the essay by first creating their visual story. During its inaugural year, *JID* has published five visual essays by authors from the US, Canada, UK, Netherlands, Belgium, and Turkey on a wide range of creative endeavors. *JID* looks forward to continuing this initiative as we believe design can be a form of research.

JID Special Issues

In March, we also released the call for papers for our 2021 Special Issue "thinking the-body-inside". Crafted by guest editors Ronn Daniel (Kent State University) and Lynn Chalmers (University of Manitoba), this special issue invites visual essays, research papers, or case studies that explore the meaning of the human body in the context of interior space. We ask that authors send a 150-word abstract to Ronn Daniel (rdanie25@kent.edu) by June 1, 2019 to identify interest in submitting to the special issue. It is also an opportunity to receive very preliminary feedback on the "fit" of the abstract with the special issue. More information may be found **HERE**. In August we will release a call for the 2022 special issue, which will focus on Engaging the Mind: Neuroscience in the Design Process.

JID Annual Awards

The *JID* Awards celebrated its 3rd anniversary in 2019, presenting both *JID* Scholarship Excellence Award and *JID* Outstanding Reviewer Award. These awards were presented at the 2019 IDEC annual meeting in Charlotte, NC. This year's recipient of the *JID* Scholarship Excellence Award was Amy Huber at Florida State University for her article entitled Exploring Hiring Practitioner Preferences for & Assessment Practice of Prospective Candidates. Along with the *JID* Board of Directors, four reviewers from the IDEC membership were invited to review and score all of the 2018 *JID* articles based on these three criteria: originality, methods of inquiry, and communication.

The 2019 *JID* Outstanding Reviewer Award went to Dr. Nisha Fernando. She has served as a *JID* reviewer and is a Professor in the Division of Interior Architecture at University of Wisconsin-Stevens Point. The *JID* Editorial Board selected Dr. Fernando in recognition of her valuable effort in high quality reviews and contributions to the journal. The 2020 *JID* Awards for a talented author and outstanding reviewer will be presented at the IDEC conference in Tulsa, OK to celebrate the *JID* mission of strong interior design scholarship.

JID Board of Directors

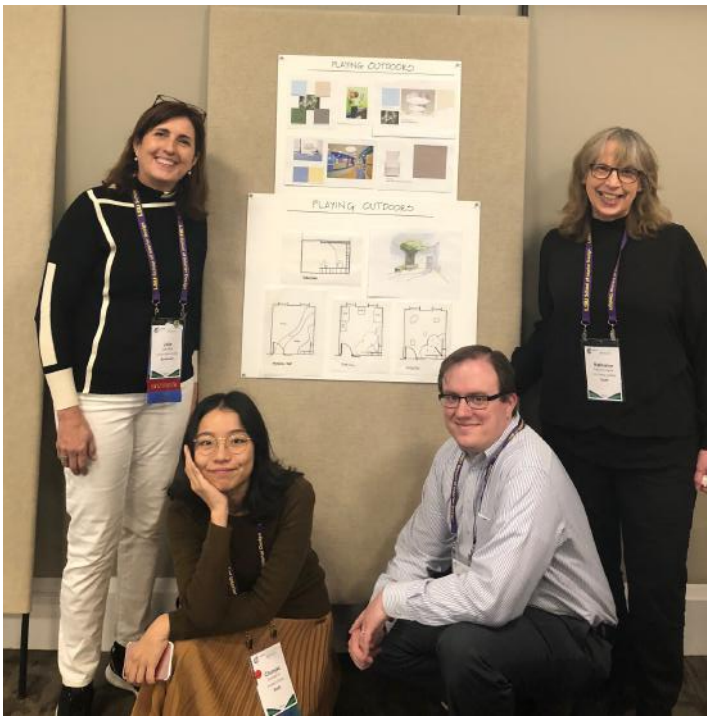
JID welcomes two new board members, Caren Martin, emeritus from the University of Minnesota, and Bryan Orthel, Indiana University Bloomington. As *JID* Board of Directors, they will support the mission of *JID* and IDEC, and are tasked with these activities. During their three-year service, they are responsible for attending all *JID* Board meetings and conference calls, participating in the marketing and strategic positioning for the *JID*, facilitating presence in IDEC publications and industry newsletters, and supporting the editors.

Photo by Csabi Elter on Unsplash

NETWORK SPOTLIGHT

IDEC EXCHANGE: SERVICE COLLABORATIVE REPORT

The 2019 IDEC Conference in Charlotte, NC facilitated the return of the Service Charrette, hosted by the Engaged Scholarship Network and the Service Charrette Task Force. The first Service Charrette, held during the 2017 conference in Chicago and hosted by the Gerontology Network, brought to light the positive impact that our organization can bring to its host city during our Annual Conference. This year has added the same value to our host city, by partnering with Project Embrace of Charlotte to propose design solutions for a child care facility on its campus. The return of the Charrette, which had reached its participation capacity weeks before conference, marks the dedication of our members to the broader impacts of design on the communities around us.



The Service Collaborative is pleased to announce that the Charrette will continue in 2020 in our host city of Tulsa, Oklahoma. If you are interested in serving on the Service Charrette Task Force, or in any capacity with the Service Collaborative, please contact Stephanie Sickler, Director of Service, at ssickler@fsu.edu.

Our annual Conference also brought about the Network Happy Hour. This year's Network Happy Hour did not disappoint. Through a generous partnership between Queens University of Charlotte, Office Environments, and Steelcase/DesignTex, the event hosted conference attendees at a beautiful venue, Burwell Parlor, in the heart of the Queens University of Charlotte campus for an evening of food, fellowship, and fun. Network membership lists will be published on the IDEC website, so be on the lookout for those lists to connect you back with the folks from this wonderful evening.

Photo by rawpixel.com on Unsplash

FELLOWS FORUM 2019

THE CALL OF THE JOYFUL PROFESSOR[1]

MARGARET PORTILLO, FIDEC

"What is joy? Recorded in English by the 1200s, joy comes from the French joie, ultimately from the Latin gaudium, meaning "gladness" or, well, "joy." Joy is defined in English as "the emotion of great delight or happiness caused by something exceptionally good or satisfying." https://www.dictionary.com

One morning a Professor brought a large glass mason jar into class and proceeded to load the jar with several egg-sized rocks. She asked her students whether the jar was full. The students quickly agreed that it was. She next dropped some pebbles into the jar that lodged between the larger rocks and once again asked, "Is the jar full?" The students agreed in unison. Next, she grabbed a handful of sand and emptied it into the jar, filling up all the space between the rocks and pebbles. Anticipating that question that was coming next, they answered emphatically, "Yes, it's full!" The Professor then did something that surprised the class as she grabbed her Swell bottle, twisted open the lid, and emptied a hot stream of coffee into the rock-and-sand filled jar. As she did that laughter filled the classroom. The Professor then probed deeper, "What do the rocks represent?" The students looked around, waiting for someone to speak up. After a few minutes, the Professor said, "The rocks represent many of the core priorities in your life: family, friends, health. The pebbles symbolize things that are important like completing your degree, earning a living, having a place to live. The sand is everything else — the small stuff — the daily to do's and obligations. The Professor elaborated further, "Think about it, if you put sand in the jar first, is there room for rocks or pebbles? And in life if all your time is spent on relatively unimportant activities, what happens to your relationships, your wellbeing, your happiness? Take time to truly live. Take time for play and for joy. Put priorities before sand." A student raised his hand, "I get it, but what about the coffee?" The professor smiled and replied, "Glad you brought that up — just remember that no matter how overwhelming and difficult life can be, you always can find time for a cup of coffee with a friend."

–Adapted from the ***The Joyful Professor***

Five IDEC Fellows Share Stories of Joy: Hearing from Lisa, Jean, Cynthia, Caren, & Jill

A version of the familiar rock/pebbles/sand story is recounted by Barbara Minsker in her book *The Joyful Professor: How to Shift from Surviving to Thriving in the Faculty Life* that Lisa Waxman recently read, and this story's theme resonated with her. This year marks Lisa's 34th year as an interior design educator, and she recognizes the value of the rocks/pebbles/sand analogy in her own work-life balance, prioritizing rocks before emails. Lisa also underscored the importance of IDEC in creating moments of joy and supporting relationships between faculty. For example, Lisa met kindred spirit Stephanie Clemons at the 2002 IDEC annual conference in Santa Fe, and that conference meeting initiated rewarding collaborations and a longstanding friendship.

Likewise, Jean Edwards, reflecting on decades spent as an interior design educator, testified emphatically that her most joyful and valued personal and professional connections harken back to being a member in IDEC. Recalling the first IDEC conference she attended in Toronto (1986), she gravitated to several Canadians — including Drew Vasilevitch — who shared a common love of design and adventure. Jean recalled a later incident at the 1994 IDEC conference in San Antonio where her cadre of Canadian friends reconnected at a small party on a balcony, wandered over a bridge, and crashed a wedding: evidently a mischievous and joyful moment! For Jean, joy comes from IDEC's espirit de corps. And these joys lessened some of the more tedious, and perhaps even odious, realities of faculty life.

Cynthia Mohr, who has been teaching interior design for 42 years and now spends a good deal of her time in Florence, finds joy in teaching those who are the future. These are students who represent the next generation of interior designers. Cynthia emphasized that the gift we are given is time, and we must manage that gift wisely, whether it is wearing the hat of the professor or the parent.

Caren Martin concurred with Cynthia: it's all about time. She confessed — like Barack Obama and many of us — that she was guilty of being a "serial over-committer" but continues to work on prioritizing rocks and pebbles over sand. She emphasized how critical it is to "hang onto what brings you joy," and even invested in securing a work-life balance coach, who proved invaluable. Caren also recommended buying a puppy, a tiny living thing, who forced her to break the miserable habit of driving to the university in the dark and returning home many, many hours later also in the dark. She finds joy in collaboration and spoke to the immense feelings of satisfaction in "adopting a mentor or research partner."

Finally, Jill Pable reminded all us at the Fellow Forum to all count our blessings: "We get to choose what we are exploring — can you think of another field that lets you do this?" Finding joy involves unvarnished self-reflection. As Jill put it, "Know thy self" to discover your flavor of joy. Jill found bliss through her dogs that encourage living life to the fullest, in 4-hour increments. Most recently she also has taken up strumming on the bass ukulele, not to please an audience, just for herself. As someone who planned her days "to the ninth degree," it took Jill years to realize that she cannot be the fixer for everyone and everything but she can do more to celebrate differences among colleagues, and concluded her comments by encouraging us to savor life.

After the insights from the panel with Lisa, Jean, Cynthia, Caren and Jill, the Fellows Forum shifted into smaller round table discussions that centered on ways to move from "surviving to thriving" in the academy and whether or not it is even possible to be a joyful professor. By the end of our one-hour together, we shared ideas and experiences with each other. And we noticed common people and place-based themes emerging in our discussions that referenced different ways of experiencing joy.

Stories and Strategies from the Participant Tables

Place-based joy

- Opening my "operable" windows in my office
- Gardening
- Walking (with or without dogs)
- Living in Florence

People-based joy

- Teaching small children at my church
- Serving my students — knowing them as human beings
- Giving a well-deserved "D" when called for

[1] The 2019 Fellows Forum included the follow cadre of IDEC Fellows:
Moderator: Meg Portillo
Participants: Jean Edwards, Caren Martin, Cynthia Mohr, Jill Pable, Lisa Waxman
Recorder: John Turpin
In attendance: Anna Marshall-Baker, Pamela Evans

- Embracing a new stage of life when "I no longer have to grade"
- Connecting with other interior design educators: "You guys coming to the conference. I am the only full-time faculty at my institution."

Simple Joys

- Presenting a PowerPoint when "all of my titles don't jump from slide to slide and margins lineup"
- Connecting mind-body in the yoga studio and in the swimming pool
- Binge watching ***Schitt's Creek*** on Netflix
- Savoring chocolates
- Savoring books

Parting Thoughts

We are living in a time that is increasingly numbers driven. We see it in the rankings, research expenditures, and academic hierarchies. And our lives as interior design educators also can be quantified: the number of years in a department, the number of students taught, the number of studio projects developed, or the number of CIDA reviews . . . the list goes on and on. However, joy takes us beyond the quantifiable. Joy reflects meaning and purpose of life. Joy keeps us whole.

As design educators and scholars, we are in a giving field. The discipline demands much of us: studio teaching and scholarship is intense and often rewarding but increasing demands over time can leave us depleted. Do we hear the call of the joyful professor? Can we answer her call to replenish our inner selves? Joy is within our reach. Discover a joyful moment: today, not tomorrow.

Work cited

Minsker, B. (2014, Kindle Edition). *The Joyful Professor: How to Shift from Surviving to Thriving in the Faculty Life,* available from Amazon Digital Services, LLC.

Acknowledgement

Thank you to Lisa Waxman and John Turpin for their comments on this piece.

PERSPECTIVE

TRANSITION TO PRACTICE: REFLECTIONS FROM RECENT GRADUATES

Victoria Johnson
Graduated 2016
from University of Wisconsin, Madison
Now practicing in Chicago, IL

Miranda Parenteau
Graduated 2018
from Mount Royal University
Now practicing in Calgary, AB

Elaine Medeiros
Graduated 2015
from California State University, Sacramento
Now practicing in Sacramento, CA

Marcie-Rae MacFarquahar
Graduated 2010
from Mount Royal University
Now practicing in Calgary, AB

The move from an academic setting to practice is a significant one. Stantec, IDEC's latest Premiere Partner, recently asked four of its interior designers, all of whom made that particular transition within the last few years, to look back and share their thoughts on the differences between their experience as a student and the reality of practice.

What is the most valuable thing you learned that has helped you in your early years of practice?

MARCIE-RAE:
I was a student who started university straight from high school. I was used to a prescribed way of thinking where there was always a correct answer and generally a straight path to reaching a conclusion. The hardest part of starting the Interior Design program at Mount Royal was to change my way of thinking

into a collaborative and creative process. Yet, this has proved to be most valuable, as I have learned over the years that the first design solution is never the best design solution. It takes brainstorming, research, and refinement from an entire team to find the best solution. The way we were taught to creatively approach tasks and to allow time for process rather than immediate results has been most helpful in my day-to-day practice.

ELAINE:
One thing that has really resonated with me in my few years of practice is that it's our job as designers to push the envelope, to design a little bit outside of the box, and make sure that all of your ideas are out there first. You can always hone your design concepts after the fact to meet project needs, but it's harder to add in design afterwards. One quote that I keep in my back pocket is by Charles Eames, who essentially states that the role of a designer is that of a very good, thoughtful host who anticipates the needs of their guests. As creatures of habit, people are inclined to ask for what they already know, but it's our job to help present a creative solution to them that they might not typically think of, and then further refine it to work for our project.

What was the most surprising element you ran into as you entered the profession?

VICTORIA:
The decision process for our clients. You'll go back and forth, you'll progress, and then get a surprise change. I'm living that right now with my current project. The biggest surprise was how different clients have different expectations and make their decisions. Traditionally [in school] you'll have a list of requirements that you refer back to and that stays the same. Now, you often create a concept and design, but you know not to be married to it, because it's going to be fluid and change. That's part of the challenge of design; you have the original design intent, but the end product will be different, and you have to figure out what approach to take to blend the initial concept and final design. The same is true for value engineering.

MIRANDA:
The most surprising element to me is realizing how valuable design reviews are for a project, not only to be successful in project completion but as a learning opportunity. After joining Stantec my outlook on design reviews shifted from something that I would hesitate to ask for, versus embracing them now.

ELAINE:
One more thing that folds well into this conversation that I wasn't aware of until I started practicing was the coordination and collaboration that happens with MEP. Sometimes we do our beautiful design, get our engineers on board, and it incurs changes that we weren't expecting. There's more than just lighting in the ceiling!

Research is a key element of an academic career. How are you putting those skills into practice?

VICTORIA:
I often use people as resources as a starting point. Sometimes research is in the form of looking at past projects to see what was done under similar circumstances.

MARCIE-RAE:
Research is vital in my everyday practice. I like to think of design as a mix between construction and anthropology. We are constantly analyzing human behavior to improve upon our built environment and make it more accessible and user-friendly. There is such great potential to make a real difference through our built environment and I think that research is the first step to this change.

IDEC COMMUNITY ARTICLES

NAVIGATING THE CHANGING TIDES OF TECHNOLOGY

BY AMY HUBER AND LISA WAXMAN, FLORIDA STATE UNIVERSITY

Some say that time and tide wait for no one; the same might be true of design technology. Technology in interior design is constantly evolving with programs involving CAD, BIM, and graphic design being the most prevalent. However, emerging platforms such as virtual and augmented reality are increasingly used for high fidelity communication, while computational design offers the promise of numerous design iterations produced at breakneck speed.

So how quickly are new technologies embraced and how might educators prioritize this developing field of knowledge? We sought to answer these questions by surveying design practitioners and comparing responses to similar insights collected in 2015 by Dyar and Huber.

Findings

We sent invitations to 975 designers from 144 firms as well as 157 recent alumni from our CIDA-accredited program. Of these, 134 respondents completed the survey. Qualitative and quantitative responses suggest the largest growth area appears to be in Building Information Modeling (BIM)—see Table 1. Although we had no baseline data for emergent technologies (i.e., VR, AR, & computational design), data from this survey showed noteworthy use of these tools. Specifically, participants most frequently cited virtual reality (39%), noting its uses in client interviews, design presentations, and even during construction administration. Augmented reality was used by 29% of firms, while computation design was seen in 28% of firms.

Crosstabs illustrate differences in adoption rates, namely by market sectors and firm size. Results suggest firms working in workplace design are appropriating emerging technologies at a faster rate than healthcare and hospitality sectors (Table 2). Small firms are now more readily utilizing BIM applications (Table 3) than they did in the 2015 baseline survey, though large firms appear to be more aggressively employing emergent technologies such as VR, AR, and computational design (Table 4).

We also asked designers to rate the relative importance of technological knowledge for entry-level designers. Results suggest entry-level designers are expected to have advanced knowledge of BIM, and the ability to create construction documents and computer-generated renderings, though hand sketches were also viewed as important (See Table 5). Designers also expect recent graduates to have a general awareness of multiple software applications, the most prevalent of which are Revit, Photoshop, InDesign, AutoCAD, SketchUp, and Revit Cloud Rendering.

Conclusion

Since the march of technology is unlikely to slow, future designers will likely use an array of tools throughout their careers. As such, it is essential for educators to lay a robust yet flexible groundwork so that emerging professionals can readily navigate the changing tides of technology.

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Huber, A. & Waxman, L. (presented 2019, March). *Design technology: Aligning student learning with the expectations of the profession.* Presentation at the Interior Design Educators Council Annual National Conference, Interior Design Educators Council, Charlotte, NC.

Table 1. Overall use of Technological Applications (Reported by Percentage of Respondents)

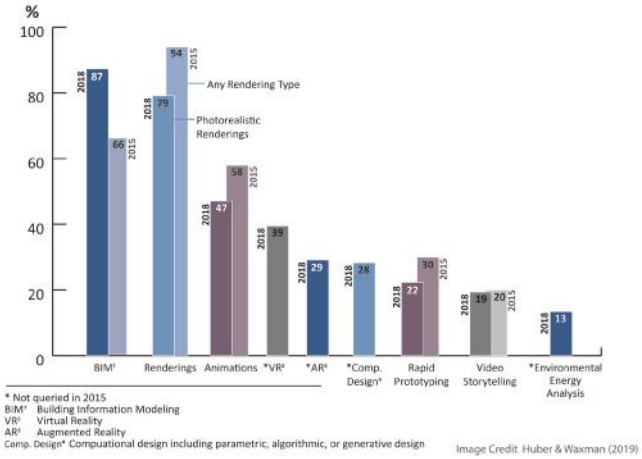
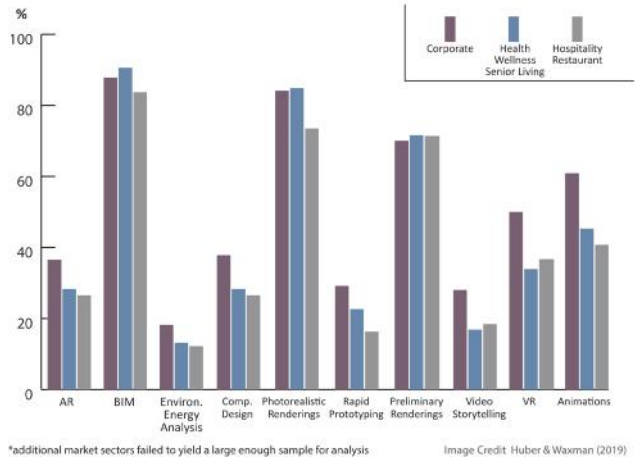


Image Credit Huber & Waxman (2019)

Table 2. Use of Technological Applications by Market Sector (Reported in Percentage of Respondents)



*additional market sectors failed to yield a large enough sample for analysis

Image Credit Huber & Waxman (2019)

Table 3. Use of Technological Applications by Firm Size (Reported in Percentage of Respondents)

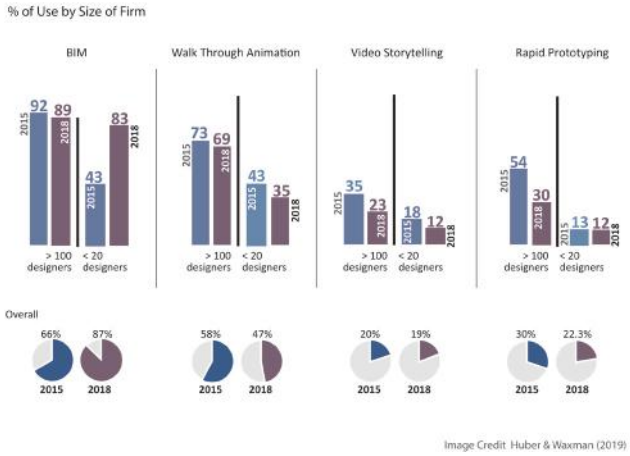


Image Credit Huber & Waxman (2019)

Table 4. Use of Emergent Technological Applications by Firm Size (Reported in Percentage of Respondents)

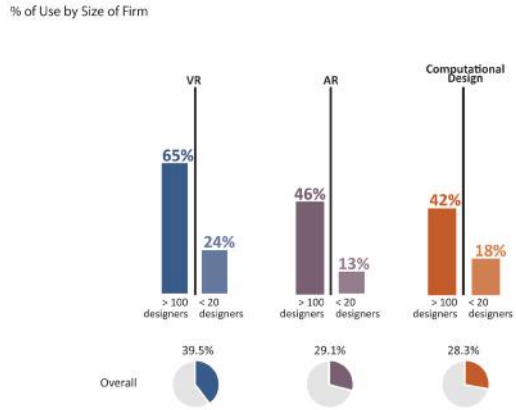


Image Credit Huber & Waxman (2019)

Table 5. Desired Knowledge of Technical Applications for Entry-Level Designers (Reported in Percentage of Respondents)

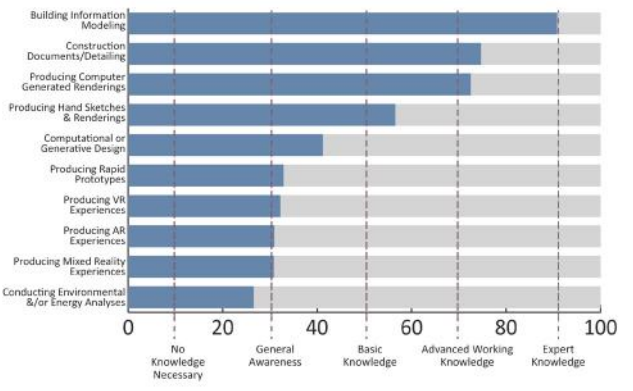


Image Credit Huber & Waxman (2019)

DESIGN EDUCATION IN TODAY'S DIGITAL WORLD

SALLY ANN SWEARINGEN, STEPHEN F. AUSTIN STATE UNIVERSITY

How does interior design education incorporate the technology necessary to meet the needs of the interior design profession? The interior design discipline requires increasing savvy in digital media, which presents challenges to interior design education. As Coleman (2015) states, the future of interior design is "honed in on the ubiquity of technology and the vast technological literacy reshaping design education today."

Educators are faced with complex questions:

- What graphic and technical software is essential for entry-level jobs in the field of interior design? What level of competency is necessary upon graduation?
- When and where should programs integrate digital media into the curriculum?
- How do faculty members find time and resources to remain competent in digital media and computer programs?

Interior design education is expected to provide opportunities for student to learn a variety of visual communication techniques, as well as provide exposure to evolving communication technologies. Faculty and programs make decisions that affect the future of their programs and students' careers.

A panel discussion at the recent Charlotte conference revealed four trends in how programs are adapting to technological changes (see chart). The panelists represented Kansas State University (Migette Kaup), Texas Christian University (Amy Roehl), Mississippi State University (Beth Miller), the New York School of Interior Design (Ellen Fisher), Radford University (Julie Temple), and Stephen F. Austin State University (Sally Ann Swearingen).

- Integration of software into the curriculum varies. Half of the represented programs introduce AutoCAD the first year. All but one introduce Adobe InDesign, Photoshop, or Illustrator during the first year. All have separate courses to teach AutoCAD and Revit, either concurrently with studios or before they are utilized in a studio.
- Programs reported ongoing efforts to update curriculum to technology. Programs are moving Adobe InDesign earlier in their curriculum and starting Revit in the second year. All of the programs recognized videos are becoming a bigger part of the educational experience and that video editing needs to be added into the curriculum. All of the programs wanted to introduce Virtual Reality.
- All six program representatives agreed students need to conceptualize with hand drawings and 3D sketches before crossing over to the computer.
- None of the programs have developed requirements for existing faculty members to learn new software or technology, but all have put the proficiencies into new faculty searches. Some current faculty members have had to upgrade their skills or have been re-assigned to courses that do not require technology skills.

As interior design educators we understand there are many facets of interior design. Students need to be versed in graphic programs and design/drafting programs to be successful in the job market. Therefore, newer faculty members who are technologically savvy are sought after due to knowing multiple programs. Seasoned faculty are experts in one or two programs, but come with a wealth of design experience. As we look at the future of design and technology, we see that the digital native generation will be versatile in learning and applying more programs than ever before — but they will continue to need the foundational expertise of seasoned faculty

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Overview — Panels Perspective

	Freshman – 1st year	Sophomore – 2nd year	Junior – 3rd year	Senior – 4th year
Kansas State University	**Word:** Written assignments **Power Point:** Layouts / 2D skills / color	**Excel:** Tables / matrices **InDesign:** Layout, presentation graphics, portfolio basics **AutoCAD:** Drafting, Detailing **3Ds Max/ Photoshop:** Presentation drawings	**Sketch up:** Quick 3D **Excel:** Business practices / budgeting **Revit – BIM:** Construction documents **Power Point:** Presentations	All earlier programs are used in 4th year studios. Some VR (based on individual interest)
Texas Christian University	**Microsoft Office:** Across Curriculum **InDesign, Photoshop, Illustrator:** Intro to computer graphics	**Excel:** Residential furniture budget **InDesign, Power Point:** Layout / Presentation **AutoCAD:** Project drawings Sketchup: Studies / Building frames **Photoshop:** Illustration (used with hand renderings)	**InDesign, Power Point:** Layout / Presentation **AutoCAD:** Projects & Construction Documentation **Sketchup & Rendering Plug-ins** (Kerkeythea, V-Ray, SU Podium, Shaderlight): Projects **Revit:** Digital Media Course	All earlier programs are used in 4th year courses.
Mississippi State University	**AutoCAD:** Studio Project **InDesign, Photoshop & Illustrator**	**Sketchup:** Studio project **Podium:** Studio project **Revit:** Taught in 3D course **Enscape:** Taught in 3D course	**Rhino:** used in Furniture Design course All earlier programs are used in 3rd and 4th year studios.	All earlier programs are used in 3rd and 4th year studios.
New York School of Interior Design	**AutoCAD** **Revit** **Sketchup** **Photoshop**	**Revit** **AutoCAD** **InDesign** **Illustrator**	All earlier programs used in 3rd & 4th year. Sketchup Vray Revit Vray 3D Studio	All earlier programs used in 3rd and 4th year studios.
Radford University	**Word:** Reports **PowerPoint:** Presentations **InDesign:** Booklet Layouts	**Photoshop** **Illustrator:** Physical model **Sketchup:** Project exploration	**AutoCAD:** Project drawings **SU Podium:** Renderings & Lighting studies **Revit:** Construction documents & Renderings **InDesign:** Booklet layouts	All earlier programs are used in capstone studios.
Stephen F. Austin State University	**Word:** Written assignments **Power Point:** Presentations **InDesign, Photoshop, Illustrator:** Pre-portfolio course **AutoCAD**	**AutoCAD:** Studio courses **Revit:** Separate course **Excel:** Residential budget **Sketchup:** Exploration of forms	All earlier programs are used in 3rd and 4th year studio.	All earlier programs are used in 3rd and 4th year studio.

STUDIO PEDAGOGY IN THE AGE OF APPS: SMARTPHONE APPS AND THE INFLUENCE ON STUDENT CREATIVITY

SONYA GRACE TURKMAN, ISTANBUL TECHNICAL UNIVERSITY

Daily we observe people of all ages spending time on their smartphones. We see it on the subway, in line at the coffee shop, and we see it in our studios. The palpable eagerness of students to engage with their phones and their dependence on apps as sources of information shape our pedagogical approaches to the studio and the creative process. A 12-item survey was given to 2nd and 3rd year Interior Architecture students (n=42) to reveal which apps they use, their app preferences in the studio, and their perceptions of how apps influence creativity.
To capture students' daily usage of apps, they were first asked to list all the apps that were open on their smartphone when they entered the studio (Table 1).

Table 1

Top Six Apps Open at the Beginning of the Studio	
App	**Open**
Instagram	90.5%
Pinterest	64.3%
YouTube	64.3%
Facebook	45.2%
Twitter	38.1%
Google	26.2%

A fictional project brief about biomimicry was presented and students ranked in order (first, second, third) which apps they would use as information sources (Table 2).

Table 2

Top Three Apps at Each Choice Level					
First Choice		**Second Choice**		**Third Choice**	
Pinterest	78.6%	Google	47.6%	Instagram	33.3%
Google	9.5%	Instagram	19%	Google	28.6%
YouTube	9.5%	Pinterest	16.4%	YouTube	19.0%

The highly favored first choice, Pinterest, was likely due to its structure of shared pin boards that compile collections of relevant images. Google's tagged content enables rapid responses to search terms making the app the popular second choice and although Google was listed in the top three of all levels of choice, only 26.6% of students listed it open at the beginning of the studio. Alternatively,

Studio Work, Photograph by author.

Instagram was open on over 90% of phones at the beginning of the studio, but only listed top in second and third choices likely due to its insta-format that has difficultly accurately matching search terms and images.

The apps listed in both the daily use and studio scenario are considered "social" media platforms which compels educators to reflect on what the blurred professional/personal space means for our pedagogical approach. Consider that "social media has colonized what was once a sacred space occupied by emptiness: the space reserved for thought and creativity" (Ali, 2016). In the survey students were asked to self-assess the influence of apps on the creative process. The majority (78.6%) felt that apps made students more creative in the studio and praised the time savings apps offer. Of the responses that were critical (21.4%),

one student opined that the designs of a studio can look similar when one resonating image leads to an array of like projects. Another student perceptively responded "We became more impatient with the design." Students expect the "insta" and assume that they can be creative by imitating something from an app. Imitation is replication; not creativity.

We cannot escape apps, but we must expose the incomplete narratives of the design process that apps present. We must teach students to question the legitimacy of the information apps contain and we must advocate for students to linger within their creative process. As apps become increasingly pervasive in daily life, it is crucial to the profession that we teach students how to guard the quiet, sacred spaces of thought and creativity upon which the studio thrives.

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DIFFERENCES IN INTERIOR SPATIAL UNDERSTANDING BETWEEN PHYSICAL AND VIRTUAL ENVIRONMENTS

XU JIN, UNIVERSITY OF FLORIDA

In recent years, Virtual Reality (VR) headset technology has grown exponentially and is easily accessible to the public. Interior and architectural designers have used VR as a communication and design development tool to present design projects to their clients (Lubell, 2016; Heydarian et al, 2015). Using VR technology in the design process is an innovative way to help designers quickly understand the spatial qualities of a project and test alternatives (Czarnecki, 2016). VR has also been used to "transport" people to real world locations; however, users' perception, observation, and experience have not been thoroughly tested. Therefore, the objective of this study is to investigate 1) how people's perceptions translate from real space to virtual reality? 2) what is the limitation of using VR headsets as a research tool for the built environment?

An experimental study was conducted to answer three research questions: 1) Do VR headsets adequately represent real spaces for scholarly research? 2) What are the perceptual limitations of using VR headsets to research the interior environment? 3) How do participants describe the overall experience of using VR headsets?

Independent variables included perceived realism, perceived brightness, visual clarity, and the overall experience of using VR headsets. Forty-two participants were divided into two groups and observed a real environment first, and then each group observed one of two VR simulations of the space by wearing Oculus Rift headsets. The real space is a renovated, axial symmetrical multi-media classroom. It is about 812 sq.ft. (28'6" x 28'6") with a ceiling height of 8'-6" and no windows. The two virtual simulations included a "Photographed VR" experience and a "Rendered VR" experience of the real space. The VR: Photographed experience was built using a 360° photosphere while the VR: Rendered experience was a 360° spherical rendering created with 3Ds Max and the Mental Ray renderer. A 2 x 2 between subject factorial ANOVA was performed to analyze the difference between real space and both VRs.

Participants reported that both VR experiences embodied high perceived realism compared with the real space. Participants also reported similar levels of perceived brightness across all experiences; however, visual clarity/readability in both VR experiences was significantly lower than in the real space. Qualitative participant responses to both VR experiences include "realistic," "educational," "novel," "intriguing," "fun," "blurry," and "dizziness."

The findings of this study suggest that designers and researchers should be cautious about the following things when using VR headsets to simulate a real environment. First, this study used bracketed photos to capture all available light in the scene and merged them into a High Dynamic Range Image (HDRI). An exposure fusion algorithm was then used to compress the HDRI image into a lower dynamic range so that it could be viewed on a digital display; however, this process might impose some color compression, which could alter results. This might also mislead the

evaluation of perceived realism of a virtual reality space. Since participants perceived similar level of brightness in the virtual reality, it is good for studies involve lighting. The color of the virtual reality was perceived similar comparing to the real space. However, researchers and designers should be careful due to the resolution of the lens and the visual clarity is still an issue. Researchers and designers should not use VR headsets to observe small-scale things. Virtual reality also should not be used for research of evaluating the comfort level of a virtual space since people will never sit on a virtual chair to observe a virtual space.

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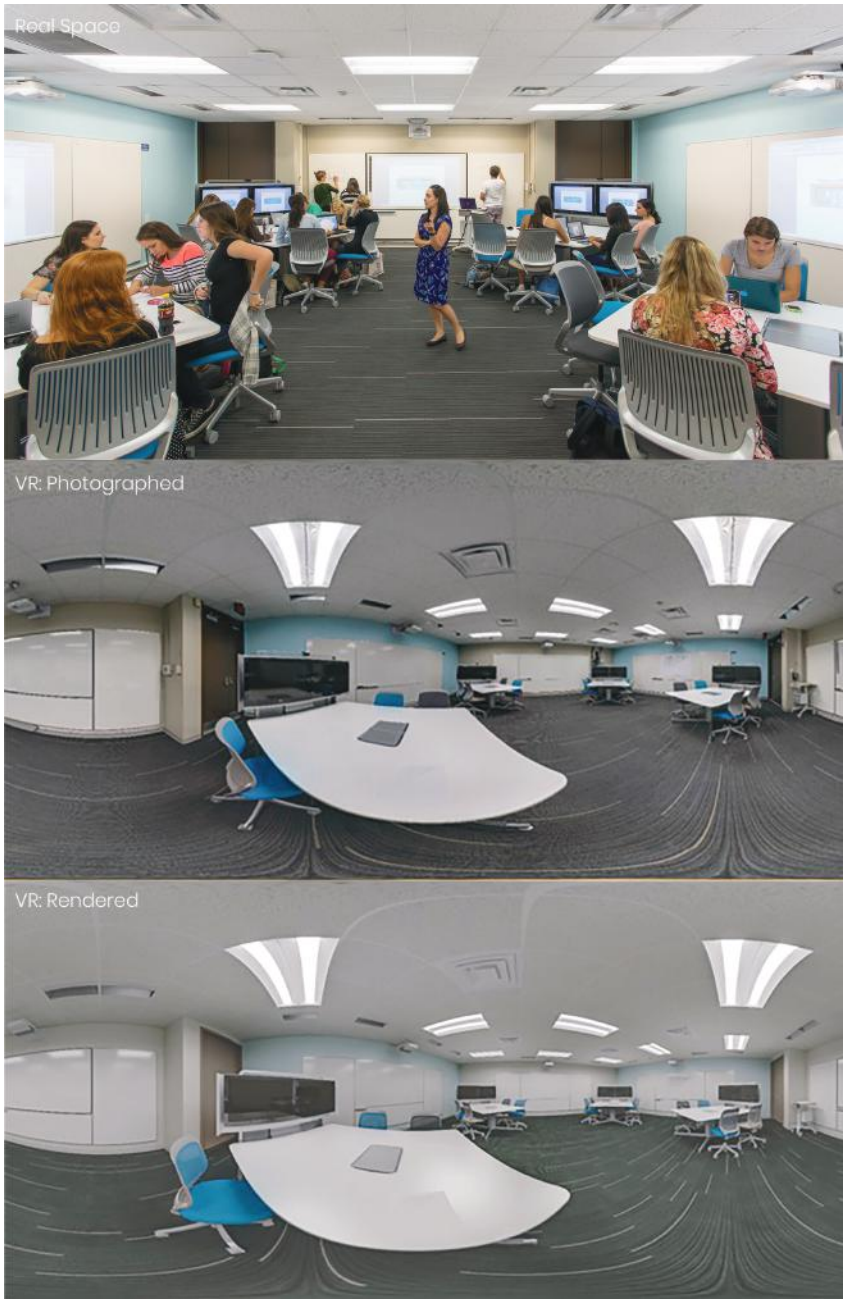

RECONCEPTUALIZING TECHNOLOGY ACCESS

SARAH URQUHART, TEXAS STATE UNIVERSITY

Technology advancements are changing the face of interior design practice. Even a decade ago, elements like virtual (VR) and augmented reality (AR), big-data analysis, construction robotics, and 3D printing seemed out of reach or impractical for the everyday designer. Today these advancements are common place, and design programs are increasingly incorporating them and investing in the supporting infrastructure (e.g., Chandrasekera, 2014; Milovanovic et al., 2017; Moleta, 2016).

As exciting as these advancements are in terms of what designers accomplish, realization of this technology's potential requires access to specialized equipment and high technology fluency among students and teachers. Today's student body of Millennials, described as the first digitally native generation, are often assumed to enter design programs ready to engage with technology. However, studies indicate that Millennial technology fluency varies widely and tends to be limited to rapid communication tools connected to social media (Thompson, 2013). Technological literacy is also highly stratified as a result of technology access inequities related to socioeconomic status and race at the K-12 level (Dolan, 2016).

Thus, design programs cannot equate digital-native status with technology literacy or means to access appropriate devices. Design programs with a high percentage of underserved or minority students need to be particularly cognizant of the burden technology places on students in terms of expense and device access. Although a bring-your-own-device model is common in design programs, students often purchase one incapable of running necessary interior design software, much less advanced technology like an Oculus Rift VR platform (Case & Matthews, 1999; Smith, 2016). Institutions are often hesitant to purchase expensive workstation-grade hardware for students because of liability and short device lifespans, and lack of appropriate classroom infrastructure. When institutions do purchase hardware, devices tend to

Unlocked computer

be desktops in computer labs that are removed from the studio environment (Smith, 2016). These factors create barriers to device access and, thus, student learning.

While technology can be a burden, advancements can broaden the type of devices capable of running intensive software by extending the abilities of highly mobile less expensive devices with less computing power like tablets or Chromebooks. For example, cloud-based workstation platforms allow streaming of individual apps or app packages on any device that can access the internet, in a secure environment connected to learning management systems. These cloud-based platforms can stream even resource hungry programs like Revit, Oculus, or Vive. Typically, such programs are highly sensitive to graphics card (GPU) setup, and the viewer experience, particularly in terms of frames per second, is highly dependent on the amount of computer memory; 16 GB of RAM is considered a minimum requirement for achieving a frame rate that minimizes nausea during headset use or achieving minimal delay when modeling in Revit. Such workstation devices typically cost in excess of two thousand dollars. In contrast, a good quality 15" Chromebook can be purchased for around $300. Chromebooks are incapable of running Revit on their own, but cloud-based app streaming removes that limitation.

One such cloud solution is Amazon Web Services (AWS) Workspaces. AWS Workspaces enables institutions to provide a scalable, pay-based-on-actual-use, flexible access model to workstation level computing. In a recent case study, Cornell University showcased how multiple instructors used AWS to democratize technology access and turn classroom experiences into real-time, hands-on learning labs (IHE, 2018). The Cornell study highlighted how AWS enabled classroom integration of high-level software, including a 3D flow simulation software used in mechanical engineering that previously required a server-based supercomputer, by enabling them to run in an internet browser window on inexpensive student devices including tablets. Beyond student access, technical benefits of the AWS platform were 1) All data remains in AWS (not actually on student devices), 2) Software licensing remained within institutional control, 3) The workspace is setup only once and subsequent deployments can scale on-demand whether you need ten or 10,000 instances of the workspace. As institutions like Cornell are demonstrating, providing student access to complex technology can be reconceptualized as a service rather than a hardware and software problem that the institution must manage.

As design educators, we need to look not only at how to keep up with emerging practice-based technologies, but also how to leverage technology to provide equitable access to learning resources. Evaluating practices that place the burden of technology access on students seems particularly relevant considering recent national discussions around the lack of diversity in the design professions. The students most likely to face compounding technology inequities are the ones we most need to join the workforce. Technology can be a portal to design learning and practice. Currently that portal acts as a barrier to diverse students; we can change that with the help of advanced technology.

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RESILIENCE TO RAPID CHANGING TECHNOLOGICAL INNOVATIONS

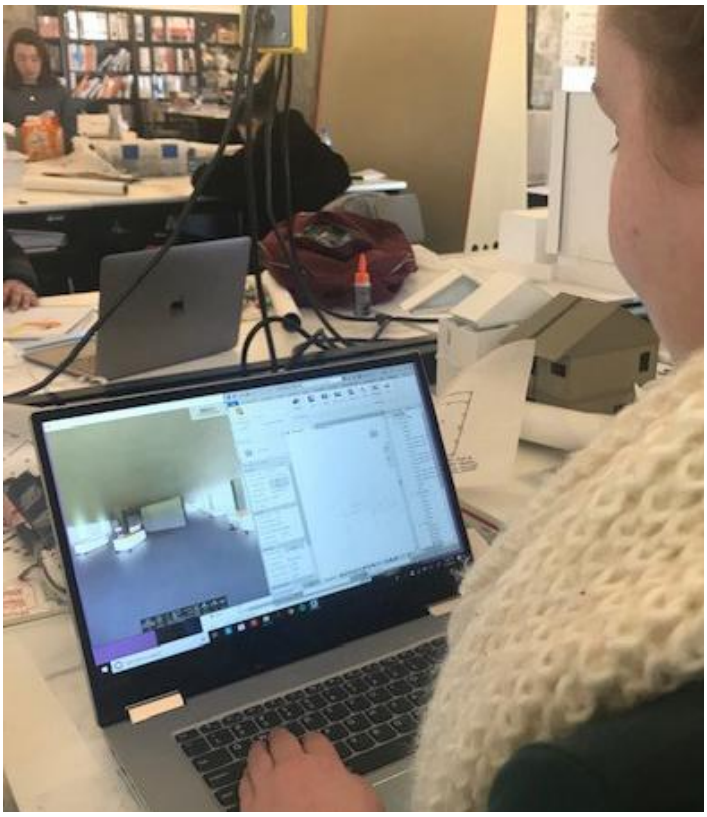
SEYEON LEE, SYRACUSE UNIVERSITY

Rapid changes in technological innovations and the tools available to support the design process have drastically affected how design education introduces design drafting, process, and presentation in today's interior design education curriculum. Today's technology has enabled new ways of learning, communicating, and working collaboratively in design studios expanding access to 'outside of a screen' (Quirk, 2017).

Innovations in Revit and Building Information Modeling changed the culture of designers' and engineers' separation toward a collaborative, integrative practice (Bergin, 2012). The seductive photo-realistic computer-generated images invited the young designers into a perception of infinite design possibilities (Carraher, 2011). Furthermore, advancements in real-time rendering, Augmented Reality, and Virtual Reality have transformed the way we study and evaluate space and analyze human behaviors in interior design. Convenient in our fingertips, designs and concepts can come to life determining their viabilities and effectiveness (Quirk, 2017). Not only do they provide visual aid, but advents of the technology also empower interactive experience, which students can access and communicate their design projects in the virtual world allowing immediate understanding of space.

Today's junior design faculty, including myself, are Generation X; we were one of the first generations to grow up with computers. While a high percentage of design drafting education in the '90s and early 2000s focused on manual drafting, later in our education, we were taught the effectiveness of digital drafting. Every desk had a drafting table with a parallel bar with trace paper and handmade models. Study of manual, technical graphics in multi-view and pictorial drawings was one of the essential parts in the interior design education and ways of communicating design.

Current students are part of a generation who does not remember the time without internet or laptops (Twenge, 2017). The norm of writing and drawing has become the use of keyboards, mouse, digital pen, and monitor. Today's design studio is full of computers, sometimes multiple screens on desks, plotted drawings, laser-cut pieces, and 3d printed models. As students continue making three-dimensional changes on the screen, digitally fabricated models allow them to demonstrate their ideas in miniature forms.



A real-time rendered view is available as interior design students design spaces using digital applications

However, there are varied opinions in the design research about the increased reliance on technology and the effects of digital integration on creativity and problem-solving (Landry, 2019; Ozkan & Yildirim, 2016).

Today's design students will be exposed to countless programs and use different digital tools to communicate their design in the course of their education. Students entering in the next academic year may not learn the same applications as today's students. So, what does this mean? The *'how-to's* in design process and tools will continuously be altered in response to the technological innovations, and yet, they are still based on the foundations of design, the principles of the design process, and cognitive perspective on design approaches that are timeless and centuries old. After all, '*how-to'* design cannot be fully executed unless *'why-to'* is cultivated. The advent of technology as resources will help find new and better solutions to the challenges we face in

the creative process, and leveraging such resources would enable us to see new possibilities beyond what we know already.

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COEXISTENCE: DESIGN TECHNOLOGY & HUMAN-CENTERED INTERIOR DESIGN

YONGYEON CHO, IOWA STATE UNIVERSITY

Imagine how your interior design career might be changed thirty years from now in response to rapid technological improvements; the technology will probably be much more developed than thirty years ago, perhaps conforming to Moore's law (i.e., processor speeds or power for computers will double every two years) (Schaller, 1997; Moore's law, n.d.). Martin Ford, a futurist and author of *Rise of the Robots: Technology and the Threat of a Jobless Future,* classifies three aspects of jobs not likely to ever disappear: genuine creativity, building complex relationships with people, and a high degree of unpredictability (Mahdawi & Chalabi, 2017). Although the career name "interior designer" has become more and more specialized into more detailed descriptions like project manager, specifier, coordinator, researcher, decorator, or contract administrator (CIDQ, 2019), interior design careers will never disappear because they encompass all three of Ford's areas. I, as an interior design educator who teaches a Human Factors in Design class and in a Design Communication class, and as a practitioner who engages in commercial interior design, assume that future interior designers will continue to help people create interior environments based on their varied personal needs.

Before I address the questions, "Has technology altered the focus of design? In which direction or ways?", I first ask myself the fundamental question, "Why has modern civilization invented, developed, and embraced technologies in the interior design industry?" Advanced technologies, tools & applications (e.g., BIM software, image search tools, 3D scanning and 3D printing technology) were developed to help people improve efficiency in terms of saving time, energy, and other resources, and to assist in achieving smooth communications by sharing design and schedule changes among architects, interior designers, engineers, and contractors. Using computer generated/analyzed tools, designers can also experiment with forms that may never actually exist.

Technology does not, however, alter the central focus of design. Why do people design an interior space? Why do human beings try to create a better environment? The author believes a well-designed interior space mainly enhances an individual's spatial experiences, such as improving an individual's happiness and satisfaction. This human-centered design focus will not be changed. This viewpoint is continued from the ancients who started to make their own environments to a future interior designer who just started an interior design program at a school. In interior design programs, instructors also heavily teach anthropometrics, ergonomics, and environmental-behavior psychology. Thus, interior designers fundamentally consider how design can improve an individual's quality of life in terms of factors like user satisfaction and well-being.

Although today's design tools and technologies are much developed in terms of speed and growth,

the future design tools and technologies would be focused on users' experience and design empathy to solve complex design issues of diverse human needs. For instance, image search engines, such as Google Image and/or Pinterest, may be much faster and easier image search process, interior designers and/or researchers still must figure which images are the best visions of the clients. As an example, Wireless audience response systems (e.g., Keypoint Interactive,) can be a good tool to listen to a number of users' voice at a presentation. Moreover, while rendering technologies are much improved through use of real-time rendering tools and VR technology to convey accurate spatial information, interior designers still may present hand-drawn renderings to evoke the client's imagination and emotional move. A computer-aided-hand-drawn image, Figure 1, using Wacom tablet and the software 'Painter,' could open diverse opportunities to produce artistic renderings.

A few years into the future, interior designers, researchers, and educators can envision new technologies and tools that may be invented and how our industry will be changed by this development. Interior designers and educators focus will be toward not only the speed and growth for work efficiency but also users' positive spatial experience and design empathy.

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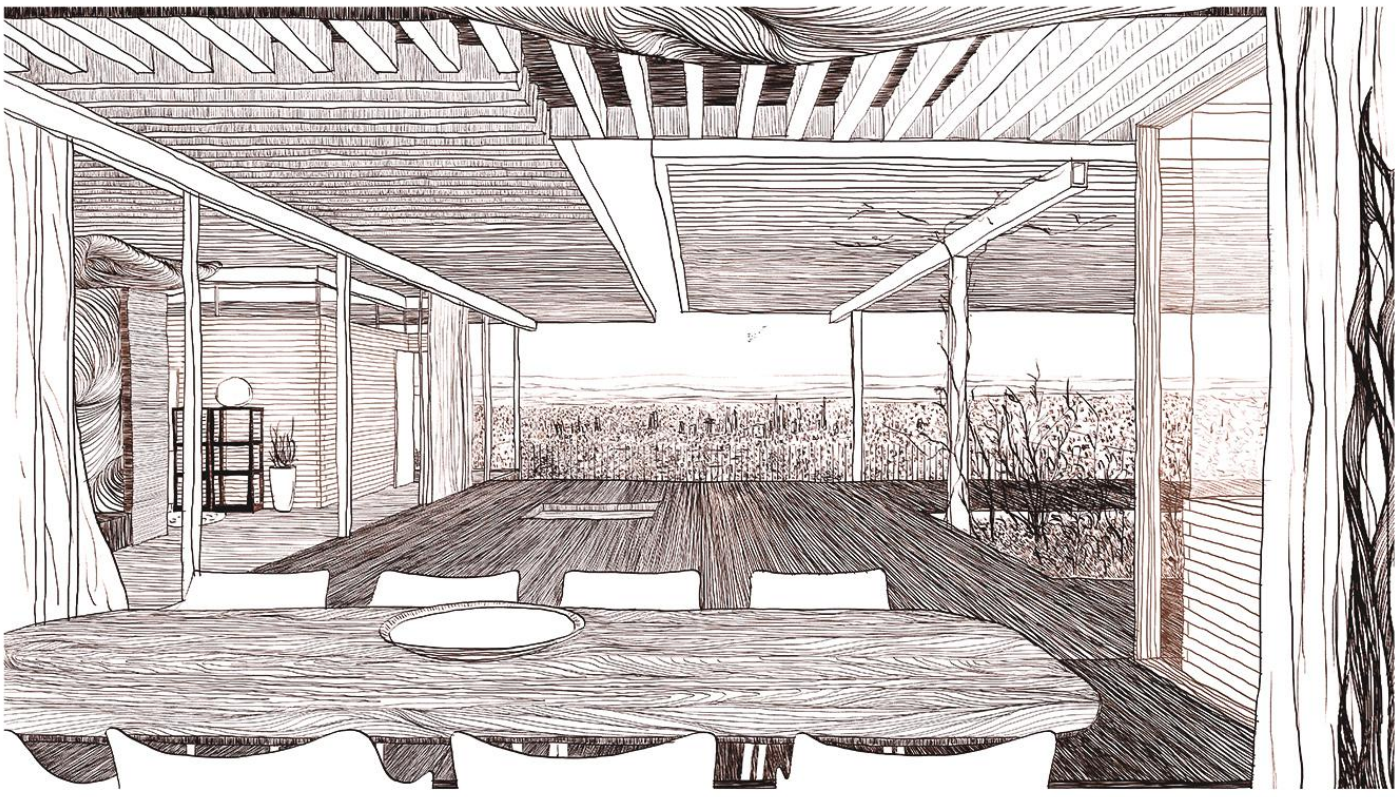


Figure 1. Renovation plan of Stahl house LUXURY NOMAD – Hand-drawn image using a computer software "Painter" with tablet, 30th annual Architecture in Perspective of ASAI "Masaaki Yamada Juror's Award of Merit", credit by Yongyoen Cho

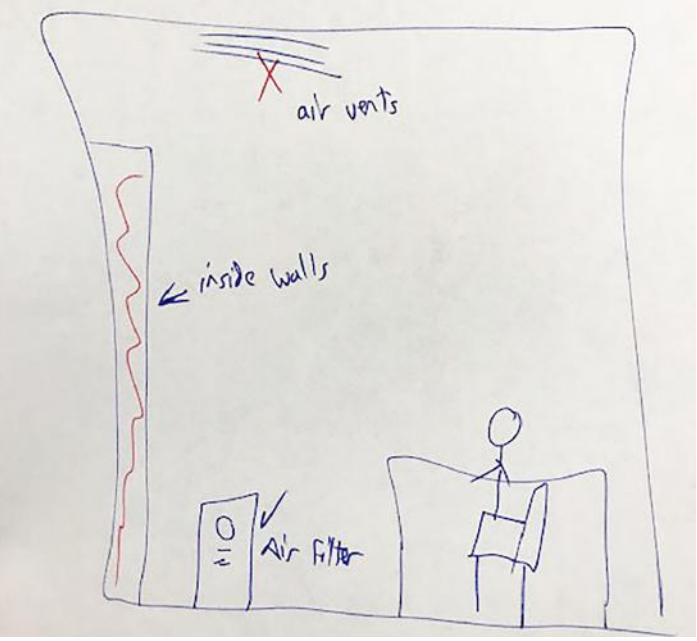
EXORCISING THE DEMONS — THE IMPORTANCE OF TALKING TO BUILDING OCCUPANTS BEFORE UNDERTAKING RENOVATION PROJECTS.

DAWN LORAAS, UNIVERSITY OF MISSOURI-COLUMBIA

Last fall, I undertook a Human-Centered qualitative study to better understand what it means, in the words of employees, to work in a building that has been 'branded' as an unhealthy building on a university campus. Wanting to document this experience, I set forth with an agenda, a recording app on my phone, biases firmly bracketed, some blank pieces of paper and markers to interview five people.

What I realized surprised me. For people with asthma, allergies, or respiratory sensitivities, the reliance on a piece of technology that sits squarely on their floor means they can enter their workplace knowing that their own personal guard is waiting for them and indicating whether their space is safe or dangerous. The simple air purifier, one purchased through mass retailers, signals through its colored lights and fan speed whether the ambient air surrounding them is 'happy' or 'sad', 'ok' or 'bad', whether to stay put or work from home. Here, sitting in front of me was a piece of equipment which I have never drawn in a floor plan, or elevation, or included in an FF&E schedule. It donned on me that this item, no larger than a trash can, was something that I have never asked about in a focus group, interview, or written into a program, but strongly influences whether the user is willing to remain in the building or flee to find healthier air.

From my perspective as a designer, scholar, and occupant of quite a few office buildings, I saw this mystery unfold before my eyes. Discreetly, I too knew that something was not right when I noticed the original windows were now caulked shut. Here was a typical 1940's university brick office building, having undergone several professional renovations, without any record of user input in the renovation process. In this era of sustainable initiatives, well-being, and technology that learns exponentially, I recall Clare Cooper Marcus who has spent her academic and post-academic career noticing the social and psychological implications of design without the use of technology, per se (Marcus, 2010; Marcus & Barnes, 1999). In order to teach design, we need to understand what the users of the spaces are feeling as building occupants. When we are in touch, our students are in touch. My interviews revealed five highly educated people who honestly believe their workplace is like a "haunted house," complete with hidden threats around every corner, invisible hazards floating through the air, and demons lurking behind walls and in air ventilation ducts giving them feelings of dread as they approach the front door of the building each day. Sensing they are unable to get clean air in their work environment, for these five people, a small piece of controllable, portable technology is perceived as the solution to their problem.



Building user's sketch of work environment.

Marcus advocates post-occupancy evaluation as an indispensable research tool for studying public and semi-public open spaces. By teaching the importance of understanding the user's experience and needs, we can bridge the gap between research and practice with empathy.

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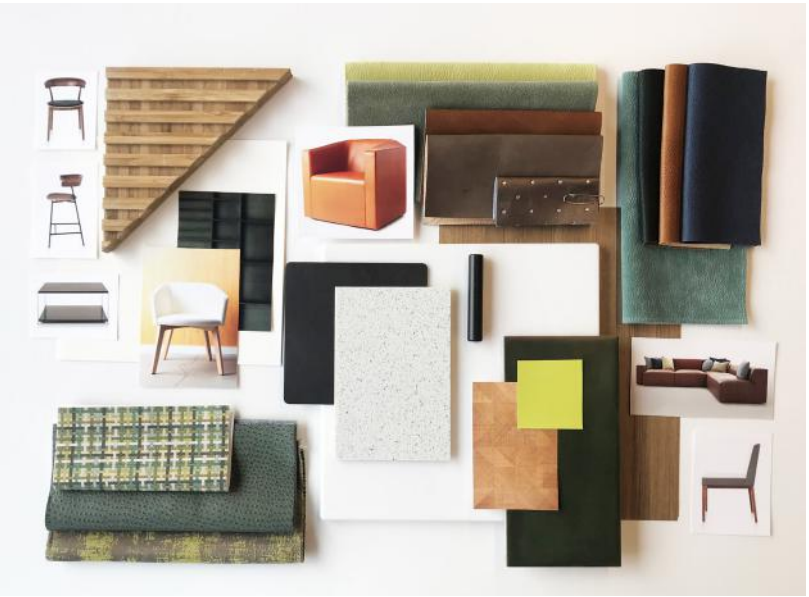
TECHNOLOGY IS FRIEND, NOT FOE

ASHLEY WOOD, GRESHAM SMITH

With the adoption of computational design, artificial intelligence (AI), and other technology in architecture and interior design, there is a natural tendency to fear that human designers might be replaced. If a robot can space plan, what does that mean for designers' jobs? Well, that is a rather pessimistic view. Technology—when it works—makes life more efficient. But it does not replace taste, judgement, opinion, or discourse. It does not replace creativity; arguably, it can even spur it.

Society has seen how technology and particularly automation has impacted industries and the people in them throughout the years. Sometimes automation has had immediate negative consequences, such as mass layoffs. But some things are not easily replaced by technology—including creative and critical thought, which is central to the design profession. The next great idea is always human generated and, in fact, often aided by technology, which frees up our time (ideally) or simply inspires us to think about what is possible.

However, ideas are not the inherent path to success. The execution and implementation of ideas are critically important. A lot of people have similar, great ideas. This is certainly true in interior design. We all know how important eliciting emotion is, how important the patient experience is, or how important it is for a corporate space to reflect brand essence. But our creativity and judgement, coupled with technology, is what determines if our concept is successfully executed.



Designers have the ability to create a color palette that mirrors a client's vision in a way that AI cannot.

In the day-to-day practice of interior design, technology helps us spend less time on tedious activities. We give a computer set parameters and constraints and it can optimize many spaces. For example, in Healthcare design for spaces to meet clinicians' needs, the equipment and infrastructure are pertinent. We can develop tools that space plan entire rooms, equipment and all, to be used repeatedly and accurately. That frees up designers' time to investigate how to make other spaces inviting and calming—and illuminating ways to improve the aesthetic of otherwise institutional spaces.

There are a lot of things that a computer can do and will do in the future. But, a computer will never "read" a client the way a designer can. There is no substitute for discourse with a client, mining for insights, digging deeper and asking the right questions that allow you to truly understand a client's vision. You cannot create a program that can pull together a color palette that achieves the look, feel, and brand your client wants to elicit. That layer of design is additive and necessarily human—we have to evaluate options and present them. A computer cannot present options to a client in an emotional, creative, and human way. It cannot read and interpret body language or the emotional response—though AI will certainly make strides in this area—to a certain color or texture during a design meeting with clients.

If we appreciate what technology has enabled, then we are more likely to challenge "Why can't this idea work?" In this way, technology pushes our ideas forward and helps us successfully implement them.

Make technology our friend, not our foe, so we can spend more quality time building relationships with clients. Designers' relationship with technology will impact our work product and provide individual designers the inspiration, and ideally the headspace, to think bigger and better for clients. Design is a deeply personal, human art that cannot be replaced by technology — only improved.

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