FLUX

F L U X

DESIGN IN TRANSITION

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FOREWORD

The Student Publication is a time-honored tradition at the College of Design. In each volume, students probe a topic that offers insight to their classmates, to the faculty, and to a broader design audience. This issue's theme challenges us to reflect on change from multiple perspectives.

It is tempting to think we live in a time of unusual change. Consider that the sheer volume of scientific knowledge doubles every two to three years. Or consider the largely unexpected results of the recent presidential election. In architecture and landscape architecture, performance-based design has become the new norm that brings enormous changes to the way we practice. The now intermingled worlds of art, branding, and virtual reality innovate with dazzling speed. And, of course, digital technology and design evolve at a dizzying pace. In the age of information, all this change bombards us almost instantly.

It seems, however, that people have always felt a keen awareness of and ambivalence toward change. Perhaps that is why Rachel and Stephen Kaplan spoke of their research subjects' preference for "wood, stone, and old." On the other hand, twentieth-century architect, Frank Lloyd Wright, famously embraced his "inexorable law of change." The Pre-Socratic philosopher, Heraclitus, offered the wisest reflection on change when he wrote, "No man ever steps in the same river twice, for it's not the same river and he's not the same man."

As you read these essays, I ask you to take a moment to consider two changes taking place in our students' lives. First, they are learning the requisite skills and knowledge for a life of design. They are studying technology, culture, social and behavioral sciences, and artistic expression at a bewildering pace. At the same time, they are literally growing up. They are experimenting with how to conduct themselves as responsible, adult human beings in a complex and—yes—changing society. And that is hard work. Our job at the College of Design is to provide a safe, yet challenging place to encourage and nourish these changes; to be a sounding board and anchor without crushing their creativity and energy, and to model a life of design.

Mark Elison Hoversten
Dean and Professor
North Carolina State University's
College of Design

Foreword

editor

Editorial Letter

In nearly every corner of the design community, change, whether packaged in the form of something big or small, is inevitable. To say otherwise would be dishonest and a disservice to the culture surrounding design.

This flux, or constant state of change, provides a means of adding diversity and new perspectives to design process and practice. While transitions may inspire conflict, their implications encourage new discourse. Designers must ultimately exist in a state of fluidity, and openly acknowledge changes in process, collaboration, and ways of thinking to move forward and create alternative, and preferable, futures.

Rather than looking at flux as just the means of being in between, we've fostered a dialogue around a series of tensions that are constantly shaping design. We see the concept of stability as something that is not static, we appreciate that constraints often challenge curiosity, and we understand that those who embody or emulate design can be found both inside and outside the traditional design discourse.

For Volume 38 of The Student Publication, we've invited designers, non-designers, professionals, and—for the first time—students, to provide their unique insights as a means of interpreting these varying relationships. As you read through this volume we hope you will appreciate all voices as equal, identify new ways that design is in transition, and leave with the ability to continue the conversations encompassed throughout Flux.

Ashley Pelfrey & Rachel Smith
The Student Publication Co-Editors

Between Theory and Materiality:
WHY DESIGN NEEDS ANTHROPOLOGY, AND VICE VERSA

Imagine yourself suddenly set down surrounded by all of your gear, alone on a tropical beach close to a native village, while the launch or dinghy which has brought you sails away out of sight. Imagine further that you are a beginner, without previous experience, with nothing to guide you and no one to help you (Malinowski 4).

SASHA NEWELL

Professor at the Université Libre de Bruxelles

BETWEEN THEORY AND MATERIALITY.

This famous passage from one of the principal designers of the ethnographic method, at once self-aggrandizing and falsely naïve, nevertheless continues to influence anthropological fieldwork to this day. Malinowski claims to have invented the ethnographic method by being trapped on an island in New Guinea for six years as WWI played itself out. He could not go home to England to finish his graduate studies because, as a Polish immigrant, he was persona non grata. This accidental situation became the source of design, a plan built on the assumption of the unknown. Good anthropological research involves stepping away from familiar conceptual terrain and attempting to revisualize the world through unknown eyes.

That is, anthropologists begin by assuming that they know nothing. All of their accumulated knowledge and expertise is as likely to blind them to their new cultural reality as it is to help them. In fact, it is a public secret that when anthropologists describe their research protocol and topical focus in grant applications (research design), they often recognize that in practice to follow these detailed research plans would violate the open empiricism of proper fieldwork whose direction can only be discovered, not programmed. It is this radical openness of the anthropological method, and as I shall explain below, its relationship to anthropological theory, that makes anthropology especially useful for the design process, and that at the same time makes design a helpful term for thinking about the relevance of anthropological work for our contemporary world. I believe that combined, design and anthropology are more than the sum of their parts.

Between Insider and Outsider

Thus, the best anthropological practice is to begin by simply trying to live as much as possible like the people one wants to understand, without importing any kind of analytical grid onto one's experience. This deeper level open-ended absorption of the everyday life can only be attained through experiential learning carried out by actually living "other people's lives," with the recognition that true acculturation ("going native") is impossible since the analytic distance of "observation" is always part of the experience as well.

It is this wide open, experience-driven flexibility that has given anthropology not only one of the most powerful methodologies for understanding human behavior, but also (less recognized outside of the humanities) an unusual and creative approach to theory, a theorizing that is drawn from the practices and thoughts of the very people we are trying to understand. Anthropology is, therefore, a kind of grounded philosophy, a thinking about the world that begins by being in the world, as opposed to the sophist mental gymnastics that constitute much theory and philosophy. In its most exciting moments, anthropology not only describes other people and places, but uses the insights gathered from people who think differently to rethink the world itself, to reimagine the possibilities for living, as Marcel Mauss did with his concept of the 'spirit of the gift' drawn from the Maori concept of *hau*. Anthropology was once an important part of US popular culture, and Margaret Mead even published on anthropology in the *Ladies Home Journal* in 1949. Her mainstream fame stemmed precisely from her suggestive use of Samoan understandings of sex and gender to argue that there was more than one way to be a woman in the world, that women's sexuality should not be a source of shame.

One might say then that ethnography is not only a methodological practice, but in its

> "In its most exciting moments, anthropology not only describes other people and places, but uses the insights gathered from people who think differently to rethink the world itself..."

Participant observation makes an effort to combine an outsider's objective analytical perspective with an insider's understanding of motivation, justification, and ideological fantasy through which people come to grips with their world.

more visionary and creative forms, a kind of design—something that goes unrecognized by most designers interested in anthropology as well as most anthropologists themselves. Of course, the output of such anthropological design work has been largely abstract and jargon-filled texts, consumed almost only by anthropologists. But what if by bringing anthropology and design together, ethnographic theory could be employed in the production of real world solutions and even, dare I say it, materialities?

The Business of Anthropology

Design Anthropology seems to be a trending phenomenon, especially in the business and design worlds, and even within the discipline, though arguably most anthropologists have not noticed it yet. According to *Harvard Business Review* in 2014, major global businesses such as Intel, IBM, Samsung, Adidas, Lego, Proctor and Gamble, and Pfizer have full-time anthropologists on their staff. Ethnography has been a buzzword on and off in the business and marketing world since at least the late 1990s, and yet, in two decades of talking about the business potential of ethnography, it would appear that few outside of anthropology actually understand the ethnographic method, and still less how it is integrated in anthropological theory. It is actually in this specific connection between "data-gathering" and "output, what most anthropologists refer to as *interpretation,* that anthropology is most unlike related social sciences and where it has the most to offer to the design world.

Ethnography is really a combination of *ethnos* and *graphy,* or writing about people. When anthropologists talk about ethnographic method, they are really talking about a paradoxical and yet highly effective process called participant observation. Participant observation makes an effort to combine an outsider's objective analytical perspective with an insider's understanding of motivation, justification, and ideological fantasy through which people come to grips with their world. There is a big difference between what people say and what they actually do, and yet both these levels are key to understanding social practice, as well as to design objects that people will both need and desire. Participant observation allows the researcher to be attuned to both these levels at once, both capturing what it feels like to be in the social situation and what people do unconsciously. The problem is that to write about this is to transform a fluid and contradictory experience into a text that represents a people, and such representations can sometimes do as much harm as good.

Ethnography As Representation, Ethnography As Intervention

Anthropologists over the last 30 years have spilled gallons of ink over the negative effects of ethnography as representation, but as design anthropology advocates have recently argued, an anthropology that looks not to describe what has been but to articulate the present with possible future worlds has another kind of social value altogether (Gunn, Otto, and Smith). While anthropologists Caroline Gatt and Tim Ingold represents this as an inversion of ethnography, I want to make the case that "ethnographic theory" – that is the articulation of ideas learnt from the concepts and practices of people one encounters in the field for the purpose of reconceptualizing the world (da Col and Graeber) – can also be a way to intervene in the reassembling of social and cultural worlds, especially if it is produced in relationship to real world applications including built environment and material objects. Many cultural anthropologists are skeptical of working with corporations because of the moral implications of helping people make money. But as design anthropologist Christina Wasson argues:

> I would encourage more design anthropologists to engage in work that benefits sectors of society with few financial resources...It would be useful for the community of design anthropologists to try to develop innovative financial models that would allow us to better support projects that generate valuable social and cultural benefits without generating financial profits (Wasson 10).

A merger of design and anthropology need not only be funded by corporate enterprise—these new models can be used for all kinds of social projects. Still, as anthropologist of design Keith Murphy points out in his excellent review article on design anthropology, there is

> a particular quirk of design—the moral implications of intentional intervention—that remains unresolved in its pairing with anthropology and which may serve as the most significant and productive feature of the relationship (Murphy 434).

It is here that anthropology is most unlike design. Indeed, many anthropologists remain very uneasy about intervening in the communities they study at all, especially when the research is motivated by and shaped by the possibility of such intervention. Even as anthropologists are constantly producing valuable critical insight about societies, many fear that to intervene in the communities we study is to risk repeating the dangers of the colonial era, in which the racist hubris of Euro-American societies justified some of history's worst wrongdoings in the name of the benefits of producing "civilization." Thus, with the exception of those who work in the applied

field, anthropological "intervention" is often limited to trying to enlighten students to an awareness of limits and dangers of the dominant "Western" cultural paradigms. This has left many anthropologists feeling somewhat helpless as we enter the age of the Anthropocene, when not only does the dominant political-economic world order appear increasingly shaky, but when the very survival of the human species is at stake.

Design As Anthropology, Design for Anthropology

Just as good anthropology has always included a bit of design, good design is likewise already a kind of anthropology, in that a design that meets the existing needs of its own society must be produced in dialogue with that society, out of a lived experience of social problems in need of design solutions. But unlike anthropology, design has always looked forward:

> Let us allow then that designing is about imagining the future. But far from seeking finality and closure, it is an imagining that is open-ended. It is about hopes and dreams rather than plans and predictions. Designers, in short, are dream-catchers. Traveling light, unencumbered by materials, their lines give chase to the visions of a fugitive imagination and rein them in before they can get away, setting them down as signposts in the field of practice that makers and builders can track at their own, more labored and ponderous pace (Ingold 29).

But what really makes design distinct from anthropology is its relationship with products. With the exception of applied anthropologists, cultural anthropologists typically only produce texts (and occasionally films) about their subjects, texts whose purpose is to be consumed by other anthropologists or students of anthropology. As such, the objects of anthropological work are designed for very delimited audiences and purposes, and must pass through filters of peer review that tend to greatly curtail creativity. Designers, by contrast, are always producing in dialogue with other kinds of figures including market strategists, corporate interests, customers, and engineers. But the end product of such dialogue is typically something material, an object of some kind or increasingly, less concrete but still arguably a material product in a sense, an application or program that shapes people's technological experience and interaction.

Interestingly, as Murphy's excellent review of design and anthropology points out, anthropological theory has increasingly focused on the importance of material objects and materiality in general in understanding human social lives, but it has tended to do so through the lens of consumption, of the way in which people incorporate products into their identities and communicate through them about themselves. Another trend – influenced by Latour and science studies – has examined the constraints of materiality (often construed as the agency of material things) upon cultural and social worlds, and this has become extremely important for thinking through the effects of new technologies upon human worlds.

By bringing design and anthropology together, anthropology has a chance to direct its efforts toward the future in a time period when social action is arguably an ethical necessity. More importantly, it might even liberate the value of anthropological production from the prison of the Ivory Tower and integrate it within materialized, built worlds where everyday acts of sociality take place, that is, the arena that has the greatest impact on human lives and the larger ecosystem of which they are a part. The interaction of design and anthropology is, on the one hand, an opportunity for designers to connect their creative process to the radical openness of the ethnographic method and benefit from its grounded theorization built upon direct experience. At the same time, such a collaboration might allow anthropologists to engage the world itself in a new and powerful way, importing the value of their critical insight into a domain where it can have the greatest effect and social implication. ∎

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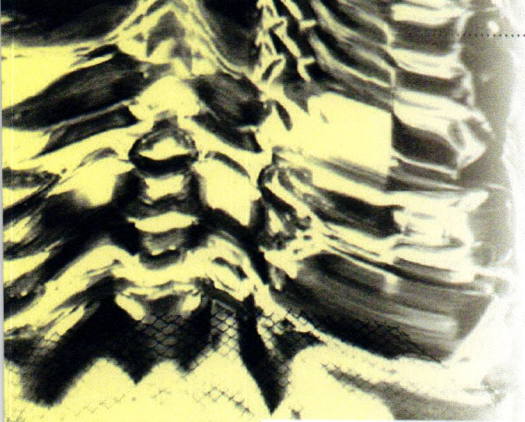Wasson, Christina. 2016. Design Anthropology. *General Anthropology* 23(2): 1, 8-11

identity in crisis

Candida Hall

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Carolina State University's College of Design

Identity in Crisis

As a young child growing up in Appalachia I was free to roam around the mountains amongst my kin. Each mountain that we conquered brought a new sense of liberation and pride; we needed nothing else from life but to intimately know and interact with our surroundings. In those years and well into my adulthood, Appalachia was home, it was my being, it was freedom. Now it is foreign, it is my curse, it is my prison.

Indeed, I am in flux: stressed and stre-tched between where I am from, where I want to be, and where I want to go. At present, I am juggling my inability to reconcile the plight of my family and greater Appalachia after the collapse of coal, with the anger, fear, and clue-lessness of my well intentioned urban friends who are less than pleased with the current state of our national dialogue and politics. The half of my Appalachian identity that I tried to purposefully leave behind is celebrat-ing this new paradigm of alternative facts and hope for the forgotten rural communities, while the other half of my liberal itinerant identity is mourning the loss of celebrated diversity coupled with the rise of a brash, hot-tempered national rhetoric.

While this crisis certainly lies deep within my soul on a personal level, our nation is also in the middle of such a crisis: rural commu-nities vs. urban communities, conservatives vs. liberals, nationalists vs. globalists. Our national identity has traditionally been one of a melting pot, however, now it seems as though the pot that once held us all together as Americans is beginning to crack under the weight of our collected angst about the fu-ture. Ordinarily the fading in and out of new identities throughout time allows society to discover new collective identities which then gives way to new contexts upon which design can continue to evolve and create. As we are forging our way through this particular crisis and our collective identity changes, perhaps designers should focus on ways to build a flexible structure on which multiple identities can form, morph, and grow together without breaking the collective whole, or the prover-bial melting pot.

At an early age we learn about equal and opposite actions and reactions that shape our physical world, informing everyday decisions. It could be that this new wave of nationalism and alternative facts is a reaction to the growing disparity in the income gap, the uncertainty of automation amongst the middle class, and the intrusive nature of globalization. In the midst of this reaction, we as designers need to ask ourselves, "how can we generate solutions for the greatest problems that plague our society?" In his book, *Design Activism: Beautiful Strangeness for a Sustainable World*, Alastair Fuad-Luke offers the following definition for design:

> "Design is the act of deliberately moving from an existing situation to a preferred one by professional designers or others applying design knowingly or unknowingly" (5).

Using this definition, designers are then free to ask of themselves, "what is preferred?" followed by, "what mechanism can facilitate the movement from here to there?"

Design Activism offers such a vehicle. Bor-rowing from Sidney Tarrow, Faud-Luke goes on to provide a definition for design activism:

> "Design activism is 'design thinking,' imag-ination and practice applied knowingly or unknowingly to create a counter-narrative aimed at generating and balancing positive social, institutional, environmental and/or economic change" (27).

Design activism is more than designing functional products that move users from a less preferred situation to a more preferred situation, it is design with the understanding that the outcome of the designed artifact will induce social change in a *positive way*. Another way to look at design activism is through the lens of Tau Ulv Lenskjold et. al, as they advocate for "an activism concerned with the negotiation and experimentation

> "... perhaps designers should focus on ways to build a flexible structure on which multiple identities can form, morph, and grow together without breaking the collective whole, or the proverbial melting pot."

within the present to invent new pathways and possibilities" (68).

Applying these paradigms to society's current identity and societal divides, we as designers can ask what do we need to do to move from this polarized war between ideologies into a more equitable, or pre-ferred, solution for all individuals. Which then begets the following questions: what is preferred or good, and when can it be said to be accomplished? Are we no longer polarized and unified when 51 percent of the popula-tion has subscribed to the counter-narrative? These are questions without easy or quick solutions. Nor do they do much to ease my own inner turmoil.

As I continue to parse through the mixed emotions dwelling within my own identity, I am forced to consider the current political narrative in which we live. It is one fueled by strong emotional rhetoric aimed at those who feel disenfranchised, forgotten, and hopeless. The way in which we react to this rhetoric can further divide us or unite us. One of design activism's greatest advantages as opposed to 'normal activism' is the incor-poration of intentional, strong aesthetics, defined by Thomas Markussen as "pertaining

to the fundamental forms of our everyday experience." These aesthetics unite people's ideas of doing or being with an emotional component (5). The everyday notion of aesthetics offers a continual interaction with the proposed 'counter-narrative' so that the narrative can be normalized, facilitating the permanent move from one situation to the new, more advantageous situation.

Design activism and aesthetics can be found in the "You Are Here Toledo" initiative commissioned by the city of Toledo, Ohio and the American Institute of Graphic Arts. The objective was to create a positive sense of place for the residents of Toledo. A very simple concept, artists, designers, and students in Toledo were asked to create visual representations of specific locations throughout the city in the form of large circles (reminiscent of the generic 'you are here' red dots) which were then placed in their designated locations. The dots resided in 100 locations throughout the city, allowing residents from all over to experience positive and unique visuals of their home. AIGA received wide recognition for the project, as well as an outpouring of residents participating in the project to rediscover their city. This is a simple accessible solution to engage citizens and create a fresh narrative about their residence, which appealed directly to their identity.

When thinking about a counter-narrative to the divisive situation that we as Americans and individuals currently find ourselves in, we should be considering what brings us together, what does it mean to be American, and one step further, what does it mean to be human? This is the identity we as designers need to define quickly and then work diligently toward realizing.

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Skillet Gilmyre

Ashley Pelfrey & Rachel Smith

Senior Undergraduate Students at North
Carolina State University's College of Design

An Interview With
SKILLET GILMORE

Skillet Gilmore is a self-taught graphic designer and screen printer. For nine years, up until August 2016, he was the head of the art and production department at INDY Week. Gilmore now works for himself as the only guy who fits at Crawlspace Press. He does graphic design and short run, hand-pulled screen printing. Before his "career" in graphic design, he worked as a carpenter and bartender (amongst other things) while touring the US and Europe playing drums in various bands. His start in design came when his bands needed posters. To this day, the majority of his work is for bands; either posters or album packaging.

1. What has, or continues to be, the biggest influence behind your work? How do you balance the biases that form from these influences?

My first designs were gig posters and I was operating on the premise that these were basically advertisements that needed to be quickly read from across the street or across the bar. The information needed to be the main element of the design. I love the simplicity and straightforwardness of Hatch Show Prints. In my time at INDY Week, my objective was much the same: the cover of the paper had to pass the five-second rule. That is, a person walking by should know what the cover story is about in a quick five-second glance, and preferably from across the street, as well. I'm now doing more work that doesn't need to pass that test so it's been fun, and challenging, for me to get into some more "arty" designs, work that might take a little while to get into.
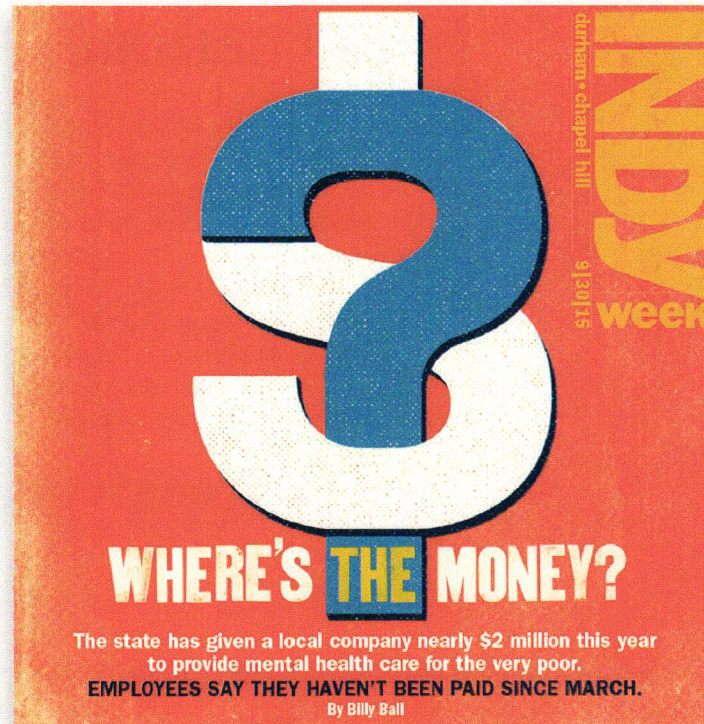

Fig. 1: INDY Cover: Cover for INDY Week.

2. How do you identify as an outsider within the design community? How do you identify as an insider?

Having had no formal training, I feel very much like an outsider in the design community. I don't speak the language of design very well and I don't have a particularly long history with my peers as I sort of fell into this career in my thirties. But, I have had a very warm welcome from the design community, at least at the local/state level, and have been lucky to work with local artists like David Eichenberger, branding and marketing firms like New Kind and R+M, as well as the Southeastern Center for Contemporary Art in Winston-Salem. I also recently designed the cover of the NCSU Alumni Magazine spring issue.
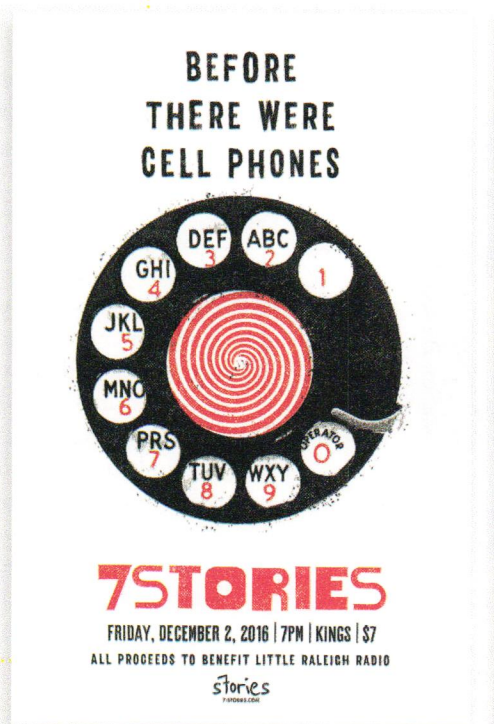

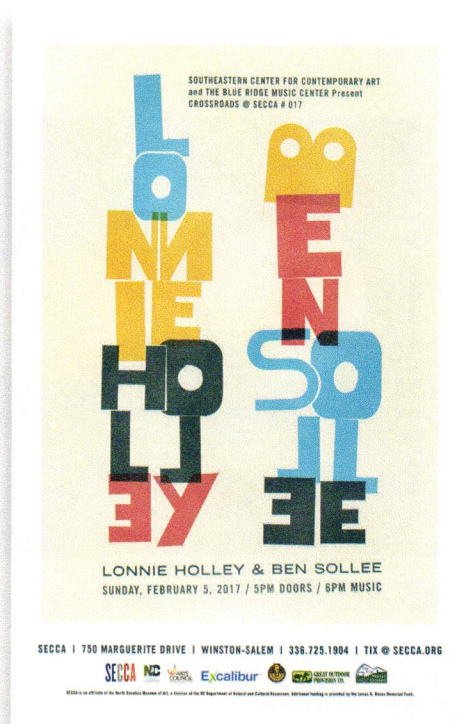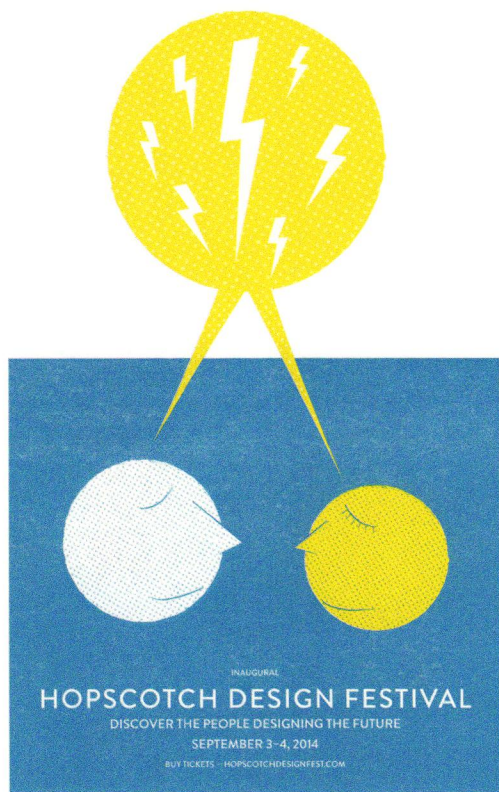**Fig. 2:** 7 Stories 12.02: 12"x19" 2-color screen print for local storytelling series 7 Stories

Fig. 3: SECCA 017: 4-color screen print for concert at Southeastern Center for Contemporary Art

SKILLET GILMORE

Fig. 4: Hopscotch Design Fest: unused design for New Kind Design's first Design Festival at Hopscotch. They ended up using a different design, but I always liked this one best.

3. Do you prefer having constraints and/or expectations when you are designing, or do you think you benefit more from having complete creative control?

Because of my lack of formal schooling and its attendant collaboration with other students, I grew very accustomed to working on my own. Nobody was telling me what to make and if I liked it then it was good. I still very much prefer to be allowed full control, for better or for worse, but have grown comfortable working in collaborative environments since my time at INDY Week and work I've done with freelance clients. It is quite true that having different eyes and minds looking at the same ideas will often lead to better work and I believe there is a fairly happy medium somewhere on the spectrum between total control and design by committee. I probably sit most comfortably further over on the total control side.

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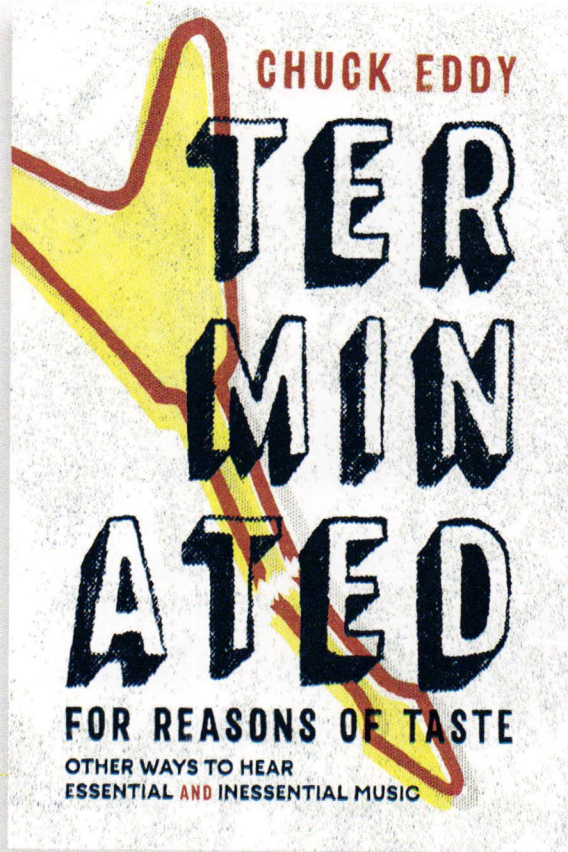u   the total

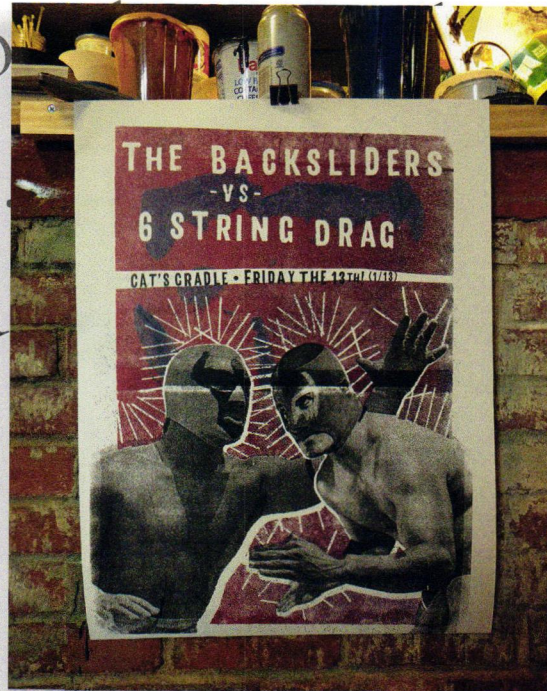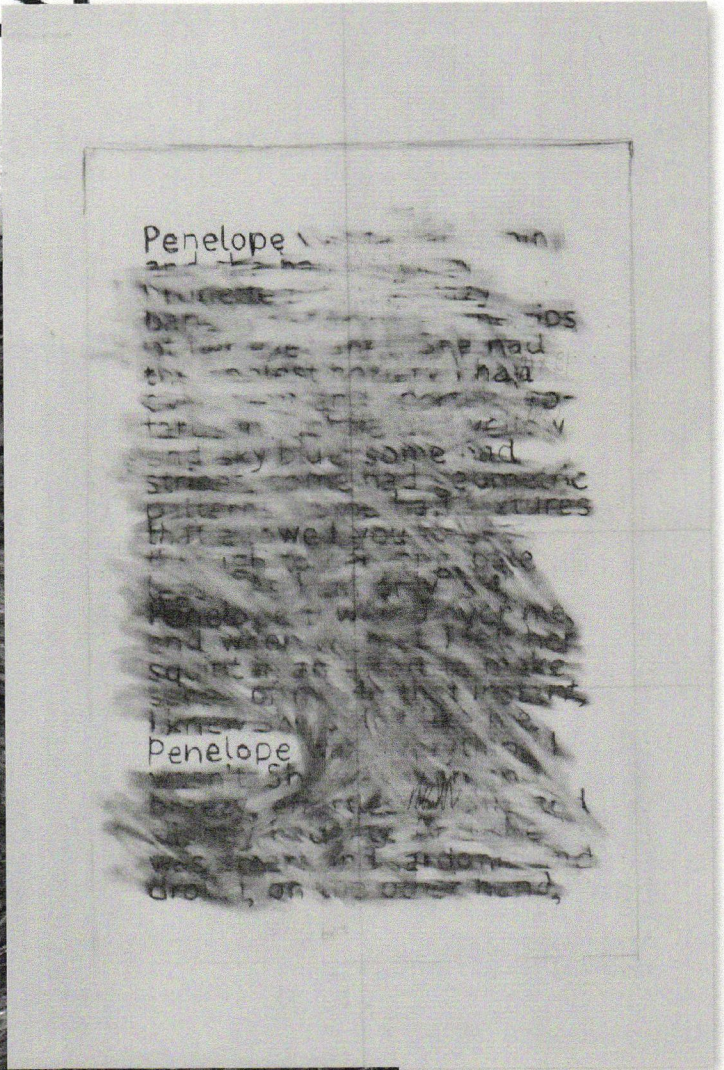Fig. 5: Terminated Final: Cover for Chuck Eddy's Terminated, published by Duke University Press

Fig. 6: String Drag Print: 19"x25" 3-color, split-fountain screen print

Penelope

DEBBIE MILLMAN

Host of the podcast Design Matters and Editorial
& Creative Director of Print Magazine

My first job after col-
lege paid me $6 an
hour.

I was doing what
would now be
considered old
school paste-up and
layout for a fledging
cable
magazine, and because
I enjoyed
it so much I could
hardly believe that I
was getting paid to do
this magical thing that
I loved.

In fact, I
never
wanted
to leave
the office.

DEBBIE MILLMAN

I was the first person in every morning, and I blissfully stayed way into the night.

The evenings in the office were the best; I would busy myself by drawing picture boxes with a rapidiograph, but it was simply a shroud to eavesdrop on the real designers sitting in the bullpen as they compared notes on the latest issue of the Soho News, or who was going to see Richard Hell at CBGBs that weekend.

I knew I was out of my league and I knew they were better than me, but I projected the fantasies I had of what my life could be onto their lives and imagined that I was one of them, but still me. Only better.

ards in fuchsia and yellow and sl

stripes, some had geometric p

What I coveted most was the easy confidence they had in their design ability; and while I worked on mine, I watched and waited and wished for a moment when they might accept me.

All that changed when Penelope was hired.

Penelope was tall and thin and she had a swingy brunette bob with lazy bangs that brushed the tips of her eyelashes. She had the coolest hosiery I had ever seen and sported leotards in fuchsia and yellow and sky blue; some had stripes, some had geometric patterns, some had textures that allowed you to see through to her long, pale legs. "As I am only 5'4" Penelope towered over me, and when we met, I felt her squint in an effort to make sense of me. In that instant, I knew she didn't like me. Penelope was everything I wasn't. She was lean and breezy, effortlessly chic and slightly haughty. And she was smart and sardonic and droll. I, on the other hand,

was chubby and over-eager; I bit my nails and wore grey corduroy gaucho skirts with matching heels. Penelope lived with her Italian boyfriend in a swanky loft uptown. I lived in a fourth-floor tenement railroad flat and had to pass through my married roommates' bedroom to get to mine.

Everyone liked Penelope. For me, her arrival brought on a fiery jealousy I never felt before. I wanted to look like Penelope. I wanted to dress like Penelope and talk like Penelope.

Looking back on it now, I realize I simply wanted to be Penelope.

Suddenly my $6 an hour job wasn't enough. Becoming a good designer wasn't enough. I needed to buy new clothes and new shoes and I needed a new haircut and new thighs and a new
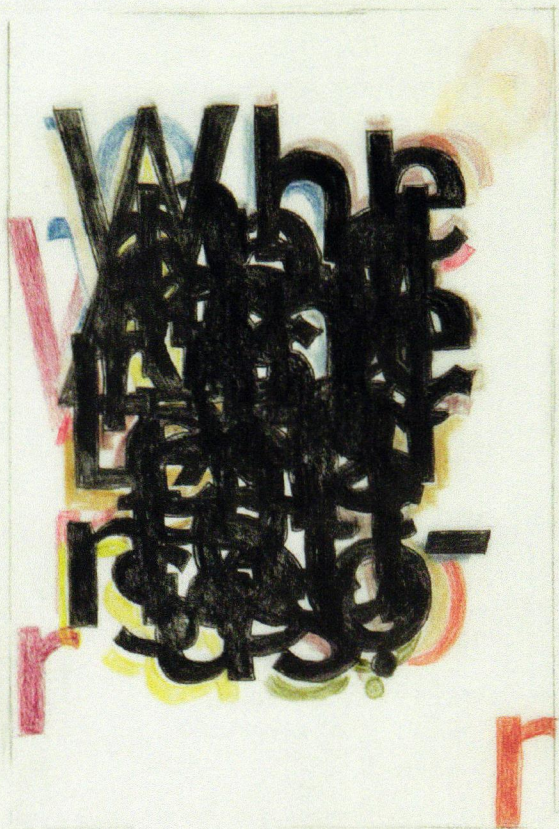
.life

Everything about me
was utterly awful
and wretchedly wrong.
I didn't have money
to buy all the clothes
I wanted but decided
to buy them anyway,
and charged them to
my brand new, shiny
American Express
card. But when I went
to work in my new
duds, I still felt shabby
next to Penelope,
and I knew that no
matter what I did
and how much I tried
to change who I
was, I would never be any-
thing like Penelope.
And I hated myself
even more.

hoped would insure my
security, I thought about this

could be

When I opened my credit card bill I felt nauseous. I didn't have enough money to pay it, so I asked my mother for a loan. She didn't have much money either, but she gave me what she could, after I swore I would repay her. And though I managed to scrape by I never seemed to have enough, I needed new things and couldn't help wanting more. I told myself that if I could just save $1,000, everything would be okay. I could pay my bills, buy a few pretty outfits and then I would feel better about myself. I would feel secure. I could feel safe! And with that, despite the fact that I still loved my job, I began to look for another one that would pay me more.

Shortly thereafter, I found a job as a Director of Marketing at a real estate company in Westchester. It was a big title with a big increase in salary; now I would be making $25,000 a year. And the job came with a car! Everyone congratulated me on my good fortune and the potential of this prestigious new opportunity.

But after the last day at my job, I went straight home, climbed into bed fully dressed, pulled the blankets high over my head and cried.

I hated my new job the entire time I was there. I hated the work and I hated real estate and it took me a whole year to save the $1,000 I hoped would insure my future security. I thought about the money every day on the long, grey drive to and from work. By the time I reached my goal, I changed my mind and decided that I actually needed $2,000 to really feel safe.

When I finally determined what it would take for me to feel impervious to my life's challenges, I looked out at the long, grey landscape in front of me and remembered the super cute pair of suede boots that had caught my eye in Bloomingdale's, and realized I had to keep driving.
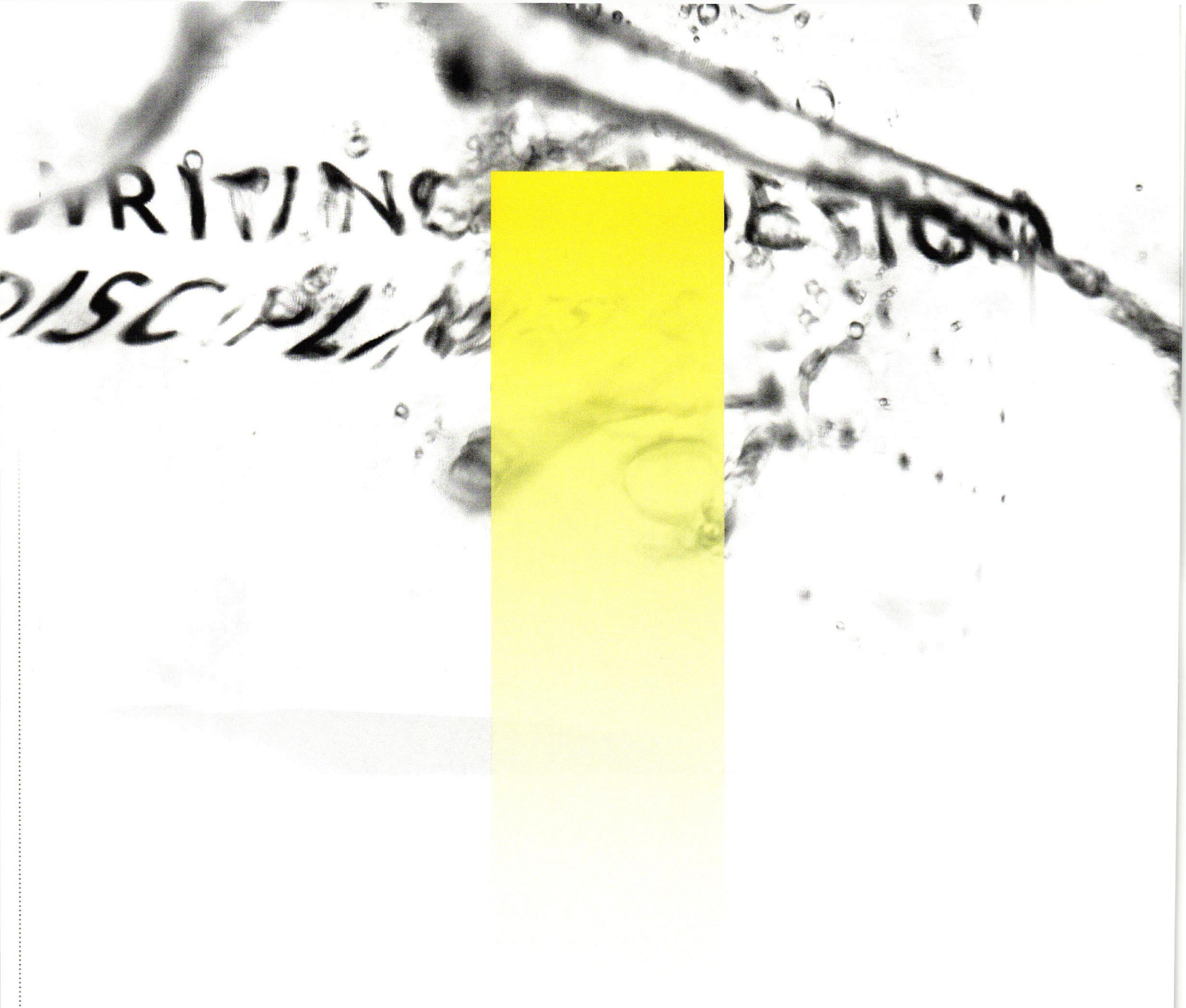
CECILIA MOUAT

*North Carolina State University's College of Design
Assistant Professor Art and Design, Director Gradu-
ate Program Art and Design*

WRITING IN THE DESIGN DISCIPLINES

Most educators acknowledge that a core component of creative practice is the "product" of creative thinking, however, many others suggest that the design process is an equally valued outcome in art and design education. Neil Gore argues that critical thinking is an essential aspect of the art and design activity, in which the process of discovering forms, strategies, and techniques must include a critical attitude toward craft (39). In the art field, Timothy Allen Jackson developed a curriculum focused on critical thinking, rather than on technique alone. The goal of Jackson's project is to explore "how personal and collective identities are formed and contested through visual means" (71). He suggests that studio courses should combine critically and culturally informed content, looking for alliances with other research and technological innovation initiatives (73). Barbara de la Harpe *et al* in their study about assessment in studio courses analyzed 118 journal articles on studio published over the last decade in the disciplines of architecture, art, and design. Their findings suggest that educators focus more on the product outcomes rather than on students'

learning process. De la Harpe *et al* attribute their findings to the prevalence of practitioners within design instructors, who are firstly active professionals and secondly teachers in their disciplines, suggesting that the strong emphasis on professional outcomes may reflect an orientation to industry expectations rather than a focus on learning and teaching (46). In their conclusions, they suggest that design education should focus on professional and innovative practice, reflective practice and interdisciplinary collaboration (ibid, 47-8). Aaron Koch *et al* in their final report for the AIAS (American Institute of Students of Architecture) analyze the studio course's culture in order to propose changes for current practices, which should include design thinking skills, collaboration rather than competition, interdisciplinary and cross-disciplinary learning, emphasis on design process rather than on products, clear methods of student's assessment, innovation in creating alternative teaching and learning methodologies, and development of oral and written communication in order to complement visual and graphic communication (26).

The studio course involves two different and opposite pedagogical practices. In one, students experience an intense one-to-one interaction with teachers; in the other students have to present their projects in oral examinations, many times with the participation of a committee composed of other teachers or external reviewers. Deanna Dannels and Kelly Norris Martin note the oral examinations are important events in design students' learning experience (136), and even though oral examinations are centered on design projects, presented through drawings, models, visual presentations, etc., students have to orally explain their design decisions, in which "the spoken word carries a great weight" (Medway 127). While sketches are useful for analysis and observation in earlier stages of the design, rigorous and technical drawings are appropriate when the design is more defined; nevertheless, in the final examinations, the importance of speech is crucial, as well as in the professional practice. A well-articulated discourse helps designers to communicate ideas first to professors, and later to clients.

Creativity requires the ability to communicate and persuade others about the creative ideas, however, as John Ackerman and Scott Oates point out, the design community tends to be non-linguistic and highly semiotic. This fact seems to be the result of studio instructors, who tend to emphasize skills to graphically represent design projects, rather than communicational and writing skills. I suggest that the development of communication skills, both oral and written help students to improve, not only the way they communicate ideas, but also the development of their creative and critical thinking.

> Creativity requires the ability to communicate and persuade others about the creative ideas, however, as John Ackerman and Scott Oates point out, the design community tends to be non-linguistic and highly semiotic.

Writing as a powerful instrument of thought

Psychologists, such as Lev Viygotsky, A.R. Luria, and Jerome Bruner, argue that higher cognitive function, such as analysis and synthesis, seems to develop most fully only with the support system of verbal language, particularly the written language. Janet Emig distinguishes several differences between writing and talking: while writing is learned behavior, talking is natural; writing is an artificial process, and talking is not; writing is technological, talking is natural and organic; writing is slower than talking; with writing the audience is usually absent, with talking, the listener is usually present; writing results in a visible graphic product, talking usually not; then writing could be seen less ephemeral than talking (123-4). Writing is a process of symbolic transformation of experience through a specific symbol system of verbal language, which is shaped by the enactive hand (124). Writing through its inherent cycle involving hand, eye, and brain, marks a powerful multi-representational mode of learning (124-5). While the words have generic functions because they speak about a category, the graphic images are characterized by the precision of its representation. For example, the word "dog" refers to all animals of this species, but a represented dog through a drawing is a unique dog. Language gives names to the objects while the graphical representation reproduces its appearance. Graphical representations have a clear function; they show, display, and present the nature of linguistic communication that is inductive, in which language triggers concepts and representations.

According to Luria, writing is a "repeated mediating process of analysis and synthesis, which makes possible not only to develop the required thought, but also to revert to its earlier stages, thus transforming the sequential chain of connections in a simultaneous self-reviewing structure." Written speech thus represents a new powerful instrument of thought (Luria and Yudovich 118).

Within the context of design instruction, writing could be seen as a necessary skill that complements graphical skills, and as a powerful instrument of thought that helps students in their process of analysis and synthesis. Writing should be encouraged by educators to understand and manipulate ideas and thoughts, and to organize and plan decision-making and problem solving. On the other hand, writing must be used to organize ideas to later communicate them through speech.

Writing within the Rhetorical Context of Design Disciplines

Within design disciplines, writing is substantially less time allocated than studio activity, and formal writing is an unfamiliar territory for most practice-based designers. Linda Apps & Carolyn Mamchur suggest that some explicative writing is requested to accompany students' final exhibitions, but historically writing has been marginal within art and design disciplines (270). They suggest that design students do not possess a set of literary skills to adequately describe or discuss their projects, even though students have to analytically describe the process of their making.

Historically, the design discipline has created visible divisions between classroom and studio, theory and practice, writing

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CECILIA MOUAT

"From this approach, writing is a social activity, in which knowing the rhetoric of the discipline will be a key factor to speak the same language and belong to a specific community."

and making, however creating and explicating are not binary opposites, but complementary activities.

Usually college instructors assume that writing is the business of the English department, but each discipline has its own rhetorical language and rhetorical demands. A discipline-specific rhetoric consists of "specific content, specific formats, specific requirements for evidence and proof, and a specific register for language" (Murdick 58). From this approach, writing is a social activity, in which knowing the rhetoric of the discipline will be a key factor to speak the same language and belong to a specific community.

There are two main forms of writing that are useful for design students: the writing-to-learn, and the writing-to-communicate. William Murdick defines writing-to-learn as "the production of an unpolished piece of writing, usually done in class or at home, in a personal journal" (17).

The main purpose of this writing is to help students think about their design process and projects under non-threatening conditions, and as a way to improve

the rhetoric practice of the discipline (17). Murdick calls this kind of writing expressive writing, and points out its benefits: to remember course content; to understand basic concepts taught in the course; to think independently and critically about the subject matter; to learn the rhetoric of the discipline; and to analyze and evaluate his/her understanding and ability (2). The expressive writing, or writing-to-learn, tends to be a common practice in design studio courses, however the writing-to-communicate practice seems to be absent from studio practices. As the expressive writing, the writing-to-communicate will be discipline-rhetoric oriented, rather than a personal reflection, it must be addressed to an audience, and clearly describe the design process, explain the design research, define the design objectives, and point out the design project's outcomes. This kind of writing is extremely important for helping students to find the precise and more appropriate words to communicate orally, because only through the activity of writing can students think and put into specific words what they will speak.

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Am I a creator of things or a creator of words? Or am I in-between -- fluxing amongst the principles of a journalist & a designer? I am at the forefront of a newspaper staff of roughly 80, although that number ebbs & flows. I lead those who are older, smarter, & those who are driven journalists.

Rachel Smith

Senior Undergraduate Student at North Carolina State University's College of Design

I find myself within the constraining bounds of a grammatical style-book, a stern sense of dependency from others, & precedents of leaders past.

I think differently than those around me in my work. I yearn for collaboration, I learn via designed solutions, & I strive for the the best
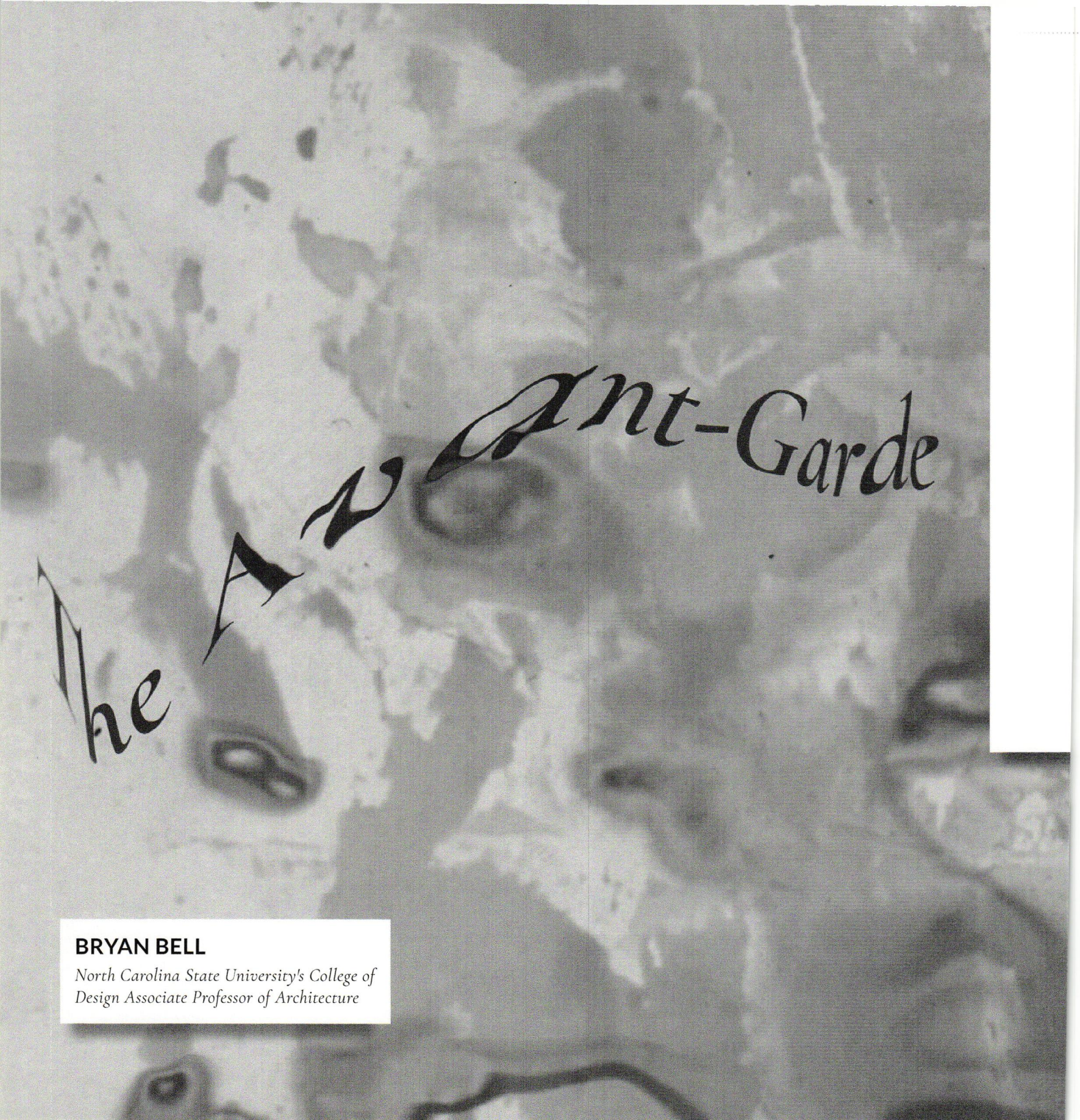
user experience.

So how can I see this as an advantage?

I function both as an insider & an outsider, offering a perspective that is simultaneously away from & within the limits of my staff. I appreciate wicked problems for their complexity, & I fully undstand the importance of process,

iterations, & mistakes.
 I flux.
 I don't always know
where I am, or where I
want to be. Though I'm
confident that this
state of change & tran-
sition will only mold a
clearer, more diversified
future.

The Avant-Garde

BRYAN BELL

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The Avant-Garde:
RENEWING A CONCEPT AND RENEWING A ROLE

In this essay, I will present an alternative means of accomplishing idealized artistic and design vision that has great relevance and resonance for society today. In examples that have held both utopian visions and actionable motivation, historic change has occurred with artists and designers playing important roles.

I would first like to describe a context for idealistic visions in art by exploring the original use of the term avant-garde. In tracking the meaning of the term *avant-garde* at a few historic moments, we can critique the current and changing state of art and architecture, and how the original intent of the term might renew a more social role to be played by actors in these fields.
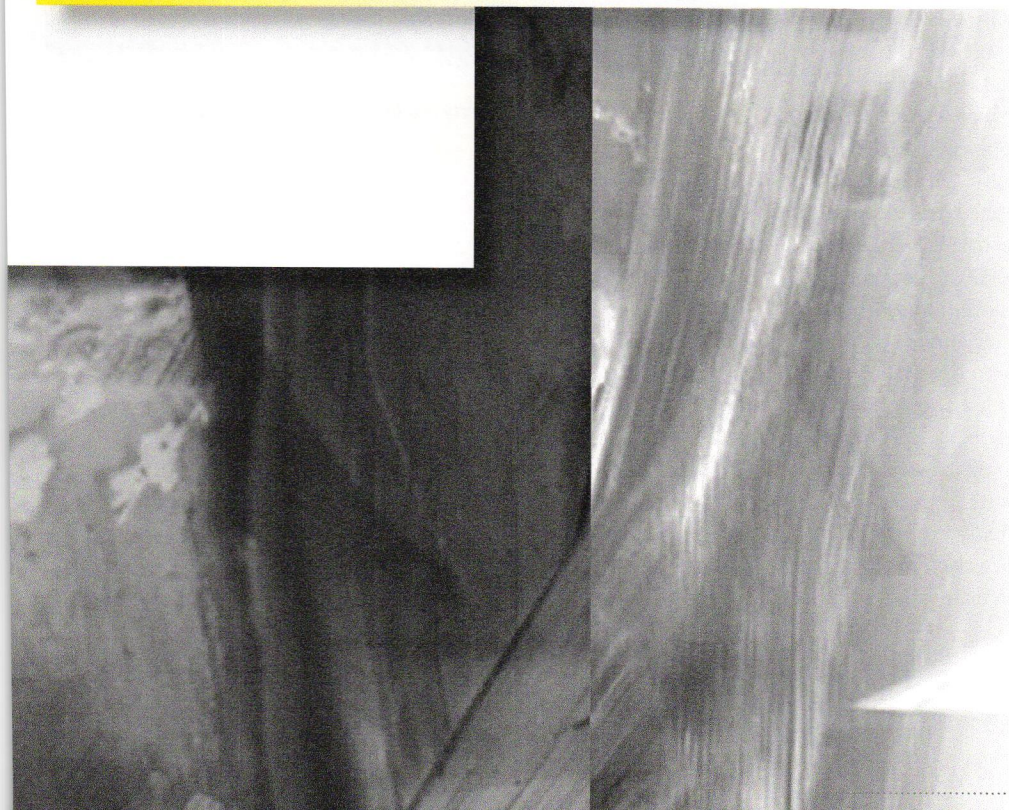
According to Henri Bonnal, the term avant-garde was originally a military term, literally referring to the advance guard or the shock troops that led an attack. In the mid-nineteenth century in France, it was adopted by the art community when art was associated with political and social changes of the time (Bonnal 252).The term indicated innovation in both social constructs as well as formal ones.

The painting by Delacroix titled *Liberty Leading the People* is a fitting expression of this political and social change. According to the Musee d'Orsay which houses the piece, the political context was the French Revolution of 1830 when King Charles X was overthrown. This event was significant politically because it replaced the hereditary right to be king with the idea that kings were selected on the basis of popular consent. *Liberty Leading the People* was also completed at the moment that the term avant-garde was used more frequently to mean experimental forms and aesthetics, but art that represented socially and politically progressive ideas were included as well. In the instances recorded by history, this alliance between art and politics also inspired action—the armed masses taking the barricades led by "Lady Liberty" holding the French revolutionary flag *(The 1830 July Revolution and the July Monarchy)*.

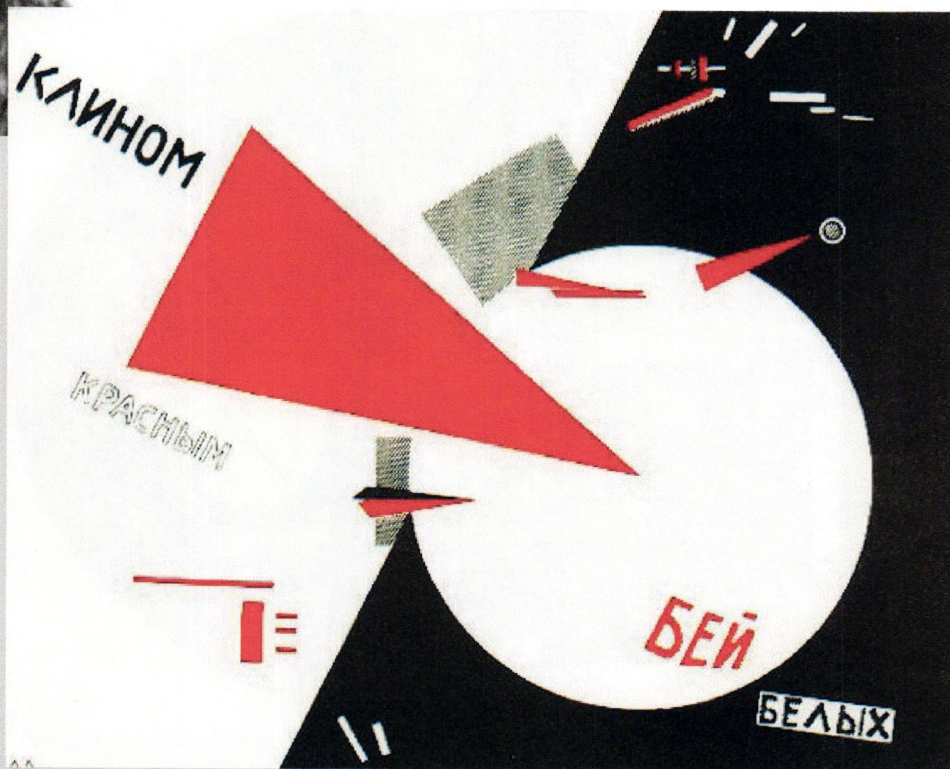**Fig. 1:** Eugene Delacroix, *Liberty Leading the People*, 1831, The Louvre, Paris, France

Fig. 2: El Lissitzky, *Beat the Whites with the Red Edge*, 1919, Municipal Van Abbemuseum, Eindhoven, The Netherlands

Russia was experiencing a similar blending of art and politics in the early twentieth century. The Russian avant-garde art world flowered at a time when the political traditions and social order were also being challenged. The historic event that was the catalyst occurred in 1917 when one army garrison joined striking workers in demanding socialist reforms. This led to the abdication of Czar Nicholas II which created an opening and opportunity for society to shape a new order to replace the past (Gilliard). The artwork that ensued was multi-disciplinary, from book-making to film to painting and more. During this period of utopian visioning, the artist El Lissitzky described the crucial transformation of the artist "from mere reproducer to a builder of a new world of forms" (El Lissitzky Ehrenburg). In other words, the role of artists and designers was to help shape the vision of the future. In one painting by El Lissitzky of 1919 titled *Beat the Whites with the Red Edge*, the red wedge symbolizes one political movement moving against another in the form of the white circle.

In these examples, the art was about reflecting and advancing the social and political changes occurring all around. It meant throwing out the old (art and government) to create something new. But these two connected elements (the social and the artistic) that were so well combined when the term first originated and then these began to separate towards the latter part of the twentieth century. Art as a commodity played a large role in this shift. The patrons of these paintings had the disposable means to purchase the art, but not always the interest in the political message that many of these pieces espoused, primarily because they were critical of the very norms that the patrons depended on for their wealth. While these patrons had a knowledge of art that allowed them to appreciate the value of formal innovation, they were not necessarily (or equally) interested in promoting a message that might transform the status quo. Would the artists then "bite the hand that feeds them" by pushing for radical social changes?
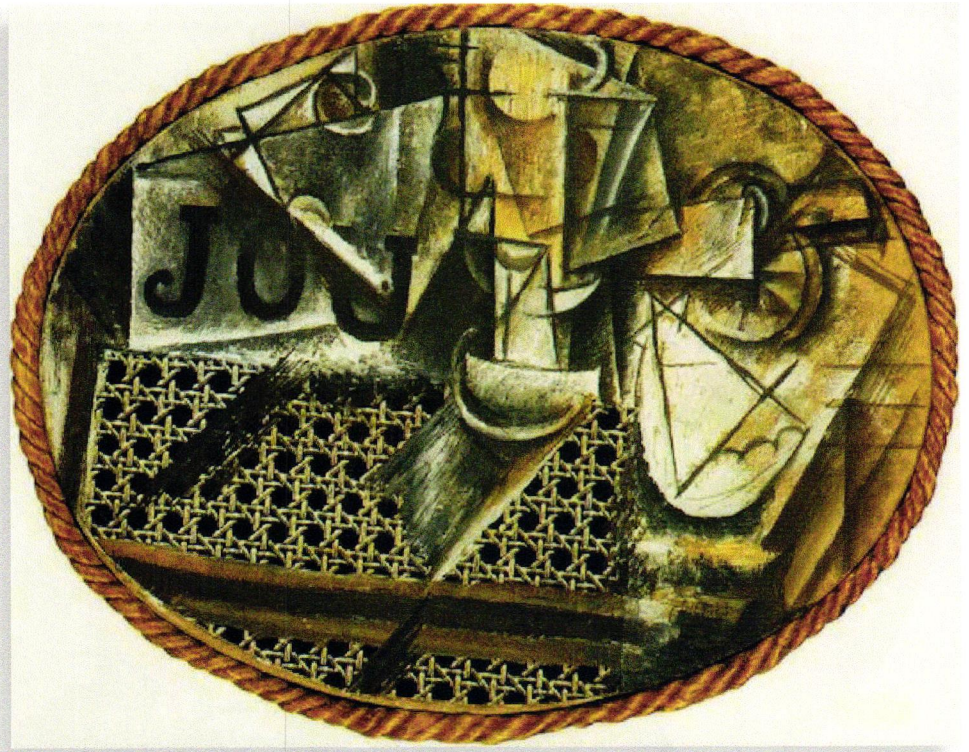
Fig. 3: Pablo Picasso, Still Life with Chair Caning, 1912, Musee de Picasso, Paris, France

As a result, the term avant-garde started to refer to innovations in artistic form alone. An early example would be Pablo Picasso's *Still Life with Chair Caning* completed in 1912. This work is recognized as a precedent for much of the avant-garde art of the twentieth century. It challenges multiple norms of art history. The work is radically innovative in its use of materials, lack of perspective, and abstract representation of an image. But the innovation is entirely artistic, without association to a social movement or political moment. A chair and newspaper is a prosaic subject which reinforces the social status quo rather than challenging it. While it was revolutionary in terms of what was acceptable within art conventions, it did not suggest radical changes in society at large.

This separation continued throughout the rest of the twentieth century, and avant-garde's meaning as formal innovation became the dominant definition. Works like Frank Stella's 1967 *Harran II* show how innovation for art's sake continued through the twentieth century. The work is about the space within the canvas and the conventions of painting. The artist's subject does
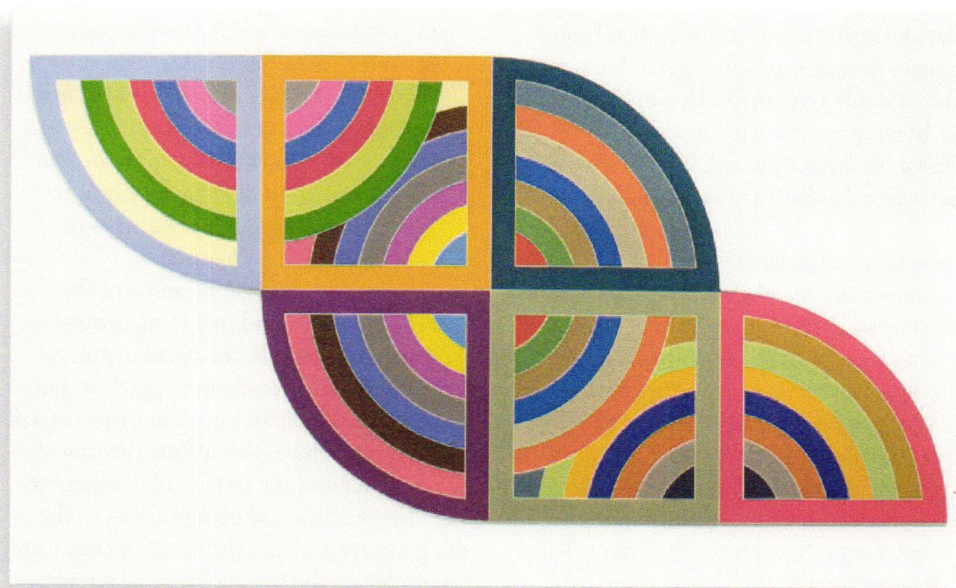
not address the world beyond the very limited context of the painting itself. As Stella states: "The thing about my art is, only what is there is there. It is an object. What you see is what you see." (Hunter 365)

In architecture, the use of avant-garde followed a similar trajectory and reached a point where common usage implied formal innovation rather than social innovation. Kenneth Frampton employs this usage in his writings of the 1980's on Critical Regionalism. Frampton frames an equivalence of the avant-garde with tabula rasa, the blank slate, when nothing is drawn from outside of artistic norms. Frampton points to the early Modernists as an example of both social and political change. The early Modernist architects in Europe, responding to the devastation of World War I and the politics that caused it, did look to the future and

away from the past. But this moment was also connected to ideas about social changes from the past, not only about new forms—which was not necessarily represented in the Modernist perspective and form.

Frampton does not see the early Modernists as creating form that has a social content. He equates the avant-garde tabula rasa with this loss of the character of place and qualities of context. Any existing buildings and nature were ignored for the "progress" of the new:

Critical Regionalism necessarily involves a more directly dialectical relation with nature than the more abstract, formal traditions of modern avant-garde architecture allow. It is self-evident that the *tabula rasa* tendency of modernization favors the optimum use of earth-moving equipment inasmuch a s a totally flat datum is regard-

ed as the most economic matrix upon which to predicate the rationalization of construction. Here again, one touches the concrete terms this fundamental opposition between universal civilization and autochthonous [native] culture. The bulldozing of an irregular topographic into a flat site is clearly a technocratic gesture which aspires to a condition of absolute *placelessness*, whereas terracing of the same site to receive the stepped form of a building is an engagement in the act of "cultivating" a site" (Frampton 27).

Frampton provides an analytical framework to assess how a building does respond to the context, not literally as in the mimicking of the vernacular, but in design principles. Frampton contends that buildings are of their place if they respond to the local site, light, tectonics, tactile qualities and urban forms. His description of how local light can transform seeing artwork gives a good example:

Until recently, the received precepts of modern curatorial practice favored the exclusive use of artificial light in all art galleries. It has perhaps been insufficiently recognized how this encapsulation tends to reduce the artwork to a commodity, since such an environment must conspire to render the work "placeless." The converse of this "placeless" practice would be to provide that art galleries be top-lit through carefully contrived monitors, so that while the injurious effects of direct sunlight are avoided, the ambient light of the exhibition volume changes under the impact of time, season, humidity etc" (Frampton 9).

However, Frampton's critique fails to include the influence of people as an element critical to design. Region is not just about the "topography" and "light" as Frampton states, but also about the people and com-

munities. If architecture and art are seen as products of their context as the term "regional" implies, that needs to include not just the qualities of place but also of the people who have created them.

Today, architecture and design are showing increased interest in social principles and social change but the gap between social and formal innovation persists. We continue to see the social aspect of design as mutually exclusive from the formal innovation. But it is not one or the other, it can be both as the earliest avant-garde artists showed. As Michael Murphy, Co-founder of MASS Design Group has said, this is a false choice, similar to the classic philosophical question if you had to choose only one, would you choose bread or roses (Bell, *Interview with Michael Murphy*)? It is recognizing that both are valuable to society. And this re-synthesis is confirmed by a high majority of current designers. In a survey of the American Institute of Architects membership, 81% said that it was possible to create designs of the highest quality in public interest design (Feldman, Palleroni, Perkes and Bell).

The interest in reconnecting the social with the formal in design can be seen in the increasing use of terms such as "social impact design," "socially-engaged design" and "socially responsible design."

In an interview with Andrew Balster for *Design Intelligence Journal*, David Dewane describes the distinctions as follows:

Design for social impact has been gaining momentum for some time. Most of the early luminaries are still active... At the same time, the next generation of designers focused on social impact are now establishing themselves, and as they do we are witnessing a shift. In part, this is characterized by an evolution in identity. "Public Interest Design" has emerged as a label that effectively organizes the collective efforts of those working in the social impact sector (Navigating the Frontier of Public Interest Design).

This growing social agenda of "public interest designers" is even more explicitly seen in *The New Landscape Declaration*, put out by the Landscape Architecture Foundation:

As landscape architects we vow to create places that serve the higher purpose of social and ecological justice for all peoples and all species. We vow to create places that nourish our deepest needs for commu-nion with the natural world and with one another. We vow to serve the health and well-being of all communities...To fulfill these promises, we will work to strengthen and diversify our global capacity as a profession. We will work to cultivate a bold culture of inclusive leadership, advocacy and activism in our ranks (Landscape Architecture Foundation).

By using the original meaning of the term avant-garde, and including context as well as community in the creative process is not "outside" of traditional practice, but the re-inclusion of an important role played many times before. This affects the role of the designer and the impact of design practice. This inclusion of communities in the design process makes the designers not just an insider on the social change occurring, but a vital player in the change. Evidence of this is in the growing use of terms today such as "socially-engaged design", "social impact" and "socially responsible design."

For those of us working in the nexus between art and social issues, I suggest that we do not relinquish the term avant-garde to the historic reinterpretations. Claiming the original meaning—the combination of social ideas and artistic forms—shows that

we are not "outsiders" nor even inventing a new role. Rather we rely on a long history of progress made by the powerful combination of ideas about art and society.

As the world changes rapidly around us, artists and designers need not be passive observers. We can give form to the ideas that could mean social and political progress, a role we have played well before as shown by original concept of the term avant-garde which was defined by this very role and by the important connection between form and society.

One accepted mission for public interest design declares that: *Every person should be able to live in a socially, economically and environmentally healthy society* (Feldman, Palleroni, Perkes and Bell). What new forms can be created to forward this ambitious utopian vision?

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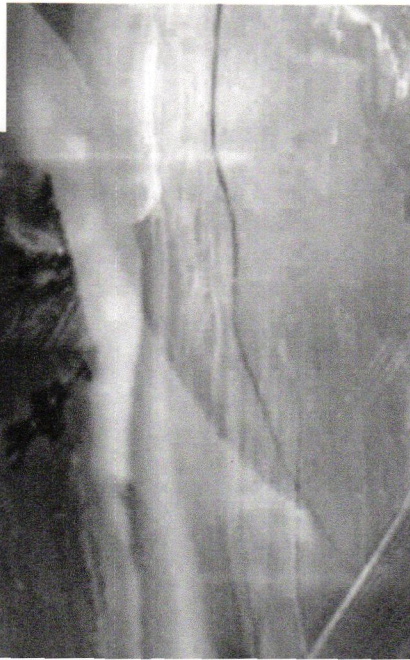
Find a Way to Fix

I remember being a very inquisitive child. My mom said I would ask "why" so many times that she would get frequent headaches. I grew up in a typical, working-class family with both of my parents working full-time. After being at work for nine hours, my parents would come home and work on any housework that needed to be done. Being an only child, I had to find ways to entertain myself while they were busy and that

usually resulted in me **taking things apart** to see how they worked, out of curiosity. There have been some instances where I took something apart, only to realize I couldn't put it back together. One of those instances was when I was nine years old and my best friend and I decided to open up the panel on my mom's sewing machine to see what was inside; we were curious of how it operated.

Ashley Pelfrey

Senior Undergraduate Student at North Carolina State University's College of Design

It

We had only just lifted the little door when, all of a sudden, all these tiny pieces fell out of the machine, bouncing off the wooden floor, scattering in all directions. Fearing we would get in trouble, we tried to shove what small pieces we could find back into the compartment, hoping that, by some miracle, they would find their original places. Unfortunately,
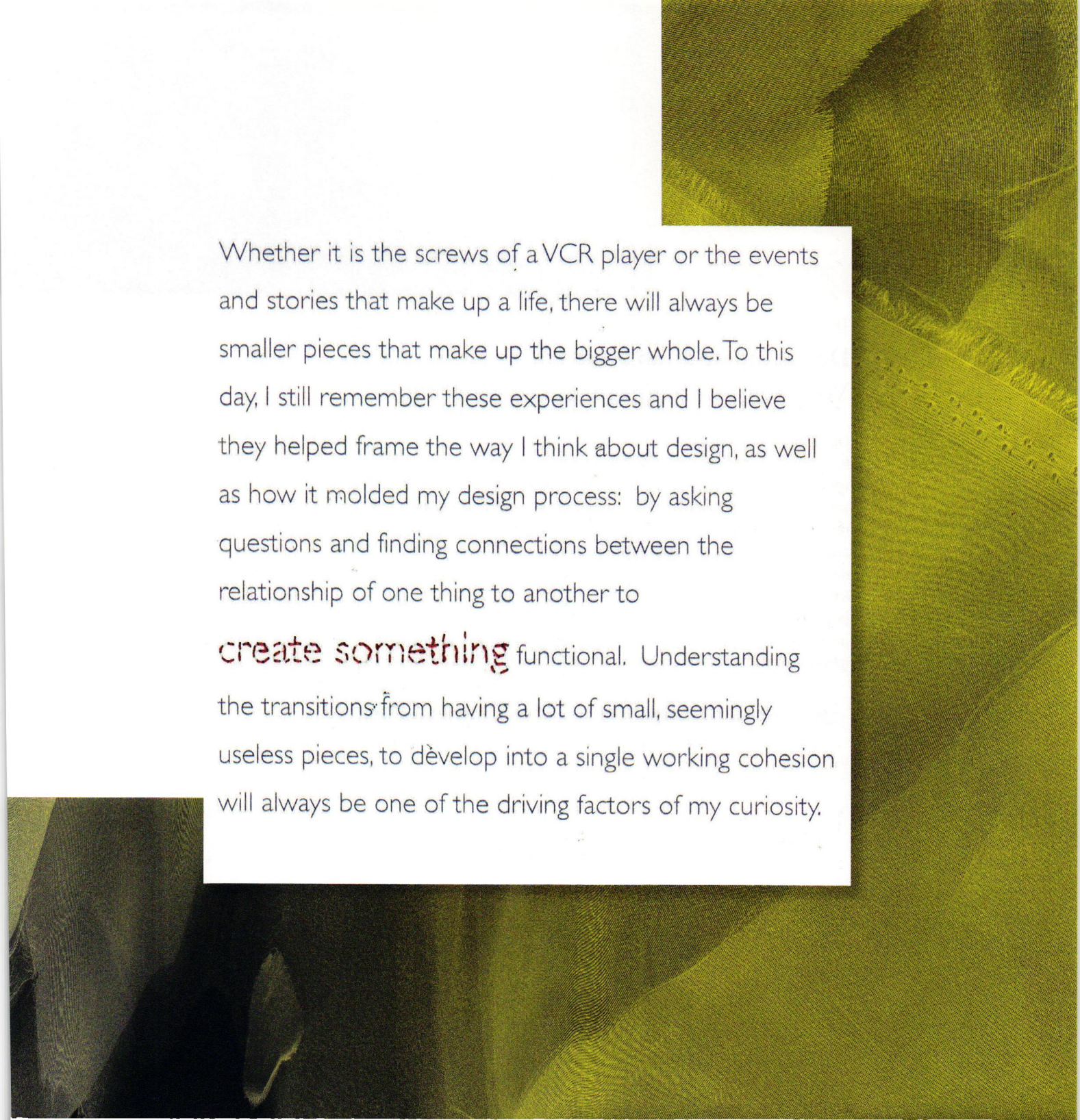
we lost

some of the pieces and were never able to get the machine to run again and the only thing we received was a lecture. That's when I learned that just because a piece is small, doesn't mean it isn't vital to making the entire system function.

My dad was always about the mentality of "if something breaks,

you find a way to **fix it**". Now, of course the sewing machine wasn't my only victim, so there were many times I would sit with my dad, screwdriver in hand, waiting to hand it to him whenever he asked for it, like a surgical technician handing a scalpel to a surgeon. One memorable operation was the extraction of my younger cousin's red Power Ranger action figure from the depths of our VCR player. I still don't know how this happened. I watched as my dad took the entire machine apart,

bit by bit, and I was mesmerized by just how many pieces there were. I was amazed that if one was missing or out of place, the machine wouldn't function properly. My dad would work, and patiently answer my questions of how the pieces connected and worked together.
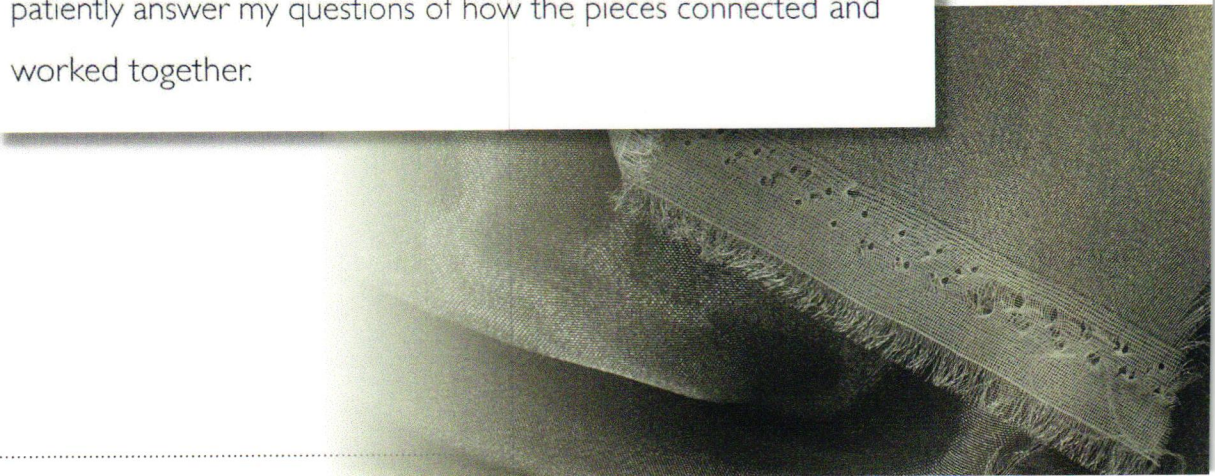
Whether it is the screws of a VCR player or the events and stories that make up a life, there will always be smaller pieces that make up the bigger whole. To this day, I still remember these experiences and I believe they helped frame the way I think about design, as well as how it molded my design process: by asking questions and finding connections between the relationship of one thing to another to

create something functional. Understanding the transitions from having a lot of small, seemingly useless pieces, to develop into a single working cohesion will always be one of the driving factors of my curiosity.

THE MYTHOLOGY OF CHANGE:

Designing and Empowering Voices in Contemporary Science Fiction

Upon the first publication of Mary Wollstonecraft Shelley's novel *Frankenstein: The Modern Prometheus* in 1818, the birth of the genre we know today to be science fiction was realized. Originally published anonymously, this tale of creation gone awry received favorable reviews from critics. Encouraged by this reception, Shelley claimed authorship of the work, resulting in subsequent critics immediately dismissing it. The knowledge of the voice behind the work, being that of a woman barely in her twenties, suddenly made it more difficult for it to be validated and accepted. Yet if not for Shelley, we may possibly have never conceived of a genre, now beloved by many, that impacts us tremendously in its discussion of what humanity might face in our future.
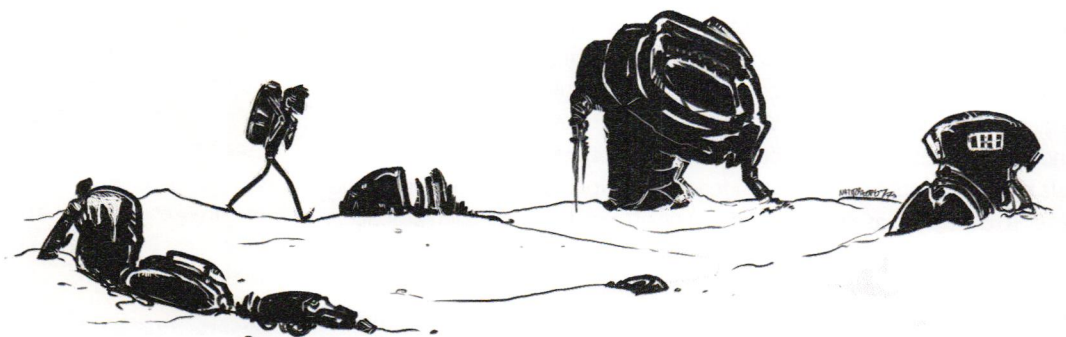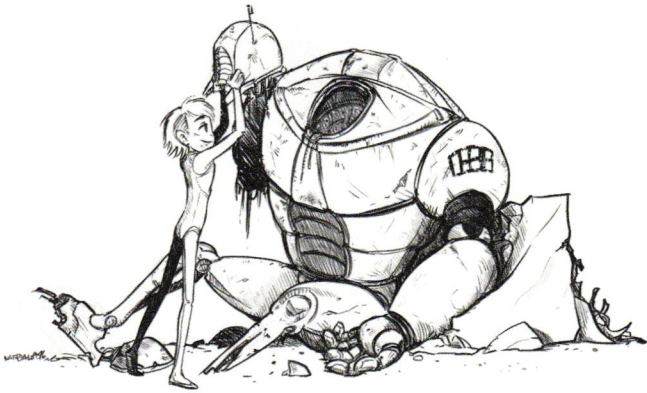
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the mythology of change

NATALIA LOPES

The character of Victor Frankenstein is at first depicted as in control of his knowledge and of his creation. But as soon as it comes to life, his fear and neglect of it produces monstrous results, and for the remainder of the novel, he spends his time searching for the creature in order to destroy it, as its existence constantly haunts him. While the ephemeral nature of power, who has it, and who will inherit it, has long been a part of the discussion of science fiction narratives and what they mean for us, it is interesting to note that the first science fiction novel dealt with the consequences of letting technology and power have too much control.

Today, the concept of power has new meaning as those who were once marginalized are slowly emerging as active voices in conversations enabled by accessible and portable technology. Among these voices, the most active should be that of the contemporary maker and storyteller. The primary role of designers and storytellers today should be to bring contemporary issues to the fore-

front of their work, and to assert their voice in unique ways by utilizing technology to contribute meaningful and accessible work. While in Shelley's case the author's voice was considered in her time to be as important as the ideas being expressed, this notion can be used as a positive in today's design practice.

The nature of change is a topic that remains pervasive in science fiction narratives, since designers and problem-solvers have realized many of the solutions proposed in science fiction stories that were at one time or another impossible to imagine. We are also undergoing a period of great transition, not just in a global sense but also in the sense that the ultimate voice of authority—the voice of credibility—now takes many forms. Because of our unprecedented access to technology, the everyday person can find and belong to a community of like-minded individuals that, when engaged in a proactive way, can become ultimate driving forces for change and action. What better way to engage and encourage people than with

Today, the concept of power has new meaning as those who were once marginalized are slowly emerging as active voices in conversations enabled by accessible and portable technology.

designing new tools that they can use for creation and conversation? Or better yet, for the aspiring storyteller to engage their audience in new ways using technology not only as part of the content, but in tandem with the form in which their story is told, the message and the medium becoming one and the same?

Oftentimes contemporary science fiction storytellers focus too much on the spectacular fear of it all: fear of space, of isolation, of the rising fascist dystopia, of the collapsing environment, of the other. While this is a necessary commentary and certainly a valid one, it is my belief that today's world needs stories with a focus on how to combat this fear with accessible ingenuity. Connecting our storytelling with the hybrid nature of media, therefore, allows designers to bring in new tools we have yet to use for the purpose of storytelling and engagement, and merging the form with the content of the story, creating new opportunities for design and for designers to see new problems to solve. ∎

What better way to engage and encourage people than with designing new tools that they can use for creation and conversation?
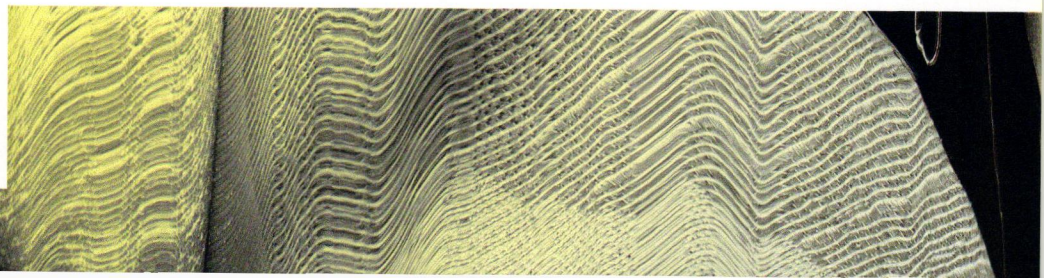
One typically sees design as a way of solving problems for the masses, or for a particular demographic or situation. In the case of storytelling and design, there is no need necessarily for a product to be invented, but rather the encouragement of experimentation and of trial and error, that eventually might lead us one day to place meaning and value to new concepts that empower all. Just as in the film *The Iron Giant*, arguably an animated version of the Frankenstein story, the title robot helps to create art out of spare parts and garbage in the junkyard that he hides in, so we can potentially learn to utilize what has been disposed of or devalued by others to empower our narratives.

By speaking about technology while utilizing technology to tell new stories, audiences may grow to understand how to engage with the world and empower their own voices using what is around them. There are new needs and new voices in need of expression, and for tools to be designed for those voices. What allows certain voices to remain in power and oppressive to other points of view, is the value that is placed in what those in power use to empower themselves. Put more simply, those who can't have what those in power have don't know what it's like to value what they can't have.
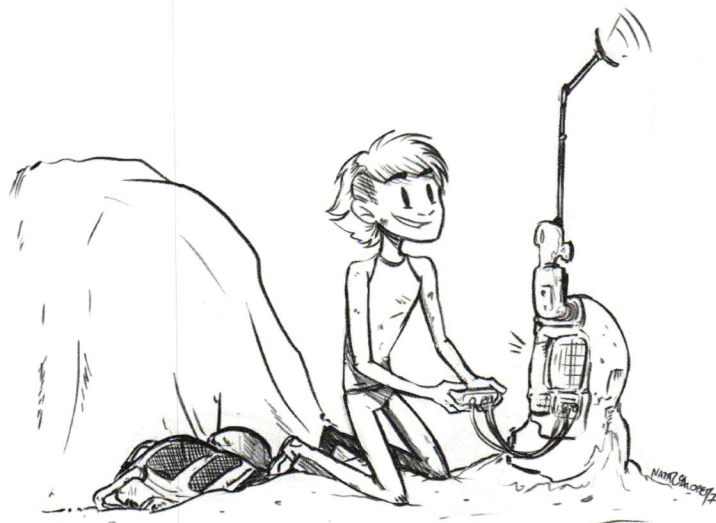
"[...] it is my belief that today's world needs stories with a focus on how to combat this fear with accessible ingenuity."

In the film *Ex Machina*, another more recent incarnation of Shelley's novel, there is an almost wordless scene in which the robot Ava, who is trapped in a room for most of the film, repairs herself before making her escape into the human world. After learning about humans and being embedded with a drive to become a part of them, she literally and figuratively completes herself by taking the skin from previous humanoid robots and placing flesh on parts of her body that were made of synthetic material. In this way, she refashions herself in her own image, no longer functioning for or according to her creator. The scene is poignant and beautiful, as it stands for the power of design and self-expression, as imperfect as it might be, perfectly flawed. Regardless of the aesthetic, the function of design for new storytelling and empowerment rests in its message. The tools we need to empower our voices and those of others are not only around us, but also within us.
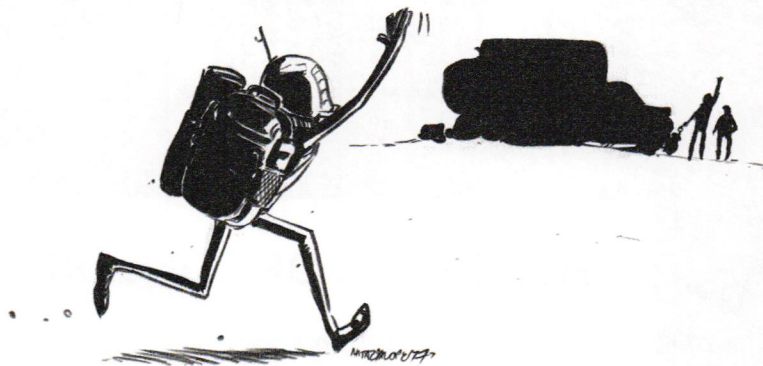
# THE SCHOOL OF CONSTRUCTED REALITIES

Today we visited a new school of design developed specifically to meet the challenges and conditions of the 21st century. It offers only one degree, an MA in Constructed Realities. Having sat through the presentations for the open day, we were still a little unclear about its distinctions between real realities, unreal realities, real unrealities, and unreal unrealities, but we were intrigued enough to want to know more.

ANTHODY DUNNE & FIONA RABY

Designers, Educators, and Founders of the studio, Dunne & Raby

the school of constructed reality
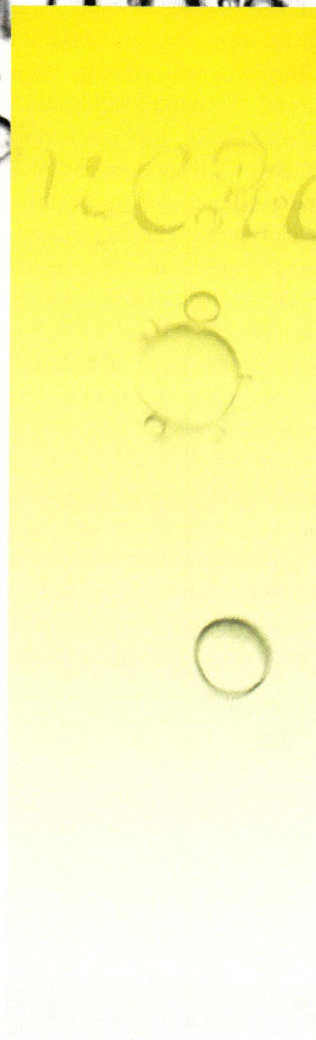
The school provides a mix of theory, practice, and reflection. There are no disciplines in the conventional sense; instead, students study bundles of subjects. Some that caught our attention were "Rhetoric, Ethics, and Critical Theory" combined with "Impossible Architecture"; "Scenario Making and World-building" mixed with "Ideology and Found Realities"; and "CGI and Simulation Techniques" taught alongside "The History of Propaganda, Conspiracy Theories, Hoaxes, and Advertising." Projects are expressed through various forms of reality: mixed, immersive, simulated, unmediated, and so on. Students can also attend the classes "Multiverses and Branding," "The Suspension, Destruction, and Production of Disbelief," "Reality Fabrication: Bottom Up or Top Down?," "The Politics of the Unreal," "Reality: Local Variations," and our favorite, "The Aesthetics of Unreality."

After the presentations we asked the director about the thinking behind the school. He was a little reticent at first, which is understandable knowing the risks associated with relocating design from its cozy home in the old reality-based community to a new one among reality makers, fabricators, and constructors, but he was keen to share. He began by explaining that in his view, for most people today reality isn't working, that it broke sometime near the end of the 20th century:

"It's clear that reality only works for a privileged minority, but designers advocate a realist approach, which means they work within the constraints of reality as it is, for the minority. The school aims to challenge this by making reality a little bit bigger to provide more room for different kinds of dreams and hopes. An important part of this process is generating multiple versions of reality, and this is where design comes in."

"We concluded," he said, "that the only way to challenge this unsatisfactory situation was to be unrealistic—to breach realism's heavily policed borders and to fully embrace unreality."

Listening to him, we began to think so too. ▪

An Interview With
FADI MASOUD

Fadi Masoud is an Assistant Professor of Landscape Architecture and Urbanism at the John H. Daniels Faculty of Architecture Landscape and Design. Prior to joining the University of Toronto, Masoud was a Lecturer in Landscape Architecture and Urban Design at the Department of Urban Studies and Planning at the Massachusetts Institute of Technology (MIT), and an affiliated faculty with the MIT Center for Advanced Urbanism where he directed various research and design projects. Masoud also held faculty and research appointments at the Harvard Graduate School of Design and at the University of Toronto, where he taught design studios and seminars on urbanism, landscape, and visual representation.

Masoud holds a Bachelors of Environmental Studies from the University of Waterloo's School of Planning specializing in Urban Design and Urban Development, a Masters of Landscape Architecture from the University of Toronto, and a Post-Professional Master in Landscape Architecture from Harvard University's Graduate School of Design, where he graduated with distinction. He is the recipient of several awards including the Fulbright Fellowship, the Heather M. Reisman Gold Medal in Design, the ASLA certificate of Honor, the Jacob Weidenman Prize, and the 2016 Charles E. Beverage Fellowship by the Olmsted Friends of Fairsted. Masoud practiced as a landscape architect and a planner at several leading firms in Canada and the United States including West8, HOK, and NAK Design.

Ashley Pelfrey & Rachel Smith

Senior Undergraduate Students at North Carolina State University's College of Design
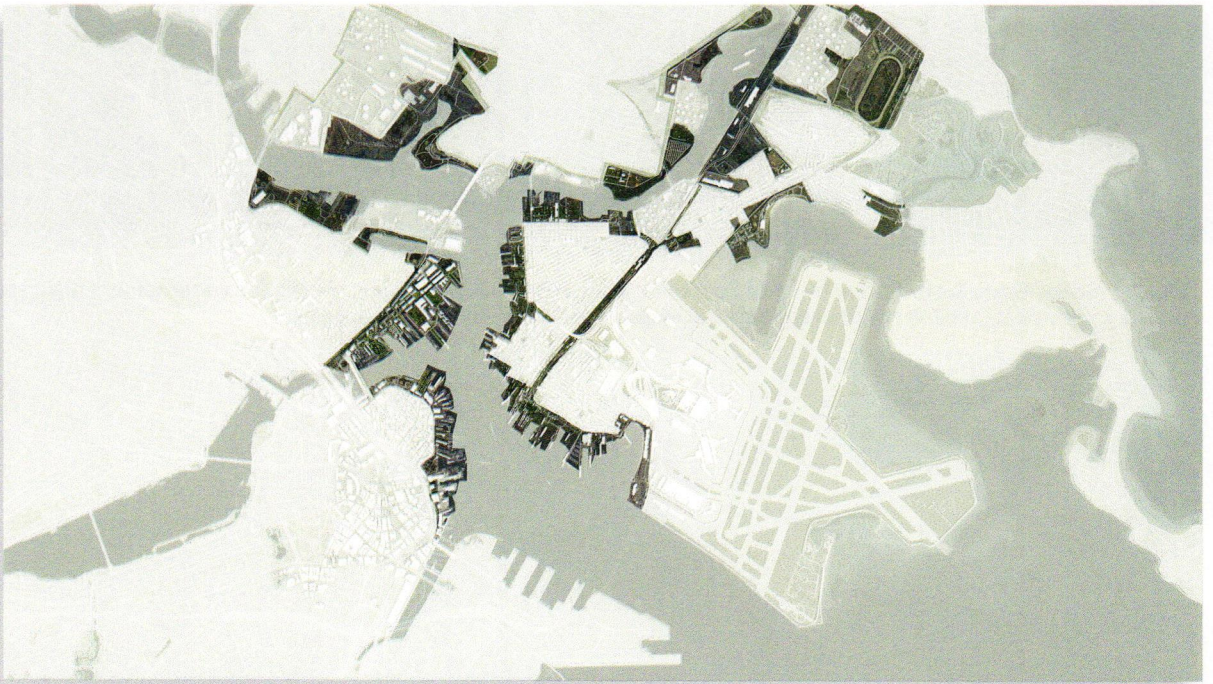
Fig. 1: Boston Resiliency Districts: Downzones;These are areas that are generally built on fill or reclaimed land. They will be most susceptible to climate change vulnerabilities and as such, will require dynamic forms of land use regulation and building types and codes.
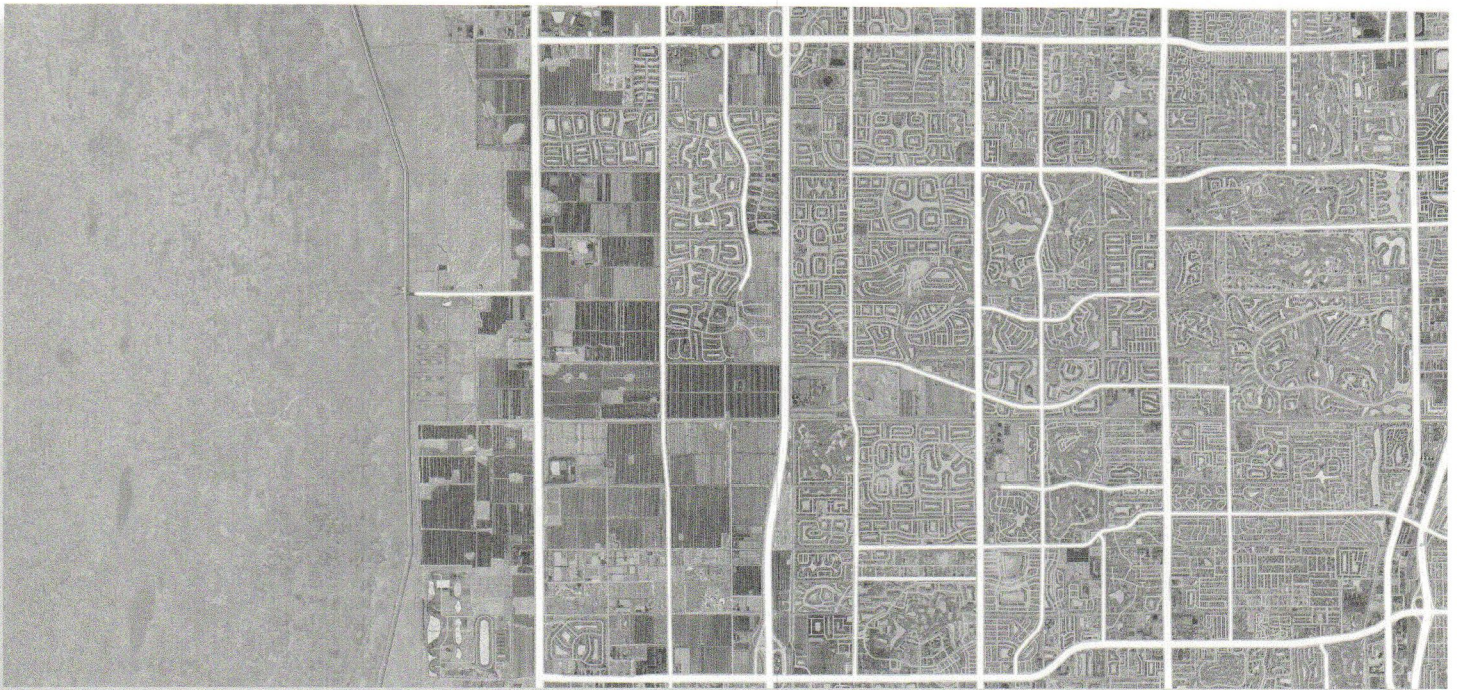
Fig. 2: Florida: Terra-Sorta-Firma; Much of South Florida is built on soggy ground, where the water table is high, and the divide from what is urban and what is the Everglades requires continues investments in hard engineering.
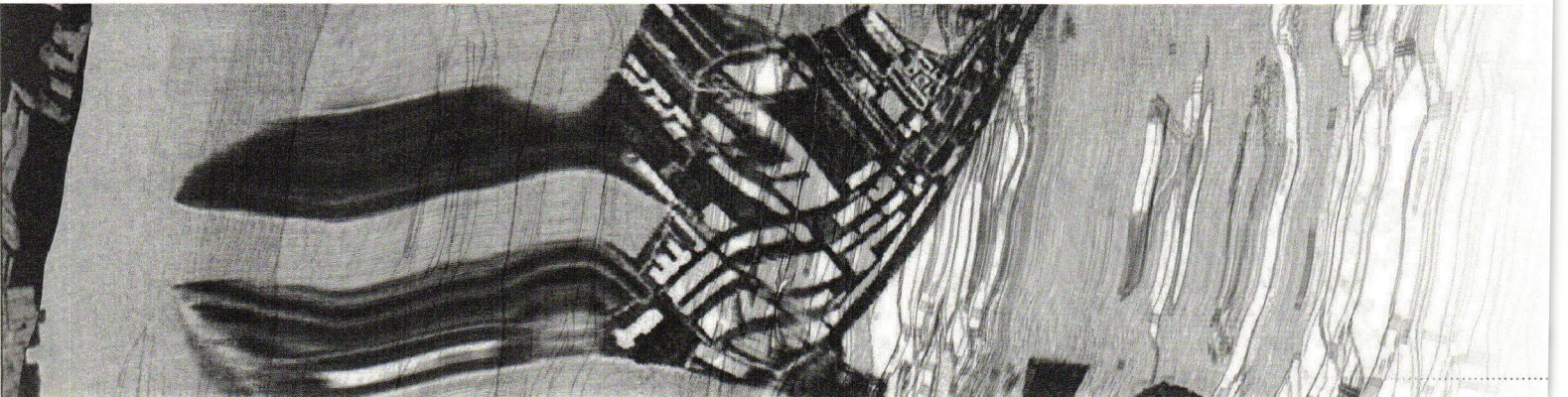
Newer ecological theories vary, but they tend to see the environment in a process of constant change, rather than one with a stable end-state. Environmental law may have adapted to new paradigms, but planning policy remains embedded in the static concept of a future condition tied to a "highest and best use end-state."[1] What then of the role, instrumentality, and agency of physical planning and design in light of a paradigm doesn't end in a "climax end-state?" I propose that in the diminution of regulatory planning tools and the erosion of urban code in certain contexts, (such as the suburban fringe, brownfields, and coastal estuaries), that landscape architects propose novel types of land uses, codes, programs, and forms of occupation.

Increasing environmental vulnerability mandates a collaborative engagement between design and environmental science, planning, economics, technology, and public policy. By aligning design and regulatory policy frameworks, we bring design thinking into the powerful domain of public decision-making—and not the exception to it. While design and planning turned notions of sustainability and resilience into staples of pedagogy and practice, the regulatory and institutional tools that govern these professions have failed to keep pace with shifting ecological paradigms. Zoning code and land use law for example, still hinge on the dated idea of a perfected "end-state" reached through "successional equilibri-

um."[2] This static end image continues to underlay much of the master-planning and design process, as coding models that require a dynamic view of the environment, and in turn, dynamic tools and policies do not actually exist. Hence, the impact of institutionalization and standardization is sometimes necessary, other times deleterious, yet always profound and responsible for shaping the public realm. From continental scale surveying and land use zoning, to neo-traditional form-based codes and green design standards, existing reductive standardization must be questioned in the face of increased indeterminacy and the need for constant innovation.

My work explores these ideas as part of a "Resiliency Districting" project for Boston's Harbor, in a research publication titled "Developing the Littoral Gradient Atlas: Urban Districts Built on Reclaimed Land," and a conceptual strategy for the "Future of Suburbia." However, nowhere is such a tool more urgently needed than in South Florida, where challenges of climate change rendered static zoning inadequate and in need of innovation.

With nearly 20 million residents, Florida is one of the United States' fastest growing regions. Its ubiquitous suburban landscape is enabled by the continued manipulation of a dynamic estuarine environment and a pervasive real-estate-driven housing pattern. Thirty-five miles of levees and 2,000 hydraulic pumping stations drain 860 acres of water per day, putting a $101 billion worth of property below sea level by 2030. Hard mechanical engineering and conventional planning tools have proven marginally effective in dealing with the increased

vulnerability caused by Florida's inherently volatile environment. In January 2010, the Southeast Florida Regional Climate Change Compact was created "to coordinate mitigation and adaptation activities across county lines. The Compact represents a new form of regional climate governance designed to allow local governments to set the agenda for adaptation"[3] In an extended collaboration with the MIT Urban Risk Lab, the MIT Center for Advanced Urbanism, as well as the Global Cities Institute at the University of Toronto, our team aims to develop an interactive regulatory planning tool that provides policy makers in South Florida with a dynamic landscape framework database of "flux-based coding strategies" and land use regimes for a more resilient urban fabric.

> Increasing environmental vulnerability mandates a collaborative engagement between design and environmental science, planning, economics, technology, and public policy. By aligning design and regulatory policy frameworks, we bring design thinking into the powerful domain of public decision-making—and not the exception to it.

[1] Golley, Frank B. *A History of the Ecosystem Concept in Ecology: More Than the Sum of the Parts.* New Haven: Yale University Press, 1993.
[2] Botkin, Daniel B. *The Moon in the Nautilus Shell: Discordant Harmonies Reconsidered.* New York: Oxford University Press, 2012.
[3] "Who We Are." Southeast Florida Regional Climate Compact. Southeast Florida Regional Climate Compact.

FADI MASOUD

What has, or continues to be, the biggest influence behind your work? How do you balance the biases that form from these influences?

I started my education in planning at a time when notions of interdisciplinary thinking and collaboration were central and essential. The five-year professional planning program at the University of Waterloo was housed in the Faculty of the Environment, and it emphasized the roles that various disciplines (ecology, geography, real-estate development, social studies, law, and design) shape the urban and natural landscapes. So when I started my graduate education at the University of Toronto a decade ago, "landscape urbanism"—under the direction of then-Director of Landscape Architecture Charles Waldheim and Dean of the Faculty of Architecture, Landscape, and Design George Baird—further echoed the need for the design disciples to engage with the broader environmental, economic, social, and physical frameworks of the city. This was a really influential time for me, as it shaped my modus operandi that stemmed out of an understanding of the particularities of the environment and developed a relational condition to give it form. Many of my projects were established on the notion that urban externalities (waste, water, food, and energy) could be the drivers of contemporary urbanism. Whether at the scale of a garden in Xi'an, China, an "autonomous" suburb in the Arizona desert, an "Emerald Constellation" in Chicago's post-industrial corridors, or a river valley in the Levant landscape, was a medium by which was I able to direct land uses, infrastructure, and imagine new patterns of urbanization. The strength of this approach has led our work to be selected as a finalist or a winner in over twelve international design competitions in the last six years, was published in journals and books, and received numerous awards and accolades.

How do you think materiality is perceived when the final product does not exist in a tangible form?

Design takes various forms, sometimes we design the platform with which tangible and physical products emerge. For example, we are currently working on a platform for dealing with resilient design with Broward County, Florida. More specifically, based on input sites and parameters, the tool will provide an option of applicable novel zoning codes that are suited to the site—specific to its environmental aspects and


Fig. 3 & 4: Florida: Terra-Sorta-Firma Student Work; In designing a new type of Planned Unit Development, students proposed "hacking" Homeowners Association rules, to create more dynamic and responsive suburban developments. Images courtesy Fadi Masoud.
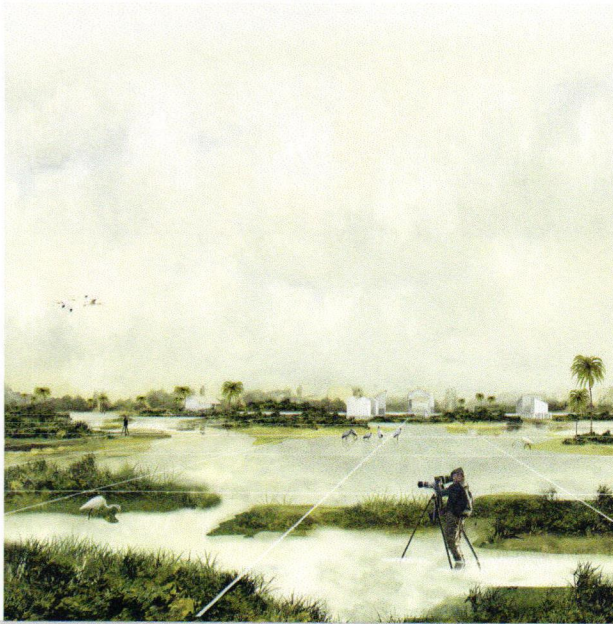
needs—while ensuring alignment with the long-term and regional strategy developed by the county. Through the design process, our team is devising a set of unique zoning codes, land uses, programs, and building typologies that are precise, yet dynamic, flexible, and responsive. These are presented as animated codes that combine various landforms/infrastructures with a relational land use, building typology, and density that changes according to a variable (water level, salinity, quality...etc.); strategies that can be adapted to other coastal regions globally.

Our team's ongoing research and design work generated through a project titled *"Terra Sorta Firma,"* and a series of associated design studios at MIT, have been gaining momentum and traction at a regional level in Florida. Earlier this year, Deputy Director of Environmental Protection and Growth Management in Broward County, Leonard Vialpando, presented the work at *The Regional Climate Action Plan Implementation Workshop: Essential Tools: Integrating the Southeast Florida Sea Level Rise Projections into Community Planning.* Key concepts such as clustering development along elevated transit corridors and ridges through Transfer Development Rights, inland islands generated through "flux zones," and the design of interconnected water corridors through "hydro-storage credits" as open space, are all being discussed as near term landscape-driven code and adaptation strategies for the county.
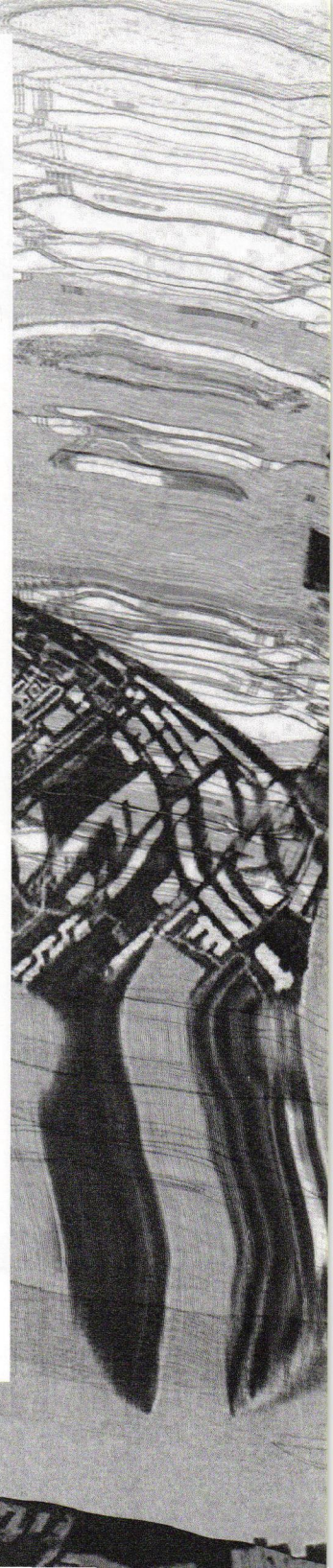
GROWING UP
WITH DYSLEXIA
WAS ALWAYS
COMPLICATED...

Katie Rant

Sophomore Undergraduate Student at North
Carolina State University's College of Design

COMPARED TO THE OTHER STUDENTS, I ALWAYS FELT BEHIND. I WAS A SLOW READER AND WRITING SEEMED IMPOSSIBLE. I WOULD EXPERIENCE MOVEMENT WHILE READING KNOWN AS VISUAL DISTURBANCE. LINES WOULD TRAIL OFF AND BECOME PARTS OF OTHER LINES. I FOUND MYSELF FILLING IN THE GAPS WITH MY OWN STORIES INSTEAD. AS YOU COULD PICTURE, THIS WOULD PRESENT A PROBLEM WITH MY COMPREHENSION. THE ONLY CLASS I FELT NORMAL IN WAS ART. THE ART ROOM BECAME A PLACE FOR MY IMAGINATION........

WHEN I THINK OF TRANSFORMATION, I ALSO THINK OF THE PASSING TIME. TIME DOESN'T SEEM TO MOVE, AND THEN IT MOVES TOO SUDDENLY. THESE SNAPSHOTS OF MY PAST ARE WHERE I FIND MY GREATEST TRANSFORMATIONS. ITS THE COLLECTIVE EXPERIENCES THAT ARE SHAPING MY FUTURE. I BELIEVE NOTHING IS WITHOUT A REASON. EVERYTHING CONNECTS TO A LARGER SCALE. AS DESIGNERS, OUR NETWORK IS NEVER WITHOUT TIES. WE ARE ENTANGLED IN A CONSISTENT FLUX DRIVEN BY CURIOSITY, EXPERIENCE AND PAST CONNECTIONS.

-KER

I FIND MYSELF MAKING NEW CONNECTIONS ABOUT THE PAST AS IT IS HAPPENING TODAY. DYSLEXIA PRESENTED A NUMBER OF CHALLENGES, BUT IT HAS DRAMATICALLY SHAPED MY PERSEVERANCE AND EXPRESSION. THOUGH MY ART, WORKING AS A COMPETITIVE BARISTA TAUGHT ME HOW TO COMMUNICATE VERBALLY WHILE ALSO AESTHETICALLY. THESE EXPERIENCES CHAINED TOGETHER ANSWER MY QUESTION "WHY DESIGN?"

A YEAR PREVIOUS TO MY DESIGN APPLICATION, I COMPETED IN A NATIONAL BARISTA COMPETITION. EACH COMPETITOR DELIVERS AN OVERALL CUSTOMER EXPERIENCE BASED ON A COFFEES TASTE. THIS COMPETITION IS AS MUCH ABOUT THE COFFEE AS IT IS ABOUT THE OVERALL PRESENTATION, CRAFT, STYLE, AND COMMUNICATION.

I APPLIED TO DESIGN SCHOOL WHILE I WAS FINISHING MY FINAL SEMESTER IN COMMUNITY COLLEGE. MY PASSION FOR ART NEVER WEAKENED. MAKING THINGS BECAME A MEDIUM OF SELF EXPRESSION. ART WAS ENCOURAGING FOR ME. I KNEW I NEEDED TO PURSUE A FUTURE THAT WOULD SUPPORT MY CREATIVE AND ARTISTIC TENDENCIES. THINKING BACK TO THE APPLICATION PROCESS, I REALIZED I WAS COMPLETELY UNAWARE AS TO WHY I WAS APPLYING TO DESIGN SCHOOL. WHY DID I NOT JUST APPLY TO AN ART SCHOOL? I LOVED ART. THIS WAS A QUESTION I COULDN'T ANSWER UNTIL I BEGAN TO REFLECT.

RANT TO ME

Flux. We are in a time of transition.
Flux. We are in a time of extreme opposition.
Flux. We have a new president, but not a politician.

We are in a time of uncertainty. We fear what we do not understand, and fear can transform into hatred. But, fear can also inspire great courage.

Donald J. Trump,

Are you courageous? Do you have what it takes to stand up for the truth? Prove to me that I was wrong not to vote for you. Prove to me that you are not corruptible. Prove to me that you have a heart beating in your chest. Prove me wrong.

You, like many people, misunderstand environmentalists. We do not believe the earth is fragile, we believe humanity is fragile.

> The wind speaks in song
> The sun displays its creations proudly
> While we look on and listen
> Stewards of the Earth in mission
> But it needs not protection from itself
> For we are the Earth
> And our eyes, ears, heart, and hands
> They are its wealth

Our planet is a symphony of harmonious patterns. Picture in your mind the Earth just before the rise of human civilization; encircled with clouds and pulsing with life. Every last ounce of energy is fought for and clung to in every moment. Nothing usable is wasted. A well-oiled, efficient machine made of trillions of individual parts, all striving for some sort of permanence, equilibrium. When cells or organisms die, something is there to reorganize their energy and nutrients into something else; recycling life again and again. Changing shape and form again and again. Increasing in complexity, life on Earth churns and swirls timelessly.

Although I do not live in that world, I am intimately familiar with it, and so are you. If you don't believe me, look. It continues swirling and churning all around, holding us afloat like a giant raft alone in the ocean of space. We were born from this; our consciousness, our awareness of self. That makes us different, but it does not make us separate. Are we part of nature? Yes, of course we are. The answer seems quite obvious, but you wouldn't know it judging by the way we live. We isolate ourselves in bubbles of sterile safety. Understandably, the world around us is often harsh and unforgiving. But what is the cost of isolating ourselves, and does it still serve its original intent? Our power as humans continues to grow. Yet, our ability to control our power has not been able to keep up. We

Ben Jones
Graduate Student at North Carolina
State University's College of Design

are dominating the planet, re-designing it in our own image so that it may better serve our purposes. All the while we feel more and more separate and more and more at risk. As a civilization, we have to change. We have to adapt to the new world we have created. Old solutions won't fix our new problems.

I believe design is always in transition, but this moment is unique. Why? The stakes are so much higher. There are seven billion people sharing this moment with us. We wield the unprecedented power to influence the trajectory of not only humankind, but all life on Earth. We can use it positively or negatively. We can choose, but unlike before, what we do can't easily be undone. The power of design and human ingenuity has its limits. We can't bring species back from extinction; we can't engineer an ecosystem billions of years in the making. So, what can we do? What should we do? Fit in. Fit into the world around us. Stop trying to control the uncontrollable. The design challenge of our generation will be learning how to work with the forces of nature, not against them. That's how we created our prosperity, and that's how we will keep it. Don't forget that our natural resources gave and continue to give us our advantage in becoming the most influential nation on the planet. We can't afford to throw the baby out with the bathwater by depleting those resources as we use them. We don't need to kill the cow just to drink its milk.

RANT TO ME

My passion is landscape architecture, so I know our commonly employed techniques for building the human environment are embarrassingly far behind our capabilities. If we so choose, we can enter an era in which we build ecology rather than destroy it. So, how do we reconnect with the landscape around us? What is the new human landscape going to look like if we hope to survive?

It is up to us designers to decide. However, I know one thing. It will be alive; alive with the living tissue of plants and insects; alive with vibrant colors; alive with interdependent communities; alive with freedom and exploration. Imagine if the powerful waste less primordial forests and grasslands of our ancestors were "domesticated;" modified for efficiency and interwoven with sophisticated human civilization. Safe. Resilient. Soothing. Inspirational. But that can only be true if we make it, if we tend to our garden. I believe we do not own the Earth, but we do protect our own. This planet is our mother, we depend upon it for everything, and protecting it is not a liberal ideal. It transcends politics and all the other bullshit we substitute for truth. So, in a time of unprecedented bullshit, how do we achieve this reconnection to the landscape? How do we move forward through this transition with real purpose? What is a truth upon which we can build a future?

The truth of the land upon which we live.

How do we begin to define this truth?

Boundaries.

Our planet has boundaries created by the very physical nature of its form and the forces swirling within and around it. Yet we choose to ignore them. We make our own

boundaries informed only by self-interest. Arbitrary boundaries are a missed opportunity and a tragedy often used to disenfranchise and oppress those without power. I, as others have before me, propose political boundaries based on watersheds. A real map that represents the people as they are; the land as it is. Water is life. Water is sacred across all borders. Water never lies. We should challenge Donald J. Trump to back up his words of disapproval for a rigged political system and send out an executive order to redraw our crooked political boundaries. Bring us back to Earth. It will be a lot of work, but that is the nature of moving forward. Do we have the courage it actually takes to make America great again? I hope so.

Where did our ingenuity go? Why is our nation not leading humanity forward like we did in our exploration of space? The interface between human civilization and the "natural" world is ripe with unexplored possibilities. I am working on products and systems that harness the power of plants to make our built environment healthier and more resilient but there is so much more that can be done. I refuse to stagnate and I refuse to accept the status quo. If we want to create good jobs, if we want to unify our people, we need a common goal. I believe with every ounce of my body that our common goal should be to rebuild our nation so that it is sustainable, beautiful, and the envy of the world. By bringing nature into our cities we can protect our clean water and clean air resources, improve the activity and health of the people, have stronger and longer lasting infrastructure, and most importantly provide people with jobs they can be proud of. I believe the point of a business is to employ people, not to make money. Prosperity cannot exist if it is not shared.

> "The interface between human civilization and the "natural" world is ripe with unexplored possibilities."
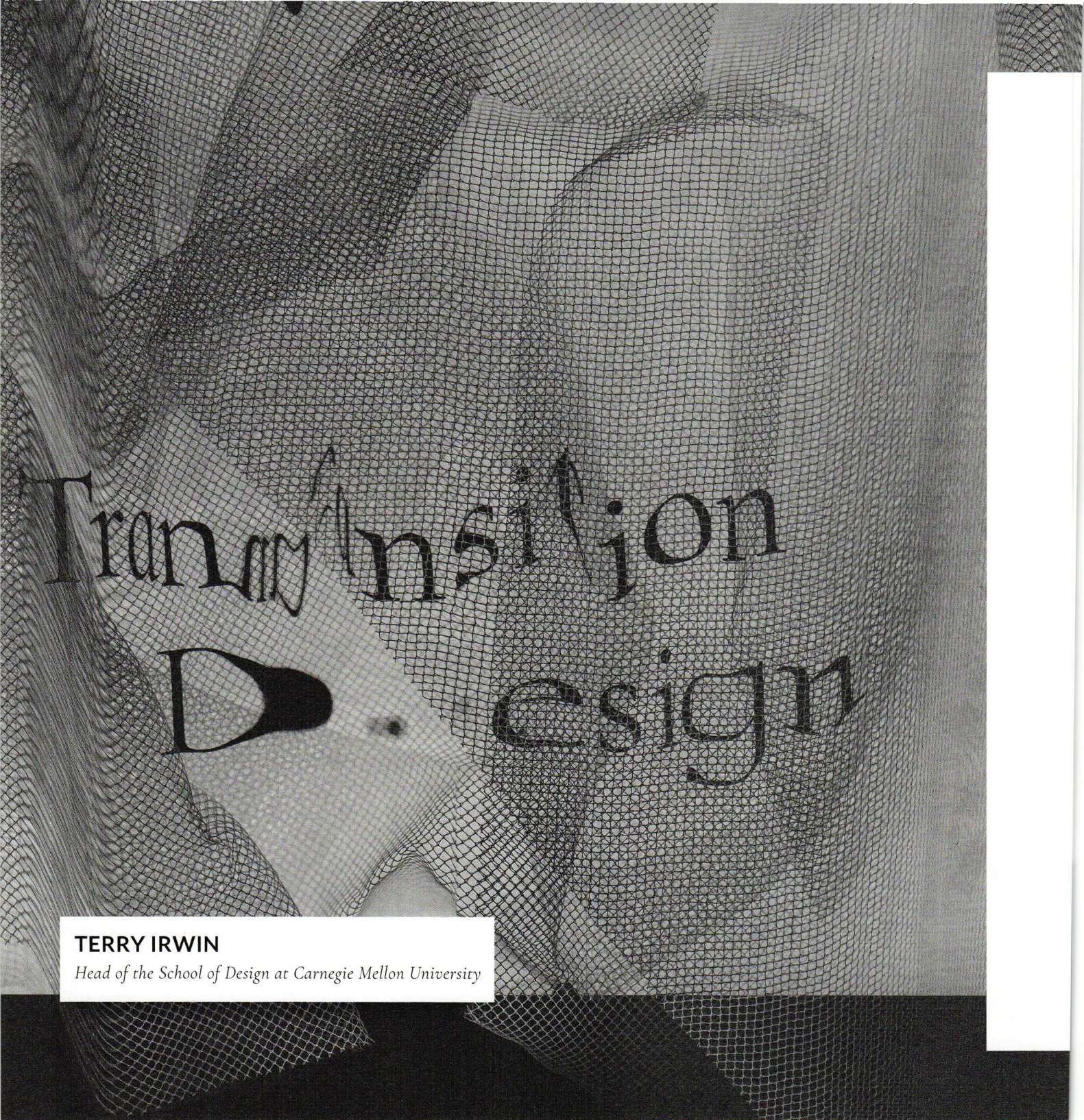
Transition Design

TERRY IRWIN
Head of the School of Design at Carnegie Mellon University

Transition Design:
A PROPOSAL FOR A NEW AREA OF DESIGN PRACTICE, STUDY, AND RESEARCH

In an interview with Terry Irwin, Head of the School of Design at Carnegie Mellon University, she described what lead to the formation of Transition Design as a "proposition for a new area of design practice, study, and research that advocates design-led societal transition toward more sustainable futures."[1] She explained that design is moving into new territories and going places it hasn't been before, like public policy and healthcare. Irwin said she was influenced by the Winterhouse Symposium hosted by the School of Design, which focuses on design education and social change, but she feels there hasn't been enough conversation about the element of time. Irwin argues that there is a need to think holistically and to take iterative steps, with new knowledge and skill sets over longer timelines, to solve the wicked problems of the twenty-first century.

When asked what her worldview looked like before realizing the systems-level thinking Transition Design offers, Irwin described that designers generally tend to fall into two categories: the form-giving and aesthetic designers, and those involved in communication and problem-solving. Irwin said she always saw herself as the latter, but became more concerned with sustainability after working on a major re-branding project for a multi-national company that wanted the re-brand to avoid bad press about conditions in their foreign factories. She says this raised some ethical concerns connected to how products and services affect the broader social context and the ecosystem. Irwin quickly decided to leave her company to pursue a new way to design by getting a master's degree in Holistic Science.

When asked how Transition Design should be implemented in practice, Irwin said that it is all about trying different approaches. Right now, Transition Designers are working with the community and nonprofits to look for obstacles that could be framed as Transition Design problems. An example of this can be found in Ojai, California, where the city currently only has enough water to sustain itself for the next three to five years due to severe drought conditions.

Irwin also compared Transition Designers to skilled acupuncturists. In Transition Design, one must have a great understanding of how a smaller system functions within a larger one, much like an acupuncturist must understand the anatomy of the body and how its various processes and systems work in harmony. Both skilled designers and acupuncturists must be able to identify where 'leverage points' exist in order to know where design interventions can/should be applied. Being conscious of these steps allows both professionals to yield the best outcome for their respective systems as a whole.

Irwin feels the most important aspect of Transition Design is educating young designers for the future. She compared teaching younger generations about Transition Design to planting a tree at an older age. While you may not live long enough to reap the rewards of growing a tree from a seedling, it is important to take the steps necessary for the tree's proper growth to ensure that it will benefit later generations. Irwin also said that she believes educators must be willing to step into new territories with their students to figure out problems together. "One must be able to toggle between expertise and the beginner's mind;" that is how Transition Design functions best.

In the following article Transition Design: A Proposal for a New Area of Design Practice, Study, and Research, Irwin continues to argue the importance of Transition Design, by thinking and researching in a more holistic way, and dives into how design research can play a major role in problem-solving.

Ashley Pelfrey & Rachel Smith

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[1] Irwin, Terry. "Transition Design: A Proposal for a New Area of Design Practice, Study, and Research." Design and Culture 7.2 (2015): 229-46. Web.

Introduction

The professions and academic disciplines of design have undergone tremendous change within the last two decades, prompted by a number of developments. (a) The tools and methodologies of design are being adopted by a variety of other fields and disciplines to find and frame problems as well as visualize scenarios for their solution. (b) There is a heightened awareness of a myriad of wicked problems confronting us in the twenty-first century and an increasing acknowledgment that they are interconnected and interdependent (Worldwatch Institute 2013; Capra and Luisi 2014). (c) Recognition is growing that design and designers can contribute meaningful solutions to these problems.

The Need for a Continuum of Design Approaches

These factors have given rise to two important areas of design research, practice, and education: Design for Service and Design for Social Innovation (also known as social impact design or social design). This article proposes the need for a third approach – Transition Design – that is based upon longer-term visioning and recognition of the need for solutions rooted in new, more sustainable socioeconomic and political paradigms.[1]

This article proposes that these are three areas of established, maturing, and emergent sub-disciplines, that they are related and complementary, and that they can be situated along a continuum in which spatio-temporal contexts expand and deepen (Figure 1). Service Design is now well established and takes a systems approach to solving problems within multi-stakeholder "ecologies." Shifting the focus from discreet artifacts and communications to the quality of interactions and overall experience between service provider and customers has led to more meaningful, useful, enjoyable, and profitable solutions (Saco and Goncalves 2008; Forlizzi and Zimmerman 2013; Service Design Network 2014).

Design for Social Innovation, which can be considered an evolving discipline (Penin et al. 2012; Sherwin 2012; Rettig and du Plessis 2013; Amatullo 2014), expands problem contexts and objectives to address problems in social, cultural, and economic domains, often outside the context of the business and consumer marketplace.

Design and Culture 231 Design and Culture Like service designers, social innovation practitioners are working to evolve the discipline through the codification of replicable skillsets and methodologies (Drenttel and Mossoba 2013; LEAP Symposium 2013; Smithsonian's Cooper-Hewitt et al. 2013).

Figure 1 shows a continuum in which horizons of time, depth of engagements, and alternative socioeconomic and political contexts increase as we move from left to right. Service Design is situated on the left and involves expert designers working on short-term, multi-stakeholder projects, primarily within the business and consumer marketplace. Social Innovation occupies a position further along the continuum where projects are usually situated within social and community contexts, engagements are ideally longer, and solutions begin to challenge existing socioeconomic and political paradigms.

As shown in Figure 1, Transition Design can be positioned at the end of the continuum, where speculative, long-term visions of sustainable lifestyles fundamentally challenge existing paradigms and serve to inspire and inform the design of short- and mid-term solutions. Transition Design solutions have their origins in long-term

[1] Transition Design draws part of its inspiration from the Transition Town Movement started by activist, author, and environmentalist Rob Hopkins (2008) (http://transitionculture.org/about/). The transition movement is a grassroots, community-led movement that seeks to build resilient local communities in response to peak oil, climate change, and economic instability. The Transition Town movement began in Totnes, Devon, UK, in 2004 and was inspired by permaculture activists and designers (Mollison 1988; Fleming 2011; Holmgren 2011). Transition Design is a concept originally proposed by Gideon Kossoff (2011: 5–24), who argued that the transition to sustainable futures is a design process that requires a vision, the integration of knowledge, and the need to think and act at different levels of scale, and that is also highly contextual (relationships, connections, and place). The Transition Design framework was first introduced in a lecture given by Terry Irwin, Cameron Tonkinwise, and Kossoff at the AIGA National Conference in Minneapolis, October 2013 (Terry et al. 2013). In September 2014, the School of Design at Carnegie Mellon University introduced Transition Design as an area of design studies at the undergraduate and graduate levels and offers a Ph.D. and professional doctorate (D.Des.) in the subject.

A Continuum of Design Approaches

Mature discipline

Design for Service

Design within existing socio-economic & political paradigms

Solutions reach users through many 'touch points' over time through the **design of experiences**. Solutions are based upon the observation and interpretation of users' behavior and needs within particular contexts. Service design solutions aim to provide profit and benefits for the service provider and useful and desirable services for the user (consumer). Solutions are usually **based within the business arena and existing, dominant economic paradigm.**

Developing discipline

Design for Social Innovation

Design that challenges existing socio-economic & political paradigms

Design that **meets a social need more effectively than existing solutions**. Solutions often leverage or 'amplify' exsiting, under-utilized resources. Social innovation is a 'co-design' process in which **designers work as facilitators and catalysts** within transdisciplinary teams. Solutions benefit multiple stakeholders and empower communities to act in the public, private, commercial and non-profit sectors. **Design for social innovation represents design for emerging paradigms and alternative economic models, and leads to significant positive social change.**

Emergent discipline

Transition Design

Design within radically new socio-economic & political paradigms

Refers to design-led societal transition toward more sustainable futures and the reconception of entire lifestyles. It is based upon an understanding of the **interconnectedness and inter-dependency of social, economic, political and natural systems.** Transition design focuses on the need for **'cosmopolitan localism'**, a place-based lifestyle in which solutions to global problems are designed to be appropriate for local social and environmental conditions. **Transition design challenges existing paradigms, envisions new ones, and leads to radical, positive social and environmental change.**

Scale of time, depth of engagement, and context expand to include social & environmental concerns →

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Fig. 1: A Continuum of Design Approaches. Terry Irwin.

TRANSITION DESIGN FRAMEWORK:

Co-Evolving Areas of Knowledge, Action and Self-Reflection

A vision for the transition to a more sustainable society is needed. This calls for the reconception of entire lifestyles in which communities are in symbiotic relationship with the environment. Lifestyles are place-based yet global in their exchange of technology, information and culture.
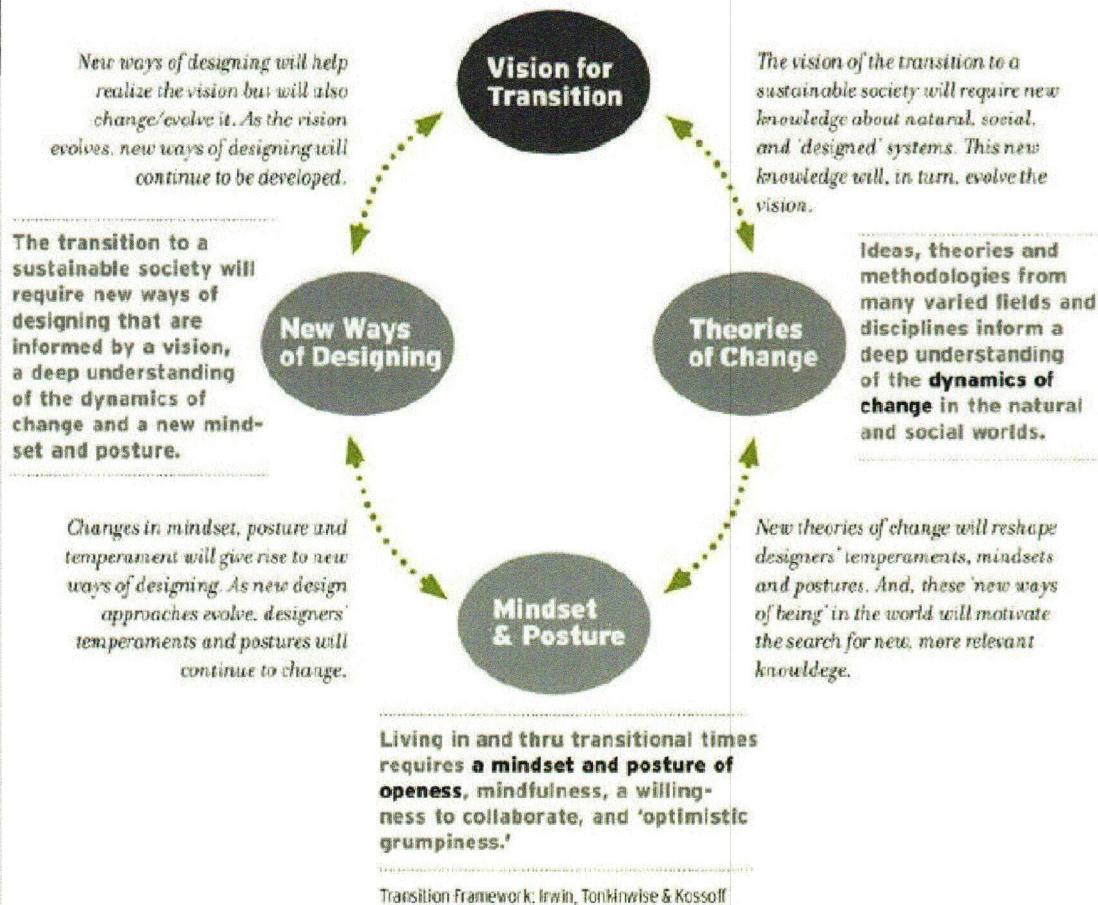
New ways of designing will help realize the vision but will also change/evolve it. As the vision evolves, new ways of designing will continue to be developed.

The transition to a sustainable society will require new ways of designing that are informed by a vision, a deep understanding of the dynamics of change and a new mindset and posture.

The vision of the transition to a sustainable society will require new knowledge about natural, social, and 'designed' systems. This new knowledge will, in turn, evolve the vision.

Ideas, theories and methodologies from many varied fields and disciplines inform a deep understanding of the **dynamics of change** in the natural and social worlds.

Vision for Transition

New Ways of Designing

Theories of Change

Mindset & Posture

Changes in mindset, posture and temperament will give rise to new ways of designing. As new design approaches evolve, designers' temperaments and postures will continue to change.

New theories of change will reshape designers' temperaments, mindsets and postures. And, these 'new ways' of being' in the world will motivate the search for new, more relevant knowledge.

Living in and thru transitional times requires **a mindset and posture of openess**, mindfulness, a willingness to collaborate, and 'optimistic grumpiness.'

Transition framework: Irwin, Tonkinwise & Kossoff

thinking, are lifestyle-oriented and place-based,[2] and always acknowledge the natural world as the greater context for all design solutions. Transition visions could provide greater leverage for projects undertaken in the service and social innovation sectors by networking and linking them together to form more effective transitional steps toward a desired future.

The Transition Design Framework

The Transition Design framework outlines four key mutually reinforcing and co-evolving[3] areas of knowledge, action, and self-reflection –vision, theories of change, mindset/posture, and new ways of designing (Figure 2).

1. Vision

Most people would argue that transition toward more sustainable futures is necessary, but until recently, there have been few compelling narratives about what those futures might look like. The environmental movement has long been criticized for its inability or failure to develop visions that are based upon a high quality of life rather than impoverishment and abstention.

Transition Design proposes that more compelling future-oriented visions are needed to inform and inspire projects in the present and that the tools and methods of design can aid in the development of these visions. Tonkinwise (2014) argues for "motivating visions as well as visions that can serve as measures against which to evaluate design moves, but visions that are also modifiable according to the changing situation." Dunne and Raby (2013: 1–2) argue that visioning is crucial; it creates spaces for discussion and debate about alternative futures and ways of being and it requires us to suspend disbelief and forget how things are now and wonder about how things could be.[4]

Scenario development, future casting, and speculative design (Knapp 2011; Kolko 2012; Martin and Hanington 2012; Dunne and Raby 2013) are examples of design approaches to envisioning future possibilities.

These can be leveraged to inform solutions in the present that "leap frog'" beyond the existing unsustainable socioeconomic and political paradigms (which often impede the design and development of alternative and innovative solutions). Within the past ten years, visioning approaches have gained traction, and designers as well as organizations within the profit and not-for-profit sectors are using visioning to inspire and enliven problem solving in the present (Manzini and Jégou 2003; Manzini 2007; Rockefeller Foundation and Global Business Network 2010; World Business Council for Sustainable Development 2010; Porritt 2013).

Transition visions would propose the reconception of entire lifestyles where basic needs are met locally[5] or regionally and the economy is designed to meet those needs, rather than grow for its own sake.[6] The exploration and critique of "everyday life" is a field within social theory (Lefebvre 1991; Gardiner 2000) that has the potential to become a powerful conceptual locus for the design of needs satisfaction in place-based

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[2] The importance of thinking in long horizons of time is discussed in The Clock of the Long Now by Stewart Brand (1999: 2). Brand asks "How do we make long-term thinking automatic and common instead of difficult and rare?" He argues that "society is revving itself into a pathologically short attention span. The trend might be coming from the acceleration of technology, the short-horizon perspective of market-driven economies, the next-election perspective of democracies, or the distractions of personal multitasking. All are on the increase. Some sort of balancing corrective to the short-sightedness is needed – some mechanism or myth that encourages the long view and the taking of long-term responsibility, where 'the long term' is measure at least in centuries." The seventh-generation principle from the Great Law of Iroquois Confederacy instructed that decisions made in the present should result in a sustainable world seven generations into the future. An important ability of the Transition Designer will be to think in a similar way about designs in the present and their potential to affect future generations in the social and environmental spheres.

[3] Co-evolution is an important aspect of Transition Design. It is a biological concept that refers to a relationship (that can occur at multiple levels of scale, from the microscopic to the level of organisms and communities of organisms) between entities in which each party exerts selective pressures on the other which affects each other's evolution. Transition Designers would be aware of the potential to leverage this principle in the formulation of solutions (Briggs and Peat 1990: 160–1).

[4] The value of future casting and envisioning alternative futures is underscored by Boaventura de Sousa Santos in The Rise of the Global Left: The World Social Forum and Beyond (2006). In it he discusses the concept of "the sociology of emergences" that aims to identify and amplify the signs of possible future experiences that reveal themselves as tendencies and latencies that often go ignored. The philosopher Ernst Bloch introduced the concepts of "The Not Yet" (Noch Nicht) and "The Possible" in The Principle of Hope (1995: 241), which explores the idea that the future is inscribed, or latent in the present. Moreover, Bloch views "The Not Yet" as a type of anticipatory consciousness that has been neglected in our lives. Transition Design places importance on the possibilities represented in "The Not Yet" and advocates developing the skill to look for what Bloch called "the tendencies of the future in the latency of the present." In other words, looking for clues to solutions for sustainable futures in the context of the present and developing the ability to anticipate over long horizons of time.

[5] Localism is a political philosophy that prioritizes local production and consumption of goods and local government and culture. It is seen as a strategy for the development of sustainable communities because it reduces carbon emissions, revitalizes local economies, empowers communities, and strengthens the bonds of relationships, creating a higher degree of resilience through their independence from centralized, monolithic corporations in the satisfaction of needs (Douthwaite 1996; Shuman 2000).

[6] The concept of needs and the way in which people go about satisfying them is central to the idea of Transition Design. Chilean economist and environmentalist Manfred Max-Neef (1992) has developed a theory of needs that proposes that human needs are universal and finite (regardless of culture, era, age, geographic location, belief system, etc.), but the ways in which humans satisfy their needs is infinite (and specific to culture, era, age, geographic local, belief system, etc.). Max-Neef argues that unmet needs can give rise to "pathologies" and proposes "integrated or synergistic satisfiers" (34) as a way to meet several needs simultaneously and address these pathologies. In The Business of Sustainability, Irwin (2011a) argues that these pathologies of unmet needs are at the root of many wicked problems.

ways.[7] One lifestyle-based vision is Cosmopolitan Localism – small, diverse, local, and place-based communities that are global in their awareness and exchange of information and technology (Sachs 1999; Manzini 2009, 2012).

Transition visions are not conceived as blueprints for design – rather they remain open-ended and speculative. Future visions would continually change and evolve based upon knowledge gained from projects and initiatives in the present. Transition visioning is conceived as a circular, iterative, and error-friendly process that could be used to envision radically new ideas for the future that serve to inform even small, modest designs in the present.

2. Theories of Change

The concept of change is central to a Transition Design framework for the following reasons: (a) A theory of change is always present within a planned course of action (design), whether it is explicitly acknowledged or not. (b) Transition to sustainable futures will require sweeping change at every level of our society. (c) Our conventional and outmoded ideas about change lie at the root of many wicked problems (Escobar 1995; Scott 1999; Irwin 2011b). Transformational |societal change will depend upon our ability to change our ideas about change itself – how it manifests and how it can be initiated and directed. Transition Design proposes that in order for designers to act as agents for change, new approaches to design and problem solving must be based upon a deep understanding of the dynamics of change within complex social and natural systems.

Any planned course of action (design) is based upon a theory of change: a hypothesis is formulated about what type of change is needed and an assumption is made about the correct approach for intervention, based upon a predicted outcome.[8] Often, the assumptions and predictions that form the basis of this action are unconscious or go unnoticed, therefore change itself has not been adequately understood by designers, nor has it been viewed as an important area for study and research.

Historically, change has been viewed as something that can be "managed" through centralized, top-down design processes that produce clear, predictable outcomes.[8] This type of linear, cause-and-effect thinking has influenced the design and development of societal infrastructures and policies in the developed world and has contributed to many of the global wicked problems previously mentioned.

[7]Everyday life, a concept within the social sciences and humanities, is a central theme in Transition Design. Gardiner (2000) argues that an alternative, multidisciplinary everyday life paradigm could offer a myriad of new possibilities for theory and research. French sociologist and philosopher Henri Lefebvre (1984, 1991), among other critics, developed the idea of the "critique of everyday life" and argued that it is an important and often overlooked and undervalued space. He wrote: "Everyday life, in a sense residual, defined by 'what is left over' after all distinct, superior, specialized, structured activities have been singled out by analysis, must be defined as a totality. ... Everyday life is profoundly related to all activities, and encompasses them with all their differences and their conflicts; it is their meeting place, their bond, their common ground" (Gardiner 2000: 79). Transition Design emphasizes the need to reconceptualize whole lifestyles within sustainable futures and argues after Lefebvre that everyday life is a powerful locus for developing transition visions, applying theories of change, and formulating design solutions. Situating visions and solutions within the context of everyday life, shifts the emphasis from solutions rooted in the consumer-led marketplace to quality-of-life scenarios based in the everyday.

[8]From unpublished notes on Transition Design by Tonkinwise, School of Design, Carnegie Mellon University, June 19, 2014: "A theory of change is a model of the system in which design interventions are taking place. It identifies key components and the relations between those components, as well as other systems that may lie alongside the focus system, or systems within which the focus system resides. The model allows responsible predictions about how interventions will change that system – and those changes could involve the emergence of new components, relations, and contiguous or nested systems. A Theory of Change is never fixed or complete, but always being modified by what is learned about the system being modeled by error-friendly, more-or-less-reversible interventions into that system."

However, a new transdisciplinary body of knowledge related to the dynamics of change within complex systems is emerging that challenges these assumptions and has the potential to inform new approaches to design and problem solving. Ideas and discoveries from a diversity of fields such as physics, biology, sociology, and organizational development have revealed that change within open, complex systems such as social organizations and ecosystems manifests in counterintuitive ways. And, although change within such systems can be catalyzed and even gently directed, it cannot be managed or controlled, nor can outcomes be accurately predicted (Briggs and Peat 1990; Prigogine and Stengers 1994; Wheatley and Kellner-Rogers 1996; Wheatley 2006; Meadows 2008; Capra and Luisi 2014).[9] Theories of Change within a Transition Design framework are proposed as a continually co-evolving body of knowledge[10] that challenges designers to become lifelong learners who look outside the disciplines of design for new knowledge.

3. Mindset and Posture

Transition Design argues that living in and through transitional times calls for self-reflection and a new way of "being" in the world. This change must be based upon a new mindset or worldview and posture (internal) that lead to different ways of interacting with others (external) that informs problem solving and design. All of these are mutually influencing.

Our individual and collective mindsets represent the beliefs, values, assumptions, and expectations that are formed by our individual experiences, cultural norms, religious/spiritual beliefs, and the socioeconomic and political paradigms to which we subscribe (Capra 1983, 1997; Kearney 1984; Clarke 2002). Designers' mindsets and postures often go unnoticed and unacknowledged but they profoundly influence what is identified as a problem and how it is framed and solved within a given context. Yet, design methodologies and process rarely take these important factors into account.

Design for social innovation has evolved new skill sets and approaches (Penin et al. 2012; Rettig and du Plessis 2013) that can leverage the dynamics found within social systems to develop more effective solutions. Transition Design proposes going one step further in asking designers to examine their own value system and the role it plays in the design process. It argues that transition solutions will be best conceived within a more holistic worldview that can inform

[9] These concepts and theories show that nonlinear, complex systems such as social organizations and ecosystems are: (a) self-organizing and that their responses to perturbations from outside the system are self-directed and unpredictable; (b) comprised of mutually influencing, interdependent parts; (c) display emergent properties: new forms of order and behavior arise spontaneously and unpredictably out of seeming chaos/disorder; and (d) small changes within one part of the system can ramify throughout, creating sweeping change in another location.

[10] Theories of Change within the Transition Design framework conceive of change as a continually evolving body of transdisciplinary knowledge about the anatomy and dynamics of change within complex systems. Theories of change can include alternative and accepted bodies of knowledge as well as new concepts and ideas that are in the process of gaining momentum. Some of these include: (a) Living systems theory refers to a transdisciplinary body of thought that explains the dynamics of self-organization, emergence, and resilience within complex social and natural systems (Briggs and Peat 1990; Prigogine and Stengers 1994; Wheatley and Kellner-Rogers 1996; Capra 1997; Wheatley 2006; Meadows 2008); (b) Post Normal Science is a method of inquiry applied within the context of long-term issues when relatively little information is available, facts are uncertain, values are in dispute, outcomes are critical, and decisions are urgent (Funtowicz and Ravetz 2003); (c) Paradigm Shift, a concept developed by Thomas Kuhn in The Structure of Scientific Revolutions (2012), challenged the accepted view of the progress of scientific knowledge as "development by accumulation," arguing that periods of conceptual continuity are interrupted by periods of revolutionary discovery and insight that lead to new paradigms; (d) Alter - native Economics is an emerging body of thought that views the dominant economic paradigm and the consumer-based marketplace (capitalism) as one of the root causes of the complex problems of the late twentieth and twenty-first centu - ries. The authors identify the inherent, unsustainable problems in this paradigm and offer myriad alternatives and solutions (Schumacher 1973; Max-Neef 1992; Hawken et al. 1999; Korten 1999; Ritzer 2011); (e) Sociotechnical Regime theory looks at the process of change and transformation in socio - technical regimes (patterns of artifacts, institutions, rules, and norms) and the role of technological "niches" as the principal locus for change. Change begins when practices and norms developed in the niche become widely adopted and gather momentum until the wider technological regime is transformed by the concepts and configurations nurtured in the niche (Berkhout et al. 2003: 1; Geels 2010; Pettersen et al. 2013); (f) Metamorphosis and theories of wholeness and holism (also "applied phenomenology") focus on the transformation of form in natural organisms. This dynamic and temporal process of change has strong relevance for both the design of artifacts (materiality) and the initiation and direction of change within social organizations (Bortoft 1996, 2012; Schad 1997; Seamon 1998; Holdrege 2005; Kossoff 2011: 73–96). These are just a few of the ideas and theories from diverse fields and disciplines that can serve to deepen designers' understanding of the dynamics of change within complex systems and inform new approaches to transition visions and solutions.
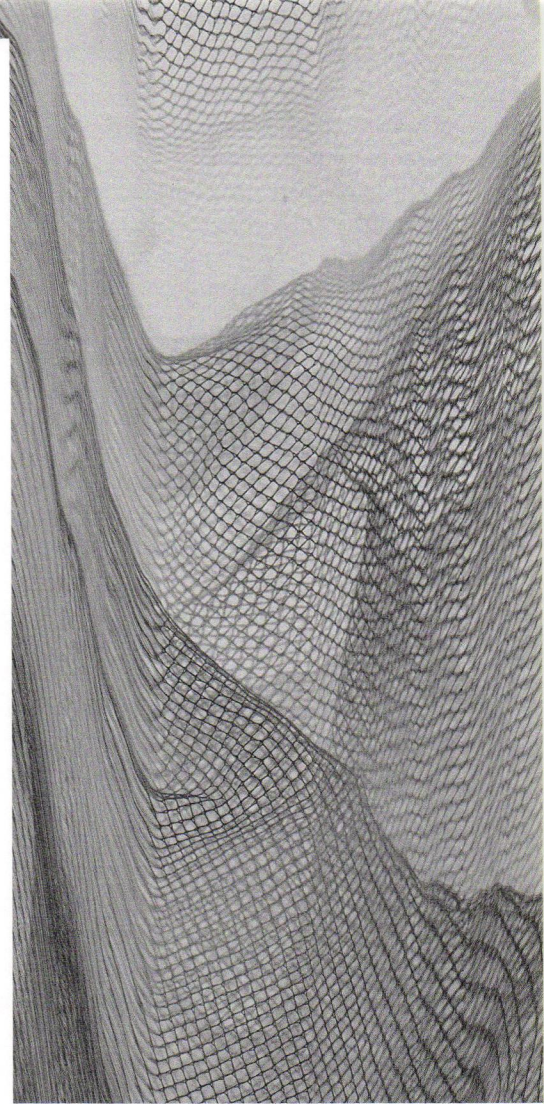
new, more collaborative, and responsible postures for interaction.

There is an emerging body of transdisciplinary knowledge that examines the phenomenon of mindset or worldview and its role in wicked problems and their solution. In their The Systems View of Life: A Unifying Vision (2014: xi), Capra and Luisi propose that these problems must be seen as just different facets of one single crisis, which is largely a crisis of perception. It derives from the fact that most people in our modern society, and especially our large social institutions, subscribe to the concepts of an outdated worldview, a perception of reality inadequate for dealing with our overpopulated, globally interconnected world.

Du Plessis (2014) argues that a practical understanding of the process of individual change is fundamental to work in social system change. An individual can change their beliefs by engaging in a process of personal transformation and that process can be learned, and incorporated into design practice. If we are going to educate designers who will facilitate social system change, we also need to teach them to work with the interior, invisible dimension of human experience.

The characteristics of a new, more holistic mindset and the attitudes and postures that it might inform are shown in Figure 3.[11]

4. New Ways of Designing

The transition to a sustainable society will require new design approaches informed by different value sets and knowledge. Transition Designers see themselves as agents of change and are ambitious in their desire to transform systems. They also understand that transition calls for a commitment to work iteratively, at multiple levels of scale, over longer horizons of time. Because Transition Designers develop visions of the "long now" (Brand 1999: 2), they take a decidedly different approach to problem solving in the present.

Transition Designers learn to see and solve for wicked problems[12] and view a single design or solution as a single step in a longer transition toward a future-based vision. Transition solutions might have intentionally short lifespans where obsolescence is a given because it is a step toward a longer-term goal. Or, a solution might be designed to change and evolve over long periods of time. Transition Design is also a process and methodology for making

connections. Transition Designers have the skill, foresight, and ability to connect different types of solutions (service design or social innovation solutions) together for greater leverage (solutions' ability to co-evolve) and impact because they are connected to, and guided by, a longer-term objective or vision.

Transition Designers look for "emergent possibilities" within problem contexts, as opposed to imposing preplanned and resolved solutions upon a situation. This approach is highly transdisciplinary, collaborative, and rooted in an understanding of how change within complex systems manifests. The amplification of the "buds and shoots of new potentialities"[13] within a given context is a social innovation approach advocated by Manzini and Jégou (2003) and Penin et al. (2012). Visions of a sustainable future enlarge the problem frame to include social and environmental concerns and compel designers to design within long horizons of time.

Transition Design is distinct from service design or social innovation design in: (a) its deep grounding in future-oriented visions; (b) its transdisciplinary imperative; (c) its understanding of how to initiate and

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[11] There is a substantial body of thought that has emerged since the late twentieth century that views mindset or worldview as a powerful leverage point for change (Meadows 2008) and argues that our historic/dominant worldview is inadequate for understanding complex, interdependent, and interconnected problems. The dominant worldview derives from the scientific revolution of the seventeenth century; developments in mathematics, philosophy, physics, astronomy, biology, and chemistry transformed society's views about nature and humanity's place in the cosmos. This style of thinking has predominated since that time and is characterized in the first column (dominant) of Figure 3. Transition Design argues for an intentional shift from reductionist thinking with its emphasis on quantities and short horizons of time, to a more holistic view of the world characterized by the second column (holistic) of Figure 3. Theorists and practitioners from diverse disciplines increasingly view mindset as the basis for deep and lasting change and argue that a more holistic worldview must be the basis for the transition to a sustainable society (Briggs and Peat 1990; Prigogine and Stengers 1994; Wheatley and Kellner-Rogers 1996; Capra 1997; Wheatley 2006; Meadows 2008; Ritzer 2011).

[12] Although designers have long been familiar with the concept and characteristics of wicked problems, not much energy has been directed toward understanding their dynamics and anatomy (Irwin 2011b). Transition Design proposes that designers can learn to solve for wicked problems more effectively if they acquire a better understanding of complex systems and change dynamics. These ideas are represented within the Theories of Change segment of the transition framework.

[13] Gardiner (2000) discusses the philosopher and semiotician Mikhail Bakhtin's concept of the "buds and shoots of new potentialities" within a given situation. Bakhtin encouraged disruptive approaches designed to shift one's point of view when encountering the familiar and wrote: "All such forms of defamiliarization encourage the conceptualization of existing modes of experience and perception from a different point of view ..." Transition Designers will be called upon to look for the buds and shoots of new potentialities within both strange and familiar situations in order to conceive solutions outside the dominant socioeconomic and political paradigms.

Mindset (Worldview)		Posture (Approach/Attitude)
Existing/Dominant	**Holistic**	**New**
World Metaphor: The world is viewed as a machine. Within any 'whole', parts are seen as separate and independent of each other.	**World Metaphor**: The world as a living organism. Within a 'whole', parts are self-organizing, interdependent, and mutually influencing and reinforcing and co-evolving.	A posture of **humility, reverence for nature** and acknowledgement of human ignorance (we can never fully understand or 'manage' complex natural or social systems). An understanding that any action may have unseen short- and long-term ramifications. Actions and solutions are conceived with **welfare of the natural world and future generations** in mind.
Human Presence: Humans are viewed as separate from, and superior to, other forms of life and the natural environment.	**Human Presence**: Humans are viewed as part of an interconnected and interdependent web of life that includes other species and the natural environment.	Same as above
Nature: Is viewed as a storehouse of resources for human use and consumption.	**Nature**: Is viewed as the context for human life; human health is directly connected to the health of the natural environment.	Same as above
Timeframe: Actions are conceived in short horizons of time with the welfare of self and the present generation in mind.	**Timeframe**: Actions are conceived in long horizons of time with the welfare of present **and** future generations in mind.	Same as above
Environmental & Social Crises: If acknowledged at all, are viewed as situations that can be fixed within existing socio-economic-political paradigms through technology, economic growth and 'business as usual'.	**Environmental & Social Crises**: Are viewed with optimistic grumpiness; dissatisfaction with status quo and a sense of urgency combined with the belief that positive change is possible but only through the design of new, alternative paradigms and structures.	A posture of action and a **sense of urgency tempered with patience** to carefully observe short-term ramifications of actions and consider their long-term implications. **Commitment to the development of radically alternative socio-economic-political structures and paradigms.**
Individual vs. Community: Focus is placed upon the individual and their own self-fulfilment with an emphasis on material wealth/possessions.	**Individual vs. Community**: Focus is placed upon community and fulfilment through interdependence, reciprocity and 'belonging'.	A posture of 'willingness' and a desire to **collaborate** and foster **positive interactions among groups** is seen as an essential design skill.
Business & Economy: Are primary and viewed as the context for everyday life. Focus is placed upon career and earning power from which personal identity and reputation derive. Disciplinary expertise (specialization) and individual achievement is highly prized.	**Business & the Economy**: Everyday life is primary and viewed as the context for problem-solving and design. Business and the economy exist to satisfy human needs, (without compromising the ability of other species/ future generations to meet theirs). Focus is placed on quality of life and the bonds of community. Disciplinary expertise is best applied through trans/cross-disciplinary collaboration.	Commitment to balance in one's own life and others' lives. Ability to **collaborate effectively in transdisciplinary groups** is seen as a vital skill and source of satisfaction/reward. Generalist skill sets related to meeting place-based needs (such as growing food, building/repairing items) are highly valued and are seen as a necessary complement to specialized skills.
Problem Solving: Focuses on individual parts (de-contextualization) versus disciplinary expertise. Emphasizes values/values disciplinary expertise, believes in linear cause-and-effect outcomes, predictability and control. Privileges quantifiable/replicable results.	**Problem Solving**: Focuses on understanding the whole system (context) in order to solve for a part. Emphasizes transdisciplinary collaboration and understanding the emergent/unpredictable properties of social and natural systems. Privileges qualities and values.	Embraces **transdisciplinary knowledge and collaboration** as the optimum basis for design and problem solving. Takes a 'beta'/prototyping/'tinkering' approach to design.
Competition vs. Cooperation: Belief in competition and proprietary knowledge as the basis for success. Design takes place within the consumer marketplace with the generation of profit as primary objective.	**Competition vs. Cooperation**: Belief that cooperation is more powerful than competition. Emphasis on open-source information and knowledge (the 'commons'). Effective design solutions are conceived within alternative economic models.	Commitment to **share information and knowledge** in order to improve conditions for the 'whole' (society and the environment). **Generosity and sharing** are seen as the basis for **effective design.**
Predictability & Control: Views lack of order and chaos as a problematic and something to be 'fixed'. Design solutions are pre-conceived and 'imposed' in a top-down, centralized process.	**Predictability & Control**: Actions are conceived in long horizons of time with the welfare of present **and** future generations in mind.	A posture of **watchful anticipation** and a willingness to look for the 'clues' for how to act/design that are already present in the system (perceived chaos). Designers expect to see the 'seeds' for solutions already present in the situation.
Ambiguity & Uncertainty: Are viewed as an undesirable state and a problem to be addressed.	**Ambiguity & Uncertainty**: Are viewed as characteristics of the continual changing state of social and natural systems.	**Openness to new ideas and ways of acting.** Desire to remain flexible and grounded in the face of ambiguity and uncertainty.
Designers' Role: Designers see themselves as experts who work alone or in positions of leadership within disciplinary or inter-disciplinary teams.	**Designers' Role**: Designers see themselves as agents/ catalysts for positive social and environmental change in a co-design process that involves both **leadership and followership.**	A posture of humility and **an openness to both lead and be led**, along with an awareness of when one has stepped out of one's domain of expertise.
Pace: Favors fast-paced design processes that arrive at solutions quickly and efficiently; time is money.	**Pace**: Favors a slower, more mindful approach based upon consensus building with multiple constituencies. Emphasis is on the development of long-term, sustainable solutions.	A posture of patience and a willingness to learn and acknowledgment of what one does not know.

Fig. 3: Characteristics of a new, more holistic mindset and the attitudes and postures that it might feed into. Terry Irwin.

direct change within social and natural systems; and (d) its emphasis on the temporality of solutions – they have intentionally short or long lifespans.

Designers working within the social innovation space have developed important new approaches drawn from sociology, organizational science, and business (to name a few) and these can and should be expanded and deepened in the emerging area of Transition Design. This type of work requires a commitment to ongoing learning and personal change as well as a kind of "stick-to-itiveness"; a commitment to change the system through multiple, iterative interventions and the tenacity to stay with it and change with it, over time.

Conclusions

The four areas represented in the Transition Design framework (vision, theories of change, mindset/posture, and new ways of designing) mutually reinforce each other and co-evolve. Transition visions stimulate new thinking and cause designers to look for knowledge in new places that, in turn, leads to shifts in their mindset and posture. All of these will give rise to new ways of designing.

Transition Design is conceived as a new area of design methodology, practice, and research and is presented here as a proposal and invitation for further discussion and debate among educators, practitioners, and researchers. In the fall of 2014, The School of Design at Carnegie Mellon University began offering Ph.D.s and professional doctorates (D.Des.) in Transition Design. ∎

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Contributors

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Skillet Gilmore is a self-taught graphic designer and screen printer currently working at Crawlspace Press in South Raleigh, North Carolina. Previously, Gilmore was the production design supervisor for INDY Week, a progressive, weekly publication that has received accolades for journalism on topics such as criminal justice, the environment, equality, art, and music. Gilmore is both an artist and musician himself. In 1994, he discovered his interest in design while experimenting with the visual representation of his music using hand-crafted graphics and text for posters and merchandise he designed for his band Whiskeytown.

Sasha Newell is a Professor at the Université Libre de Bruxelles. Prior to moving abroad, Newell was a Professor of Sociology and Anthropology at North Carolina State University. He is interested in the contribution that design makes to the field of anthropology and how the integrations of the two can provide new channels in discourse for practicing anthropologists. Newell's personal research focuses on the habits of collecting and hoarding, and looks at the effects of consumer and material culture, what people value, and how people behave socially and culturally.

Debbie Millman is a designer, author, educator, brand strategist, and host of the podcast Design Matters, the first and longest running podcast about design. Her written and visual essays have appeared in various publications such as The New York Times, Print Magazine, Design Observer, and Fast Company. Millman is also President Emeritus of American Institute of Graphic Arts, one of five women to hold the position in the organization's 100-year history, and a past board member and treasurer of the New York Chapter. Currently, Millman is serving as the Editorial and Creative Director of Print Magazine, the oldest magazine about design in the United States.

Cecilia Mouat is the Director of the Art + Design graduate program and an Assistant Professor at North Carolina State University's College of Design. She is originally from Chile and has more than 25 years of experience as a designer, visual artist, and architect. Mouat's visual work includes experimental videos and documentaries, photography, digital collage, and acrylic painting. Her current research focuses on the discourse of design and its representation in popular media, and how our experience of design is mediated by the things we see on a screen.

Rachel Smith is a 2017 graduate of North Carolina State University's College of Design. Upon graduating with a Bachelor of Arts in Design Studies with a minor in Journalism, Smith hopes to combine her interests in design and writing and enter the media field. During her time at NC State, Smith served at the Editor-in-Chief of the university's student-led newspaper, Technician, as well as the Co-Editor of Volume 38 of The Student Publication. When she is not working, Smith enjoys experimenting with new forms of craft, kayaking, and attending music festivals.

Bryan Bell is a Professor of Architecture at North Carolina State University's College of Design. Bell is also the co-founder of Design Corps, a non-profit organization that empowers underserved communities by creative positive changes using design, advocacy, and education to reshape the environment and address social, economic, and environmental challenges. Bell is currently focusing on Public Interest Design, which he describes as a needs-driven practice that "puts creative abilities to practical use to improve communities."

Ashley Pelfrey is a 2017 graduate of North Carolina State University's College of Design. While studying at NC State, she was the Co-Editor of Volume 38 of The Student Publication as well as an intern for the Gregg Museum of Art and Design. Upon graduating with a Bachelor of Arts in Design Studies with a minor in Psychology, Pelfrey hopes to pursue her interest in history and art by working in museum curation. She enjoys painting and taking trips to the Blue Ridge Mountains.

Natalia Lopes is working toward a Master's degree in Art + Design, with a concentration in Animation and Interactive Media, from North Carolina State University's College of Design. She is currently working on her thesis project, Object ZerO: The Power of Science Fiction Storytelling in New Media Comics, which documents the research and process of developing an ongoing science fiction digital comic series. Her work has been realized in many forms, including illustrated books, animated short films, independent comics, and gallery installations. She is continuing to publish her comics and pursue research into science fiction and its unique opportunities for innovation in visual storytelling.

Anthony Dunne and Fiona Raby are both fellows of the Graduate Institute for Design Ethnography and Social Thought as well as Professors of Technology and Emerging Issues in Design at The New School in New York. Raby studied Architecture at the Royal College of Art in London (RCA) before working for Kei'ichi Irie Architects in Tokyo. Between 2011 and 2016, she was a professor of Industrial Design at the University of Applied Arts in Vienna. Dunne was a Professor and Head of the Design Interactions department at the RCA. Before working at Sony Design in Tokyo, Dunne studied Industrial Design at the RCA. Dunne and Raby are best known for their contributions in Critical Design, a field that challenges our preconception of everyday objects. Their work stimulates debate between designers, industry, and the public on critical topics such as the ethical implications of existing and emerging technologies.

Fadi Masoud is an Assistant Professor of Landscape Architecture and Urbanism at the John H. Daniels Faculty of Architecture Landscape and Design at the University of Toronto. Prior to moving to Toronto, Masoud was a Lecturer in Landscape Architecture and Urban Design at the Department of Urban Studies and Planning at the Massachusetts Institute of Technology (MIT), and an affiliated faculty with the MIT Center for Advanced Urbanism where he directed various research and design projects. Masoud also held faculty and research appointments at the Harvard Graduate School of Design and at the University of Toronto, where he taught design studios and seminars on urbanism, landscape, and visual representation. Masoud has practiced as a landscape architect and planner at several leading firms in Canada and the United States including West8, HOK, and NAK Design.

Katie Rant is a sophomore in the Art+Design program at NC State University's College of Design. She considers herself a "maker" who isn't limited by medium choices. Rant believes that experience fuels authenticity and creativity. She is inspired by raw materials, graphic surfaces, transparency, and quilts.

Ben Jones lives in Durham, North Carolina where he can be found wandering the Eno River State Park or making elaborate messes in his home office. He has a Bachelor of Science in Environmental Studies from the University of North Carolina Asheville, a Master's of Horticultural Science from North Carolina State University and is currently pursuing a Master's degree in Landscape Architecture. Among many other things, he loves plants, yoga, rap music, as well as his wife and dogs. But, above all else he believes people should pursue their passions at any cost and never forget to stand up and speak truth to power.

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The Student Publication began as a tribute to Matthew Nowicki after his untimely death in 1950 at the age of 40. His influence and inspiration as head of the Department of Architecture inspired the students to create The Student Publication in his honor, and so the first issue focused on Nowicki's contributions to the College, the University and the field. Through the process, students realized the potential and importance of such a publication and collection of voices, that they continued the effort, focusing on timely and important issues in the field and inviting some of the most important and influential designers of the day to contribute letters, projects and articles. Such luminaries included Le Corbusier, Mies Van der Rohe, Buckminster Fuller and Richard Saul Wurman.

Between 1951 and 1985, 58 issues of The Student Publication were developed. From 1985—2000 The Publication took a hiatus, but in 2000 it came back full force with the issue informally known as The Phoenix. Since then, working with an editorial advisor and committee, students have developed the theme, invited participants, curated, edited and designed 8 issues.

More recent volumes seek to create cross-disciplinary themes that provoke discourse throughout the field of design theory and practice. They have included concepts of New Methods and Processes (vol 35); Form and Fiction (vol 36); and Impermanence in Design Culture (vol 37). Recent contributors continue to include contemporary leaders in the field of design, including Casey Reas, Natalie Chanin, Ted Givens and Diller, Scofidio + Renfro. Other contributors have extended beyond the field of design, to include voices that are shaping the way that we think about design practice, such as the science fiction writer Bruce Sterling, anthropologist Sasha Newell and technologist Lev Manovich.

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