

**RESEARCH METHODS FOR DESIGN, SPRING 2019**

RESEARCH

# **THE FUTURE OF DESIGN**

understanding design as a  
system in transition

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# PREFACE

## A NOTE TO COHORT 2

### **This program might be different than you've been expecting.**

(We wanted to get that out of the way early to help you make the most out of your time at Northeastern University.)

Grad school is short. Before you know it you'll be on four different teams, tackling four different projects that are more complex than you'd imagined, and caught in the inevitable whirlwind of frustration, confusion and exasperation that comes with this type of work.

We've been there. One of the first things we learned as XD students is that experiences can't be designed. Huh? Not exactly what we expected to hear on day one. From there, we dove headfirst into working on really hard problems that don't have clear cut answers. In fact, most of the time the TRUE PROBLEM wasn't even understood.

These types of problems are called wicked problems. Wicked problems may have multiple root causes that are difficult to define, impact many people from many walks of life, and involve different systems with different goals. And if you try to solve them it is impossible to know for sure that your solution worked. Even worse, one mistake - one misguided idea - may have a harmful ripple effect on the system that lasts for generations.

This is your world. You too will be trained to dive head first into wicked problems. To understand them viscerally. To observe, talk to, and empathize with the people they impact. To go out into the space where the wicked problems live, and draw conclusions about their true nature and how you might begin to solve them. And it will completely change your world.

In the past year we've worked in communities impacted by systemic injustice, racial and economic oppression, and violence. We've designed tools to help people seeking political asylum receive a just hearing. We've invented ways for people with asthma to have access to better healthcare. We've explored how to help a child with cerebral palsy gain access to play games with friends. And on, and on.

In the process, we've discovered that THIS - this work in the space where wicked problems live - is the future of design.

Don't take our word for it. We've talked to some of the leading voices in design, and studied the works of others, to understand better where design is headed. This booklet presents our understanding of their views on the future of design.

Finally, we've added some of our hard-earned insights into how you can make the most out of your year here.

Of course, grad school is what you make of it (actually, isn't everything?). We hope you'll make the most of this opportunity, and that this report will inspire you now, and throughout your time at Northeastern University.

Sincerely,

Jeremy, Stef, Colin and Sylvia



# INTRODUCTION: WHERE IS DESIGN HEADED?

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What are you hoping to do with your design degree? It's a question we get all the time, and one that took us a long time to answer well. In fact, early on in our design studies we often asked ourselves, "Where **am** I headed?" You might even be asking the same question yourself.

Despite the future being uncertain, it doesn't keep us from setting a direction for ourselves. We form an understanding of the world and how we fit within it, and based on that understanding, set goals for ourselves. In some cases, our goal is to change something – to learn a new skill, to change where we live or work, to get more exercise, or spend more time with friends and family. In other instances, our goal is to maintain the status quo. We land a sweet job, with good pay and benefits, and a perfect work/life balance and do what it takes to keep that job, usually by meeting the expectations of our supervisors and clients. In this case, our goals are informed by the goals of someone or something else.

This process of forming an understanding of the world, setting a goal, determining a course of action, evaluating how and if that action brought us closer to our goal, and adapting in response (including our actions and understanding) is called learning. Repeating the process over and over, adjusting actions in each iteration until the goal is achieved is often called practice, as in practice makes perfect. Learning is part of not only the human experience, but also of organizations, academic disciplines, and their domains of practice.

Sometimes the actions that used to work don't seem to get the job done anymore, suggesting that something in our world has changed and prompting us to search for an explanation. At other times our goal changes explicitly, perhaps because our interests and desires have changed (I was exercising to lose weight for vacation, but realized I'm happy as I am), and sometimes because external expectations have shifted outside of our control (your company is reorganizing in preparation to move into a new market). Sometimes, it's a combination of all of these factors.

In these moments of transition, we ask again, where am I headed? The answer is more complicated than simply understanding our personal goals in isolation. Instead, our goals need to be placed into context, and an understanding of the goals of that context is necessary to help us choose the best course of action. By understanding the goals of the context, it becomes clearer how our activities need to change, and what new skills we might need to develop in order to accomplish those tasks.

As a design student, that context is the field of design, and its place within the systems that make up the global economy. And the field of design is changing.

In the following sections, we hope to provide you with insights into our understanding of how design is evolving, informed by conversations with some of the leading voices in the field. Our belief is that with a better understanding of where design is headed, you can better prepare yourself for a career in this field.





# DESIGN IN TRANSITION

Professional design practice is young, and for most of its existence, designers have produced objects – physical artifacts ranging from pamphlets, books and posters, to mugs and toasters. Designers served a client who asked them to make something look good and do its job. Typically, the final product was predetermined. The client wanted a mug, so the designer would be making a mug. Their mark was on its look, feel and performance. Designers were makers.

More recently, designers were tasked with not only crafting a physical object, but also the interaction that occurred between the object and person. The expectation had been that people would need to learn how to make the best use of what had been designed, conforming themselves to the object. With the shift in emphasis on interaction, a shift was also made towards considering how an object serves and fits the needs of a person, rather than the other way around, a practice known as human-centered design. Still, for many designers the object being crafted remained predetermined. The designer would still be making a mug, just a mug that was easier to hold and sip from.

Currently, many designers are still addressing these types of problems. However, many more designers are now being asked to dive headfirst into situations where the final product is unknown, because the problem that is being solved for is unclear. These problems exist in a complex web of interactions, where interventions in one part of system may cause ripple effects across the system and do so in unpredictable ways. These types of problems have been called “wicked problems,” instances where the challenge is hard to define, and solutions impossible to verify. (Rittel, 160) For example, the MBTA Fairmount Commuter Rail Line that runs through Dorchester and Roxbury was installed decades ago to serve a growing suburban population. While it did make commuting to and from the city easier, it also created economic and physical barriers that negatively impacts residents of those communities to this day.

We’re trying to figure out how to make life easier and better for people...and because it’s...problem based, you don’t care where the solution comes from.

Architects start out with a solution - ‘It’s gonna be a building!’  
Sculptors start out with a solution - ‘It’s gonna be a sculpture!’

Designers go, ‘well,’ and especially nowadays, ‘it could be a whole experience!’

–Tucker Viemeister

Viemeister, Tucker. Personal interview. 5 April 2019.

I'M SUGGESTING THAT WE'RE  
MOVING FROM A WAY OF  
THINKING ABOUT DESIGN - A  
WAY OF DOING DESIGN - WHICH  
IS FOCUSED ON PHYSICAL  
ARTIFACTS, ON OBJECTS, AND  
THAT WE'RE MOVING TO A WAY  
OF DOING DESIGN WHICH ALSO  
INCLUDES - DOES NOT REJECT  
PHYSICAL ARTIFACTS - BUT ALSO  
EMBEDS THEM IN NETWORKS  
AND MATRICES WHICH INCLUDE,  
OR BECOME, ADAPTIVE SYSTEMS  
AND ECOLOGIES.

—HUGH DUBBERLY

Dubberly, Hugh. "How the Information Revolution is Changing Design Practice."  
Presentations.dubberly.com/NEU2019.pdf. 2019. PDF.

**Will some designers continue the craft tradition of enhancing the emotional experience of products? Will others take the other path, moving design thinking into endeavors that are far removed from the history and mainstream practice of today? What is the future of design? We are at a fork in the road. Which path should we take?**

**For the field of design as a whole, the correct answer is to say, "take it." We need people who take each path—whichever direction any individual takes will be correct—but all should develop an appreciation for and understanding of both paths.**

**We need both thinkers and doers. Just as we must take both paths at the fork in the road, designers must both do and think. The design philosophy is to think by doing.**

Norman, Don. "When You Come to a Fork in the Road, Take It: The Future of Design." *She Ji: The Journal of Design, Economics, and Innovation*, 2, 343-348. <https://doi.org/10.1016/j.sheji.2017.07.003>

Designers today are increasingly working to address these types of wicked problems, at scales both large and small. Design consultancies work with multi-national corporations and governments to address issues like climate change and social equity, while also thinking about how to design escalators that signal their direction of movement to people with low-vision. Framing problems in complex systems that have an impact on end users – that is, people – is a central issue for the emerging field of design.

One of the great challenges of confronting wicked problems is their complexity. It takes many people skilled in various disciplines to work on these problems, and often they struggle to communicate outside of the specialized definitions of their respective domains. It is becoming apparent that as designers more frequently work on these interdisciplinary teams as problem framers, strategists and advocates for the end user, they will need a better understanding of the disciplines represented, but also that they will have an opportunity to serve as a bridge between disciplines.

Our research has shown that this is the emerging context of design practice. Designers will be expected to retain some of their skills as makers – of products and their interactions with end users – while also taking a seat at the strategy table and working with interdisciplinary teams to tackle wicked problems. As designers entering this context, we expect that you will find the field of design in the midst of this ongoing transition.

In order for design to remain relevant, designers have to develop the skills required by the emerging field. What will be expected of designers as they're called upon to take leadership roles in the work to address wicked problems? What skills will designers need to develop in order to find their place in this emerging design practice?

**There is an evolution towards strategic thinking. The more you are closer to the strategy and goals as a designer the more you'll have access to be involved in strategic decisions.**

**–Paul Kahn**

Kahn, Paul. Personal interview. 21 March 2019.



# THE FUTURE OF DESIGN

The transition that design is undergoing is a reflection of the larger global economic system in which design exists. Both are experiencing tension between a vision for a future in which the promise of holistic approaches to solving complex problems is realized, and a legacy of linear thinking and siloed practice – just at different scales. While the world continues to become more connected by technology and shared economic interests, there remain significant geopolitical barriers to collective responses to some of the greatest challenges of our time, issues like climate change and economic disparity between the concentrated wealth and power of the west in contrast to the global south. Similarly, as design is evolving into a practice that is integrative and holistic in its approach to addressing complex challenges, designers are often trained according to models that emphasize resolving the narrow problems of the past.

Our research suggests that these transitioning systems are in the midst of a paradigm shift, both within the global economic system and within the various disciplines of practice that built it into its present state. We see the transition to this new paradigm marked by three interconnected shifts in approach: (1) linear thinking is being replaced by circular thinking; (2) isolated domains are emerging from their silos and beginning to collaborate for the common good; and, (3) organizations are moving from a mindset of self-preservation at any cost toward a commitment to the wellbeing of the people and places they serve.

The design domain has an opportunity to be ahead of the curve and take steps to reflect its capacity to champion this new paradigm by more clearly articulating the types of challenges designers are capable of confronting, to better define the role designers can play to address those challenges, and to better prepare designers with 21st Century design skills.

Let's look at each opportunity a little more closely.

Everything has to change. For those for whom the current conjuncture “changes everything,” what needs to change is an entire way of life and a whole style of world making.

–Arturo Escobar

Escobar, Arturo. “Designs for the Pluriverse: Radical Interdependence, Autonomy, and the Making of Worlds.” Duke University Press, 2017.

Designers have to not only be aware of systems but...  
designers have to understand systems, they have to be...  
systems literate, which means read, understand, comprehend,  
evolve, modify.

–Paul Pangaro

Pangaro, Paul. Personal interview. 25 March 2019.

# 01

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## Transition from linear to circular thinking

In the industrial era economic model, unintended consequences were a regular by-product of linear thinking. In a linear system, the inputs to the system (raw materials) undergo some type of process and emerge transformed as a product and waste materials. The product is consumed, and after its useful lifespan is up, is discarded as waste. So, in the end, the majority of the inputs to the system exit the system as waste.

Let's consider a disposable drinking straw as an example. To make a straw, a bunch of energy is used to extract petroleum from the ground and process it for use. Next, more energy is spent bringing the raw plastic to a factory, where more energy is expended to shape the plastic into a straw. Additional energy is used to transport the straw to the café. The café patron selects a straw, discards its paper sleeve, and uses it for a period of minutes to hours before discarding the straw into the waste stream. Then, still more energy is used to transport the discarded straw to a landfill where it will biodegrade over a long period of time. The entire vision for this material is that it will be used once, briefly, and disposed of at the end. The remaining outputs of the system, including greenhouse gases, are left unaccounted for regardless of the impact they have on the system.

The major difference in a system that is circular (a new, designer-ly buzzword for sustainable), is that the outputs of the system are accounted for in the design process by becoming inputs into the system again. In this way, waste and its harmful ripple effects, are taken into account and hopefully minimized.

## VALERIE FLETCHER

How do we create systems in which we can gather data that doesn't exist now, and begin to chunk up that data, and analyze that data, so that we actually are sharing a process in which we don't reinvent the wheel every time?

Wouldn't it be great if we had a way to sort of gather and share that data with other people who would be doing similar work across the world? That's part of the challenge of recognizing the gaps in what we know. We can just think about it as, "it meets our needs for our product." But, there is a point at which it's going to take forever to get smarter about this if we don't share data, because it's data to inform design about human experience.

Fletcher, Valerie. Personal interview. 4 April 2019.

Why does this matter? Primarily because the outputs of our global economic model have hurt people directly and indirectly through pollution of natural resources that has altered ecosystems and the global climate. Unfortunately, our understanding of the problems caused by greenhouse gas emissions developed more slowly than the technologies of the industrial revolution were introduced. Today, we are left with the wicked problems directly linked to changes made in the environmental and economic systems decades and decades ago. As technology becomes more ubiquitous and complex, our ability to predict unintended outcomes will only become more difficult, making it even more imperative that we seek to understand the systems into which we intervene.

Designers need to better understand the consequences of their actions. The way to do this responsibly and effectively is to understand our work as working within a system to modify elements of the system. In order for designers to make an impact at this scale they must be systems literate.

Design has also evolved from the design of objects both physical and immaterial, to the design of systems, to the design of complex adaptive-systems. This evolution is shifting the role of designers; they are no longer the central planner, but rather participants within the systems they exist in. This is a fundamental shift—one that requires a new set of values.

—Joichi Ito

Ito, J. (n.d.). Design and Science. *Journal of Design and Science*. <https://doi.org/10.21428/f4c68887/406cdc95>

I think good designers are good at the overall broad strokes of the thing, and also holding contradictory ideas at once. It's like being able to juggle all kinds of weirdo ideas, and also thinking, "what's the actual solution going to be?"

Designers are more interested in mocking things up, trying them out, seeing what other people think. Your assumptions are, hopefully, right a lot of the time, but there's lots of times they're wrong, and you never know how they're going to be wrong.

Designers are good, even as a team leader, because they're more willing to be inclusive.

—TUCKER VIEMEISTER

Viemeister, Tucker. Personal interview. 5 April 2019.

## 02

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### Transition from siloed to interdisciplinary practice

With clarity about the context of design - working at the scale of systems - comes corresponding complexity that is impossible for any one person to fully understand. The great scientific advances emerging from the Enlightenment led to fields so expansive that hyper-specialization became the norm.

Expertise in any discipline is deep but narrow, and the language used to describe that knowledge is incredibly specific. What's more, the process of training specialists reinforces these distinctions, with universities comprised of colleges comprised of departments comprised of majors with limited interaction between these units. These distinctions persist in organizations outside of academia, in governments and businesses.

Tackling complex problems requires teams made up of specialists, people who bring deep knowledge of the component parts of the system. However, more is required to make connections between these disciplines. These teams also need skilled integrators, people who can see the system as a whole and in its parts, and understand how to intervene to cause a desired effect. People filling this role, then, need to possess a broad understanding of many disciplines.



We need people expert in their domain, but we also need people who know what domains are required, how to stitch the knowledge from each of them together, and how to translate the language and thought patterns of one domain into another.

–Don Norman

Norman, Don. "Design and the university: An uneasy fit." Nielsen Norman group and Department of Industrial Design, KAIST. 10 April 2011.

Still, more is required to integrate contributions from diverse fields of knowledge. Information being exchanged must also be translated between disciplines in order to evolve into a new shared understanding. And so, the person filling the role must be not only a skilled facilitator of conversation, but also capable of constructing a new language for shared understanding.

This role - of system thinker, integrator, translator and conversation facilitator - plays to the strengths of the emerging designer. It is, at its core, a type of interaction design. Of course, to rise to this challenge design education needs to continue to evolve. Designers need to acquire a foundation of interdisciplinary knowledge and reframe their craft as communicating to persuade. The form that designers give to their design - whether modeling a system, or shaping a mug - expresses their argument for how they understand a problem. Design is persuasion.

Convincing interdisciplinary teams that they've arrived at a possible solution will require translating that argument into the language of business, engineering, and the various other disciplines seated at the table. The emerging designer needs functional knowledge of these disciplines in order to make an impact at this strategic level.

From the design perspective, designers have got to be better informed. They've got to have a much greater understanding of the world. They need to be more substantially theorized, but they also have to have far greater practical capability. All this means that designers can no longer be service providers working under the direction of clients and with briefs upon which they are unable to reflect and transform."

–Tony Fry

Fry, Tony. "Simposio de Diseño A 2016 - Tony Fry." YouTube, uploaded by Universidad de Ibagué, 6 July 2016, <https://www.youtube.com/watch?v=7xayhp9muxe&t=473s>

In a deeper sense, the true value of design is its ability to focus the attention of organizations on all of the people served by the organization. Through user research and a host of other ways of looking carefully at the experience of human beings in our communities, design may begin to meet the challenge...

–Richard Buchanan

Buchanan, Richard. "Worlds in the Making: Design, Management, and the Reform of Organizational Culture." *She Ji: The Journal of Design, Economics, and Innovation*, 1, 5-21. <https://doi.org/10.1016/j.sheji.2015.09.003>

## 03

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### Transition from growth-centric to human-centric

Even if designers manage to guide interdisciplinary teams to make an impact on complex systems, the wrong intervention will emerge if the team is organized around a wrong purpose. Decision-making that is based on the well-being of the organization without regard for the well-being of the people it impacts will continue to perpetuate the wicked problems of the era of linear thinking. Designers have a role to play in persuading organizations to a higher purpose than profit or power: the well-being of people.

As designers continue to develop expertise in understanding people (in the form of qualitative research methods such as ethnography, and phenomenology) they are ideally positioned to advocate for their best interests. Designers must understand systems and facilitate conversations within interdisciplinary teams to tackle complex problems. But, once assembled, the designer must work to persuade these teams, and the organizations wherein they live, that their best outcome is inextricably connected to the best outcome for people.

When this principle is embodied in the output of these interactions, it becomes a public expression of the values of the organization, values that the organization must now come to represent. The values manifest in the service concept of the organization, changing public perception and expectation.

It is through this mechanism that the new paradigm advances.

Unless we're transparent about how we came to the conclusions that we came to and transparent about the values that we brought to them, then, I don't think we're being honest as designers and we're taking away choice from others.

So you have to...realize as designers that we're responsible for the conditions that we create for other people, and the best thing, the hardest thing, the most ethical thing is to give them the conditions under which they can make their own choices.

Pangaro, Paul. Personal interview. 25 March 2019.

PAUL PANGARO

We've always been about design as a human right and as a key to social equity. At least for a portion of the population design is critical.

At this point in my life, I'm really looking at impact, and creating some models of things that actually can change things. This issue of who's left out is driving me crazy! And who's left out are the people that don't ever think about design.

- Valerie Fletcher

Fletcher, Valerie. Personal interview. 4 April 2019.

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# DESIGN FOR A NEW PARADIGM

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“WE NEED NEW PARADIGMS, WE NEED NEW WAYS OF THINKING OF DESIGN AND SCIENCE TOGETHER, AND OTHER THINGS... SOCIAL AWARENESS, THE WICKED PROBLEMS OF THE WORLD...”  
–PAUL PANGARO

Pangaro, Paul. Personal interview. 25 March 2019.



## Systems Literacy

Systems literacy is crucial to our future.

The challenges that matter - our biggest opportunities and most wicked problems - involve systems.

**Hugh Dubberly**

Nowadays, everything has to be thought of in a global view... you want to design a car, you can't ignore the roads.

**Tucker Viemeister**



## Interdisciplinary Conversation

We need to create structure where people with different skills can work together. An experience designer can be the strategist facilitating this communication and bringing people together.

**Paul Kahn**

Design can be the bridge that ties these disciplines together.

**Don Norman**



## People/Planet-Centric

Design...and its industry, are largely trapped within a naïve modernist understanding of technology and its power to solve the world's problems, in total disregard of how those problems affect poor people world-wide.

**Arturo Escobar**

We have to stop teaching people how to deliver practices which are unsustainable.

**Tony Fry**

It is too easy to regard design as a set of tools or skills that may be employed without reflection, imagining that only by applying a few techniques or methods an organization can achieve the innovations and entrepreneurial spirit of a “design centric” culture. What distinguishes the new design approach to management and organizational culture is not a set of skills or techniques but a principle shared by many, if not all, in the design community working in the tradition of great designers such as George Nelson. The principle of design that stands behind the organizational culture reform movement in which design thinking is central is grounded in the quality of experience for all of those served by the organization. This includes the individuals who directly use the products and services of the organization, but it also includes those who are affected by the internal and external operations of the organization and by those in society at large who are ultimately affected by the vision and strategies of the organization.

–Richard Buchanan

Buchanan, Richard. "Worlds in the Making: Design, Management, and the Reform of Organizational Culture." *She Ji: The Journal of Design, Economics, and Innovation*, 1, 5-21. <https://doi.org/10.1016/j.sheji.2015.09.003>



# FINAL THOUGHTS

It should be clear by now that what we're describing as the future of design is more than just "design thinking" as a method. As a corporate buzzword, design thinking takes some design practices and converts them into a technique that can be removed from the context of integrative design and applied in any discipline.

Rather than practicing design thinking in isolation, the opportunity for our field is to position integrative design as the fundamental approach shared by all disciplines, with the designer of the future leading the conversation and pointing organizations toward real human needs.

Paul Pangaro told us that organizations are their conversations. Organizations do what they talk about, and what they talk about is based on the language they use. Organizations need a new language that is systemic, interdisciplinary and human-centered. We understand that design is positioned to play a central role in this emerging paradigm by shaping future conversations that transcend the traditional siloing of disciplines, while advocating for systemic and human-centered approaches to addressing wicked problems.

We hope this booklet serves as a starting point for your journey into experience design. As you construct your own understanding of the future of design, the ball is in your court to build upon, or even rewrite, the material we shared in this booklet.

This is only the beginning of a much bigger conversation...

You have to have explicit awareness of the design of conversations. And one of the conversations you have to design is for new language, which is the hardest one, because the people in the old language don't see that they don't see.

–Paul Pangaro

Pangaro, Paul. Personal interview. 25 March 2019.





# INTERVIEW PROFILES

We are deeply indebted to the generosity of the design experts we communicated with for this project via email, video chat, and face-to-face interviews:

Arturo Escobar

Valerie Fletcher

Paul Kahn

Don Norman

Paul Pangaro

Tucker Viemeister

**NUXD** Thanks for accepting this call.

**Tucker** You're welcome.

So far...

Excerpt from our call with  
Tucker Viemeister

Viemeister, Tucker. Personal interview. 5 April 2019.

The following profiles contain additional snippets from our interactions with these leading voices in design.



## Arturo Escobar

Arturo Escobar is the Kenan Professor of Anthropology at the University of North Carolina, Chapel Hill, and a Research Associate with the Culture, Memory, and Nation group at Universidad del Valle, California. The books he's written explore his interest in political ecology, ontological design, and the anthropology of development, social movements, and technoscience.

"I believe transitions and design are among the most important philosophical and political conversations that need to happen in our time, as the world increasingly becomes a massive design failure."

"I think we need new articulations between both types of knowledge ("modern"/Cartesian and other knowledges that do not operate on the basis of classic Cartesian detachment and instrumental rationality, including embodied and holistic systems knowledges), but they need to start by questioning the hegemony of the former, its role in defuturing and unsustainability, and demonstrating a willingness to open up to an entire range of other knowledges. This articulation should be part of current framings of transition design and, of course, of decolonial design, designs from the South(s), and so forth."

"Technology-driven imaginaries are often more about defending and keeping viable the comfortable lifestyles of the rich than about a genuine concern with the poor and with nature."

Escobar, Arturo. "Re: The Future of Design: Research Project." Received by Estefania Ciliotta Chehade, 29 March 2019. Email



## Valerie Fletcher

Valerie Fletcher is the executive director of the Institute for Human Centered Design (IHCD) and created their User/Expert Lab, engaging more than 300 people of differing abilities, ages, and cultures to evaluate places, products, and services. She studied ethics and public policy at Harvard and is the former deputy commissioner of the Massachusetts Department of Mental Health.

“Personas make no sense. We gave it up more than ten years ago. If you invent them, they will never surprise you. That's the simple fact of it.”

“I think it is important for people to understand that design is a way of thinking, it's an ordinary human practice, it is the ability to see what is and imagine what could be.”

“I believe strongly that we've got to recognize talent that doesn't look like what you expect. And insight, and...the necessary diversity of perspective that makes for better outcomes.”

“In this work that is so often defined by teams, why the heck can't you have people who are specialists, who bring something that you're missing?... Intuition doesn't cut it. You have to know. You have to know at a depth that each individual can't.”

“I think we've all seen CEOs and founders who are deep strategists, and they're generalists in most cases, they're not specialists, but they can see the connection between things, they can see why something makes sense to pursue.”

“I think people are pretty cocky that they can do what they need and don't understand that they need skill sets they don't have. Skill is different from intuition. Intuition has big cred. It just doesn't go far. It has its place, but not enough. If you get into that bad habit you think you can do anything. Because you don't have to learn anything.”



## Paul Kahn

Paul Kahn is an information designer, author, and currently, a lecturer at Northeastern University. He was previously the Experience Design Director at Mad\*Pow, working with clients like IBM, Samsung, L'Oreal, and GE Healthcare.

"If people come to you and tell you that "these are the strategic initiatives, and these are their goals, now just make something that looks like that," you don't really have a chance to question, "How did you get to this? How did you come to this conclusion?" So, I think that there is great value for designers to be intimately involved in developing these types of strategic decisions."

"I think you'll always have those distinctions [between engineering and design]. People will have a gift for one more than the other. There'll be rare people who have a gift for all of it. But it seems to me that it's a matter of gift and training. So, [we need] a better education system where people actually, by the time they get to college, have a broader background. "

"Is this facilitator role, the role of an experience design professional, is that the synthesizer of all great ideas? Is it the experience designer, or is it the project manager, or is it rather the CEO that should be doing this? The Chief Design Officer, or something along those lines? No, I think each company has to solve that problem at their own scale."

"A couple of weeks ago, I was giving a talk in Paris. And at the end of the talk, somebody who attended came up and talked to me. And she sent me a note about the company where she works and the work that she was doing. And this company seems to work on projects that they refer to as "attentions." Rather than talking about business sectors, we talk about working in different attention fields. And by doing that they seem to have separate profitability of the field that they're working with from the attention. If you're paying attention to this, you're not in the business of this. It's just a problem that you're trying to pay attention to. I think this would be a very interesting shift. Like, if you could move design away from this symbiotic relationship with clients and the need to create profitability within the model of working for clients, into a kind of consultancy where you're helping people solve the problems that they're focused on, whatever that means. That would be, I think a very positive direction. "

Kahn, Paul. Personal interview. 21 March 2019.



## Don Norman

Author of "The Design of Everyday Things", Don Norman is a researcher, speaker, professor, and board member. He's well known for his work in design, usability engineering, and cognitive science. He is currently the director of The Design Lab at University of California, San Diego and the co-founder and consultant of the Nielsen Norman Group.

### Question sent from NUXD to Don Norman via email:

In your essay you wrote the following: "Design thinkers can move upward within organizations by helping to devise company strategy and select new avenues for exploration. Designers as thinkers can play senior roles in management, far beyond what designers can do as craftspeople."

Our question: How do you envision designers earn a seat at the strategy-making table? Put another way, what is the pathway for design as a thinking/doing specialty to become recognized by business as something distinct from design as craft?

### Response:

"Basically, to move up, understand what drives management. It is NOT that customers love design. Of course they do. Your executives will say, yes, we like the work you do --- that is why we hired you. Now go away, I have work to do.

It is learning to present the value of design by spreadsheets, showing profit and loss and margins. Showing how a proposed change in design would bring in more sales, higher margins, reduced service calls. All measured in \$. Marketing makes these kinds of estimates all the time -- we have to learn from them how to do it.

How does an exec get promoted? By increasing the profitability of the company. So that's the designer's goal. etc and etc.

Think like an executive. That's the first step toward becoming one.

Don"

Norman, Don. "Re: Fork in the Road Follow-Up Question." Received by Jeremy Brodeur, 31 March 2019. Email.



## Paul Pangaro

Paul Pangaro is an interaction designer with a goal to create richer human experiences through the understanding and convergence of design, humanities, and theory. His educational background is in computer science, drama, and film for undergrad, then cybernetics and conversation theory for his PhD. In his first startup, he worked with the US government to develop cybernetic decision-support systems and has since worked with DuPont, Samsung, and Lotus Development Corp.

“Wicked problems require addressing systems of systems.”

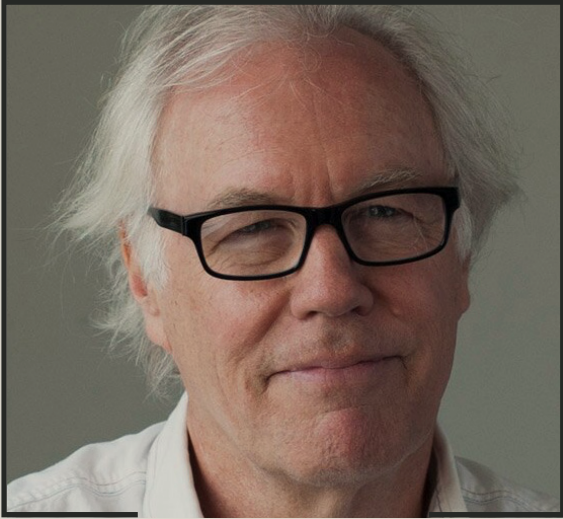
“If we want to see in a new way, if the problem is that we want to assure ourselves that we are not thinking in such a narrow way, we can describe what we see in front of us, then the fourth conversation type is a conversation to create new language, conversation to see in a new way, new distinctions, new relationships, and very clear values.”

“I believe that the role of design should be to enable others to design, enable others to make their way through and traverse through the systems that are all around us in a way that is true to who they are as opposed to true to who I am.”

“Even when you’re designing for complex pieces of technology, or even if you’re designing an object that has to be made, it’s a system of systems that’s involved in that creation.”

“I can describe what’s in front of me 1000 ways. What’s a valuable way of describing it? A way that lets me make progress and convince other people and work together to collaborate to make a change. That’s what design is.”

Pangaro, Paul. Personal interview. 25 March 2019.



## Tucker Viemeister

Tucker Viemeister is an industrial designer and currently leads Viemeister Industries. He opened frogdesign in New York City, founded Smart Design, and made major contributions to Razorfish and Rockwell Group. His work ranges from street furniture to the award-winning “Good Grips” kitchenware by Oxo and has designed for clients like Apple and Toyota. Viemeister has taught at Yale and Parsons School of Design, among others, and has served on numerous boards.

“Why are industrial designers so collaborative? It’s because we’re designing real things in real space, a three dimensional thing. You make the thing, you have to look at it from different angles. That’s what collaboration is, getting other people to tell you what something is.”

“Problem based learning, learning by doing, those are all basically design processes. The younger you are when you start learning that tuff, the better you’re going to be when you get older.”

“That’s one of the good thing about design, is you do jump to conclusions. The trick is, you shouldn’t be too in love with them. It’s good to have an idea about what the solution could be - it might be right, it might not be - but at least you have something to work around...especially with wicked problems.”

“I try and encourage the business people to be more open to design things, and I encourage designers to be critical and more thoughtful - whatever they’re not doing enough of I encourage them to do that. There’s always plenty of gaps.”





# TIPS OF THE TRADE

## GRAD-SCHOOL EDITION

FROM THE SCHOOL OF HARD KNOCKS

### 01

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#### Learn to Love Models

If you've never made a model, get ready. Everyone wants to visually understand how different components work together in a system and why.

Models make it easier to visualize systems inputs and outputs. Start making it a habit of quickly drawing links between various system functions.

Learn about leverage points and system boundaries! This knowledge might help you to draw distinctions between systems and their relationships with other systems.

Spend the time to understand the importance of goals and feedback loops when learning about first and second order systems and cybernetics.

### 02

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#### Sketches & Photos

Everyone will tell you that you need to document your creative process.

OK. But, like, what does that mean?

First, create sketches, hang up post-its, make simple prototypes, and write on whiteboards. This is part of the work that designers do. Got it so far?

Good. Then, second, photograph or videotape all of it. If you don't capture it, then it never happened. Literally, anything that shows multiple steps in a process is essential for your portfolio, especially if that project doesn't have a compelling visual deliverable.

Just document everything!

And on that note...

### 03

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#### Start your portfolio

Start working on your portfolio now, as in, immediately. Even if you have nothing to put in it you can at least buy the website, select your hosting platform and begin to learn how to use it.

Investigate portfolios online. Bookmark examples that stand out to you. You will go back to them again and again as you create your own.

If you find a layout that you like, use it when you prepare assignments. Think through the major categories you'll want to include and structure your assignments similarly.

Think now about your brand image as a designer and you'll be that far ahead in just a few months when you're applying for jobs.

## NETWORK

A job probably isn't going to fall out of the sky and land in your lap just because you earned a graduate degree!

Boston is one of the leading innovation hubs in the country, and the competition is fierce. Start connecting with the industry early and you'll be in a better position when you begin applying for jobs.

Not only should you attend extra-curricular speaking events, workshops and design conferences for the educational benefit, but the industry leaders who are there could be your next employer. Talk to them and reach out to connect with them on LinkedIn.

Consider getting a student membership to any of the professional design associations with Boston chapters, including AIGA. Ask your professors and industry contacts which associations they'd recommend.

04

# 05

## GET INVOLVED

Ask around and plan in advance to participate in events where you can showcase your skills, earn recognition, and maybe even prize money!

Opportunities in 2018-2019 included:

Chalk Around the Block

Husky Hackathon

RISE Research Showcase

## TEAMWORK

# 06

Design is a team sport. As a leader on multidisciplinary teams, you will need to understand and bring people together. We recommend you embrace every opportunity you have in class to improve your ability to work in teams, your listening and communication skills, as well as your empathy.

Remember, empathy will not only help you build your understanding about your team goals and desires, it will help you connect with the users you are designing for in a more meaningful way.

It's also important to note that you can share team projects on your portfolio, as long as you're clear and honest about your role on the team! So, step outside of your comfort zone and find people with skills you don't have. You'll not only have a better final product, but you might just pick up a trick or two along the way!



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understanding design as a  
system in transition



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