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20 | DESIGN |
14 | SYMPOSIUM |



INNOVATION
and DESIGN
THINKING

Volume 02. Issue 01.

20 | DESIGN 14 | SYMPOSIUM

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Editors' Note

Established last year in 2013, Chapman University's Design Symposium Journal is a refereed journal covering a chosen theme in design. The journal is published once a year and provides a forum for design scholars, professionals, project managers, writers, and educators. It publishes work and case studies that challenge assumptions and perceptions of design and exemplifies the continued discussion of the ever-changing role of design and designers.

Special thank you to our inaugural contributors for their submissions, to AIGA OC for their sponsored support, and to Todd Bell for moderating the symposium.



CLAUDINE JAENICHEN

Associate Professor of Graphic Design,
Chapman University

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Symposium Pictures by Sasha Netchaeva

Introduction

At this year's Symposium we were lucky to host a wealth of talent on our panel moderated by Todd Bell, Todd is an Art Center Product Design Alum and formerly an Associate Professor in the Graduate and the Undergraduate Product Design departments. He was also a Visiting Professor at the INSEAD Business School to the World in Singapore integrating innovation and strategic design processes into a the MBA program. In 2012 he joined as a partner with Ideapiphany LLC., an open innovation incubator bridging technologies and commercialization from institutions to industry. Todd co-founded Carbon Project Inc., a strategic and experience based design consultancy offering a holistic approach to design and business with emotional connections reaching all consumer touch points from micro to macro. Clients include Nike, Lincoln, Ford, Detroit Lions, Columbia

TODD BELL
Carbon Project Inc.,
Social Impact by Design



Sportswear, Samsung, NTT DoCoMo, Premier Automotive Group, Love Culture, BioSense Webster, Endologix, Fujitsu and The Walt Disney Company. Todd was formerly Global Brand Image Director for Disney Consumer Products communicating the breadth of the Disney stories through product and graphics to consumers from infant to adult. He was Experience Design Manager for Ford Motor Company's portfolio of brands, conducting qualitative research and applying it towards design solutions that manage brand perception. Todd was also Senior/ Lead Designer at Nike Inc. for several years leading image design projects that include the flagship retail experiences (NikeTown) in New York, London and Berlin as well as other domestic locations and Nike's brand experience for trade shows and consumer events. His work has gained award recognition from "Most Innovative Retail" Award, AIGA, ID Magazine, Communication Arts, IDSA, and the Clio awards for interactive design. Specialties: Innovation, Strategic Design, Design Incubation, Joint Ventures, Licensing and Design Education.

Neil Brooker serves as Executive Director of Operations at DesignworksUSA, Inc. Prior to joining DesignworksUSA, Mr. Brooker served as Head of Planning, Operations, Modeling and Development Programs at Porsche AG. During his three-year tenure he initiated and implemented the strategy for expanding Porsche's client design consulting business to the west coast and worked on advanced Porsche concept vehicles and production programs. Previously, served as Vice President and General Manager of Samsung Design America, he directed automotive product design, engineering and modeling as well as brand strategies. Prior to that, he served as a Managing Consultant for AT Kearney following eight years at International Automotive Design (IAD) where he was responsible for the Strategic Planning and direction of its Asia/Pacific expansion. He serves as Director of DesignworksUSA, Inc. He began his career at IAD in 1980 in program management, overseeing project control for IAD programs such as the Lincoln Towncar and



NEIL BROOKER

Executive Director of Operations,
DesignworksUSA

Mazda Miata, after earning an MBA in strategy and marketing from the University of Southern California and a B.Sc. from the University of Southampton in England.

William England is the R&D leader with experience in leading global organizations to optimize the innovation process. Extensive experience in project development execution and quality, cross functional interaction, growth platforms across markets, development portfolio optimization, metrics and driving innovation through external collaboration.

WILLIAM ENGLAND

Technology Director and Strategist,
Innovation, Consultant



Creative Visual Director Farzad Varahramyan has always had a passion for drawing and creating new worlds and characters. He received a B.F.A. from the University of Alberta, Canada, and a B.S. with honors from Art Center College of Design, majoring in product design. Farzad's been in the game industry for the last ten years, working as a production designer. He worked closely with Oddworld's Lorne Lanning, developing the visual look of Abe's Oddysee, Abe's Exoddus, and Munch's Oddysee, for which he designed the main character. He has also contributed designs to the films Jumanji, and most recently Alien Vs. Predator. In 2002, Farzad became cofounder and director of High Moon Studios where he established the concept art department and codeveloped the visual DNA for multiple original IP games. In 2001 and 2003, he received three gold medal awards from New York Festivals for Best Computer Generated Images, and was nominated at the 2002 Game Developers Conference for Excellence in Visual Arts for Munch's Oddysee.



FARZAD VARAHRAMYAN:

Creative Visual Director for
the film and gaming industry

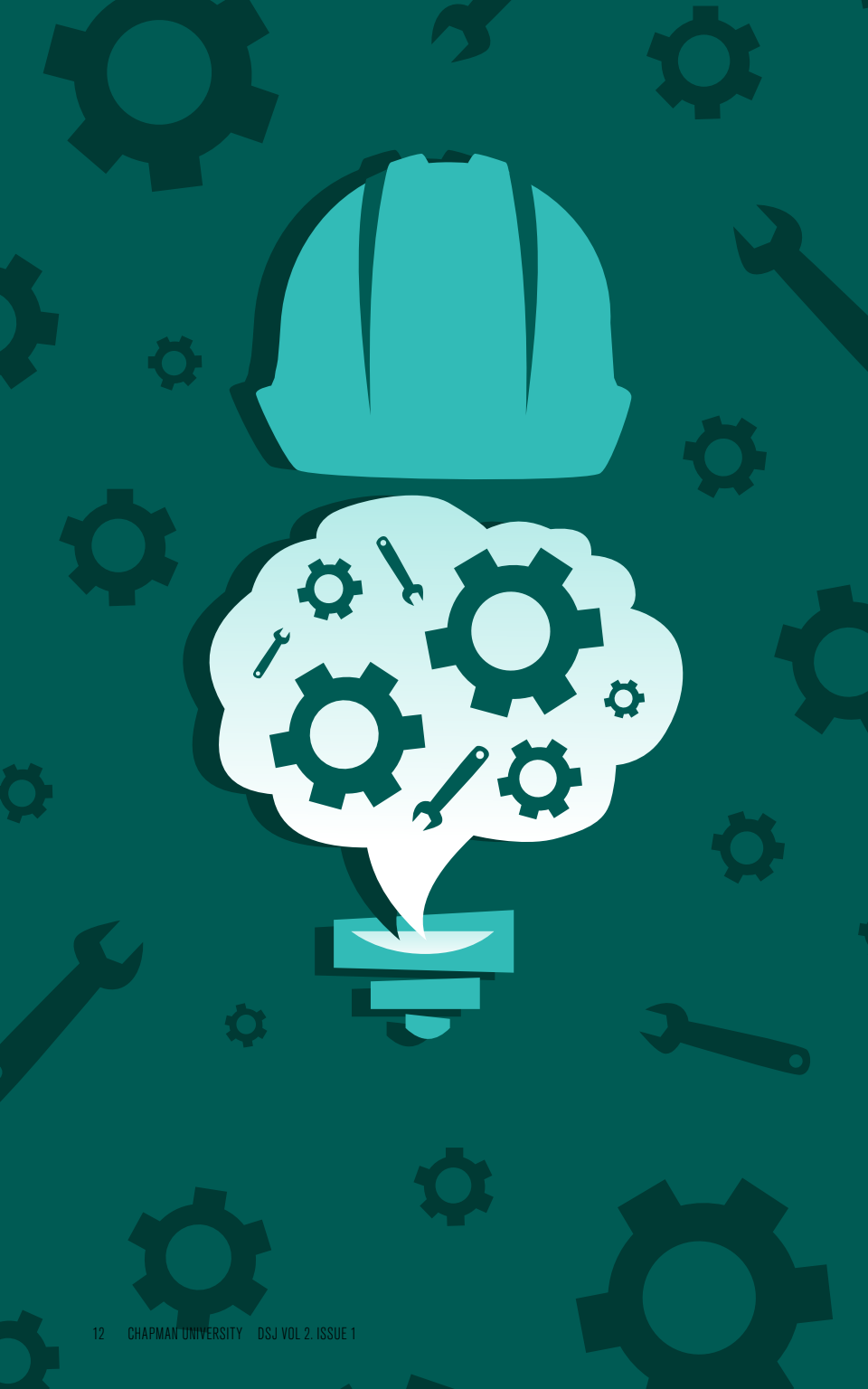
Richard A. Matthew is a Professor of Planning, Policy and Design and Political Science at the University of California at Irvine. He is also the founding Director of the Center for Unconventional Security Affairs (www.cusa.uci.edu) and co-Principal Investigator of the FloodRISE Project (<http://floodrise.uci.edu>). He studies the environmental dimensions of conflict and peacebuilding and has done extensive field work in conflict zones in South Asia and sub-Saharan Africa. His research is widely diffused beyond academic outlets to support the efforts of practitioners in the conservation and humanitarian communities.

He is a Senior Fellow at the International Institute for Sustainable Development and a senior member of the UNEP Expert Group on Environment, Conflict and Peacebuilding. He has served on several UN missions, including two that he led to Sierra Leone, and he was the lead author of the UN policy report, *From Conflict to Peacebuilding: The*

RICHARD MATTHEW:
Professor of Planning,
University of California Irvine



Role of Natural resources and the Environment, and the UN technical report, Sierra Leone: Environment, Conflict and Peacebuilding Assessment. He has over 160 publications, including *Environmental Security: Approaches and Issues* (Routledge 2013) with Rita Floyd, and *Global Environmental Change and Human Security* (MIT Press 2010) with Jon Barnett, Bryan McDonald and Karen O'Brien. He recently edited a four volume set entitled *Environmental Security* that will be published by Sage in late 2014.



Design Thinking

*Tom Goodwin, NY
Marketing and Advertising*

The Problem with Thinking is That it's Cheap

How big problems are assigned big budgets, and thus expensive solutions are found. Some of the most effective solutions come from thinking and creativity, but we overlook them when we have too much money.

The UK has an economy based on design and creativity, more so than any major nation in the world. We have long spent time leading advertising around the globe, making some of the world's most popular music and inventing new sports and businesses; we are a nation with a legacy of innovation and invention.

At the same time, our economy has pivoted massively in the past 30 years. The UK's manufacturing sector shrunk by two-thirds in what is the greatest de-industrialization of any major nation. We've moved jobs to the service and consulting economy, the tertiary and quaternary sector. This seems like a smart thing, we've shifted from manufacturing products and competing with every known nation on earth, to generating value by applying creativity and knowledge. Only France could claim to be a more "advanced" nation in this regard.

In this context, it is particularly ironic to see how we solve the biggest problems of our time. It seems that when it comes to big problems we favor construction over innovation. When we think about the big needs of our time, whether it's housing, public transport, healthcare, or infrastructure, we do remarkably little thinking. Big problems are seemingly automatically allocated big budgets, leading to an environment of money, fear, risk aversion that management consultancies and vast engineering contractors exploit. It's this culture and way of thinking that thinking and creativity suffer in. Thinking is too cheap to be taken seriously, ideas seem flimsy in such a objective and formal atmosphere, creativity is too personal and any one of these outputs doesn't feel tangible enough to be taken seriously.

Perhaps times are changing, in the UK we have GDS, armed with power and support to start to change the way the UK government thinks about digital as an enabler around the government. We've the trendy new movement of "growth hacking" being talked about in companies, although we don't quite know what it is yet, because like "digital," "content marketing," "native advertising" and many other terms du jour, we've not really had the professionalism to define it. It seem's growth hacking is best described as a creative attitude, a focus on ways to solve problems ingeniously, when you have little money and a lot of guts and creativity. In short, exactly what tends to never happen in many large companies or governments.

In such large bulky places where lazy thinking manifests there are three main behaviors that prevail: we fail to define the problem, we fail to establish the "altitude" of the problem, and we later choose uncreative but physical solutions.

I Failing to define the problem

A particular example would be HS2, the planned 300-mile high- speed rail link to connect London with major cities on either side of the Pennines to reduce travel time between London and Manchester from two hours to one, at a cost of about \$100bn.

We have a very well defined solution, the routes been mapped out precisely, the stations have been tendered for, people have started to be paid compensation for disruption, but can we remember what the problem was?

Some seem to think that this is about providing extra capacity on a rail route due to likely increased passenger numbers between the two cities. Other's see this as a way to spread the economic prosperity of the South East to the North, while others believe it's to reduce the need for domestic air travel.

Call me crazy, but a \$100bn solution should have a pretty well defined problem. Above all else, how else do you measure the effectiveness?

II Failing to Define the "Altitude" or Scope of the Problem

We need to determine whether it's the right "altitude" of problem too. By this I mean at what layer are we to solve for? from what height do we approach it? what is our scope?

Increasing capacity on a railway line seems a lot less ambitious than spreading the economy around the country, it's vital to know the level of the problem.

Increasing capacity is a more prosaic tactical affair, it could be solved by better signaling or longer trains.

Spreading wealth from the South East is a bolder aim, something worth more funding and that opens up way more opportunities to solve. It sounds like something that redevelopment funds could accomplish.

Only by knowing the exact nature of the problem and its magnitude / altitude can we identify the right approach, and I fear that we haven't done either.

III Hiding Under Expensive Physical Solutions

When assigned big budgets we look for big solutions and thus we arm ourselves with grand visions, large teams, we allow and expect long timelines. The size and nature of the canvas thus describes the solution we paint.

In a "use it or lose it" environment, expensive solution inevitably come from big budgets, and who cares when it keeps everyone happy. Senior staff would hate the vulnerability of establishing that the solution to a big problem is to be something cheap, effective but simple.

Nobody got fired for buying an IBM, and everyone get's fired for saying we don't need a laptop.

IV The Result

Our built environment is a celebration of rather boring, conventional thinking. It's not all wrong, but it seems like we favor unremarkable, engineering-driven solutions. Unconventional solutions come at the cost of prudent and imaginative thinking.

If the Euro Fighter project (\$50bn) and the Trident submarine (\$25bn) are really about protecting our nation for the years 2030-2060, perhaps we should have spent longer understanding what likely future wars will be about and prepare for that? It seems remarkably unlikely to most people that nuclear weapons and fighter planes will be of comfort in the wars of the future. Can common sense be wrong? Maybe, but I don't think we've had the smartest thinkers in the world gather together at at cost of 1/10,000th the budget of the program, to discuss what the changing nature of war is, what drones could do, what satellite technology will mean. Some people say

programs of this nature are more about injecting money into the economy, I'm fine with that, let's "waste" money but build something more useful.

Spending \$15bn and 10 years on a new IT backbone for the NHS seems like a sensible thing, except when the scope was stretched so much, by so many people, that the entire system crumbled under the weight of code and needed to be abandoned. Perhaps spending the money on assessing needs, reducing scope, creating a better political climate, and getting the public more comfortable with anonymous personal data for the greater good could have made a crucial change.

Samsung's marketing is a similar affair, a company adorned with so much money that they fail to do anything remotely interesting, they spend money as compensation for the guilt of an unremarkable product and no clear product idea.

We've already built a High Speed train in the UK, a \$10bn way to remove 30 mins from the journey to the South East,

...TOM GOODWIN RUNS THE TOMORROW GROUP, BASED IN LONDON AND NEW YORK IT REIMAGINES ADVERTISING FOR THE NEW WORLD. FROM EXPERIENCE DESIGN TO NEW ADVERTISING UNITS TO ANYTHING.

but they got so excited with building railway lines they forgot to add Wi-Fi and power sockets to the seats to make the journey productive.

We can get much better solutions to problems with thinking, but thinking is too cheap, imagination is too intangible, creativity is subjective.

Future Thinking

But what if we expected creativity to be our golden bullet? What if we actively sought to research all possibilities, project the future, consider what a world of more imaginative solutions could be like.

Heathrow airport needs a solution to the expected travel needs of 2030, a world that nobody has any ability to understand.

WE ASSUME traveller numbers will increase.

WE ASSUME businesses will want to send important people across the globe.

WE ASSUME if we don't provide capacity that Dubai or Qatar or Istanbul or Frankfurt will.

But these are assumptions.

WE ASSUME planes will look the same, land the same, carry the same passenger numbers, need the same runway length, and thus another runway seems sensible.

But before spending \$30bn and 20 years on a large strip of tarmac, wouldn't it make sense to ensure our vision of the future is right, to ensure there are no better ways to promote economic growth, to establish if other solutions may work in different ways?

PERHAPS (I don't know) an new software and sensors will allow wake effect to be calculated and planes to land more closely together?


PERHAPS plane traffic can be automated like Self driving cars and the entire loading pattern can be optimized to increase traffic.

PERHAPS splitting each runway in two can work?

I am not saying those are the answers, but I am telling you clearly that they are the right questions, we need a decent time spent on outlandish ideas, testing the norm and more.

But when you have money, it seems, thinking is a luxury you don't need to spend money on.

This needs to change, thinking and creativity are the best solutions to problems the world has ever known, the future of engineering needs to grounded creativity.

PERHAPS growth hacking can be the term we start to leverage to make that happen. 

JTURSCAPING

DEFINITION: THE SYNTHESIS OF QUALITATIVE RESEARCH, ENVISIONING FUTURE USER SCENARIOS AND MAPPING FUTURE TO GENERATE NEW PRODUCTS AND SERVICES.

CLIMATE CHAOS 20 25

2025 WILL BE A DIFFERENT WORLD THAN TODAY.



EXTREME HEAT / HEAT WAVES

HEAT EFFECT 70% OF THE WORLD POPULATION IMPACTING THERMO & FLUID REGULATION

AIR POLLUTION

AIR POLLUTION EFFECTS 90% OF THE WORLD POPULATION WITH RESPIRATORY DISEASE

FLOODS

FLOODS ARE THE MOST COMMON NATURAL HAZARD TO CAUSE DISASTER

DROUGHT

DRY AND CONDITIONS INCREASE FIRE STORM CONDITIONS AND CREATE POOR AIR QUALITY

VECTOR DISEASES



WHAT WILL BE THE IMPACTS OF



FINE PARTICLES THREATEN BRAIN BARRIER



PARTICULATE MATTER IMPAIRS VISION



EXTREME HEAT IMPAIRS BODY'S HOME



PARTICULATES TAKEN DEEPER INTO

- **HOW IS CLIMATE CHANGE EFFECTING THE HUMAN BODY AND SOCIETY IN 2025?**

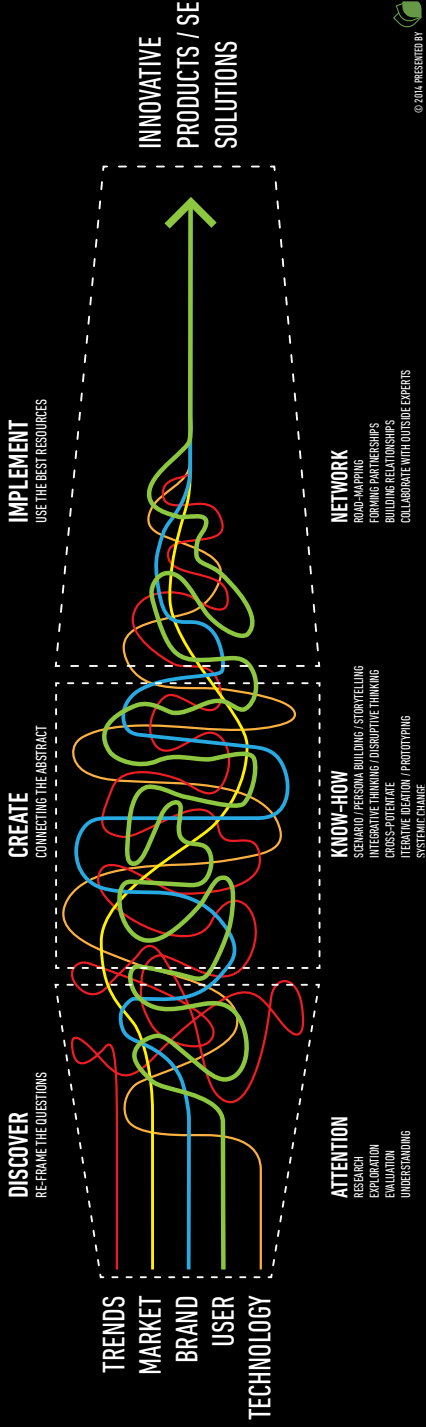
- **WHAT INNOVATIVE SOLUTIONS CAN BE GENERATED TO ADAPT TO THESE CHALLENGES?**



**DEFINITION: THE NON-LINEAR, FREE-FLOWING PROCESS OF MULTIPLE IDEA
GENERATION USING NON-CONFORMITY, SPONTANEITY, CURIOSITY,
WILLINGNESS TO TAKE RISKS, AND PERSISTENCE.**

DIVERGENT THINKING

DEFINITION: THE NON-LINEAR, FREE-FLOWING PROCESS OF MULTIPLE IDEA GENERATION USING NON-CONSPONTANEITY, CURIOSITY, WILLINGNESS TO TAKE RISKS, AND PERSISTENCE.





The Designer Nudge

Bree Galbraith, YVC
Orca Book Publishers

Defining the Role of Design in behavior change

While at Emily Carr, Bree has been the recipient of an Emily Achievement Scholarship for demonstrating the highest GPA, The Rudy Kovach Scholarship, for an outstanding student in the Design Program, and the Abraham Rogantnick Scholarship for displaying academic excellence in the Design program. She has also been featured in the 2013 Capital Campaign, is a published children's book author, and invited to attend the International DesignCamp held at the Kolding School of Design in the fall of 2012.

The Kolding School of Design invites top international design students and students from other disciplines, as well as designers and researchers "with an interest in design in addressing global challenges and solving current issues based on a current theme" to its annual DesignCamp. The theme for 2012 was "nudging". The following article is distilled from my research on the concept of "nudging", from my notes and from the distributed material, with additional input from the Danish Nudging Network.

"The false assumption is that almost all people, almost all of the time, make choices that are in their best interest or at the very least are better than the choices that would be made by someone else."

—
Thaler and Sunstein, Nudge: Improving Decisions about
Health Wealth and Happiness

Automatic and Reflective Systems

At DesignCamp, Andreas Jespersen and Sille Krukow, both members of the Danish Nudging Network, defined behavior as “the range of actions and mannerisms made by organisms”, explaining that it is the response of the system reacting to stimuli—that there are both voluntary and involuntary reactions. They introduced the concept of Automatic and Reflective Systems popularized and given credibility by behavioral economist Richard Thaler and legal scholar Cass Sunstein from their book, *Nudge: Improving Decisions about Health, Wealth and Happiness*.

It is a widely accepted theory in the field of psychology that there are two kinds of thinking: “one that is intuitive and automatic, and one that is reflective and rational” (Thaler 19). These automatic and reflective systems are known as System 1 and System 2, and have been substantiated in Nobel Prize recipient Daniel Kahneman’s *Thinking, Fast and Slow*. where Kahneman’s speaks to System 1 as a “machine for jumping to

THE IMPORTANCE OF UNDERSTANDING THE VARIOUS ASPECTS OF THE TWO SYSTEMS IS THE FIRST STEP IN COMPREHENDING HOW THEY SYSTEMS INTERACT AND OPERATE...

conclusions” (Kahneman 79) and to System 2 as a function to “monitor and control thoughts and actions ‘suggested’ by System 1” (Kahneman 44). Thaler and Sunstein — and later Jespersen and Krukow — use the terms Automatic System for System 1, and, Reflective System to identify System 2. Regardless of the terms used, the functions are the same throughout. As Jespersen and Krukow point out, the Automatic System is fast and parallel, unconsciousness and effortless, and independent of working memory. This is our unquestioned intuition, the place where we go without thinking – a place within all of us where neuroscientists postulate that “the activities are associated with the oldest parts of the brain, the parts we share with lizards” (Thaler 20).

We were given examples of tasks accomplished by the Automatic System, such as speaking our native language, reading facial expressions of those around us, and consuming needless calories due to personal habit. It was here, with these

examples, that we recognized how very different the Reflective System is from the Automatic System. The Reflective System is described as being slow and sequential, with Jespersen and Krukow using keywords such as logical, deductive and effortful to define its inner logic and workings. Basically, the Reflective System is our conscious thought.

The importance of understanding the various aspects of the two systems is the first step in comprehending how the systems interact and operate both together as a whole and often against, or in opposition to, each other. The Automatic System is our first line of defense, but it relies on the Reflective System when an input is too strong to process and a solution needs to be found to solve a problem. Coming from it at another angle, Jespersen adds that “typically, we think of reflective activation as something which happens when a) something stands out/deviates from our automatic expectations (a lion on the subway) or b) we have pre-programmed ourselves to start reflections at certain points (e.g., going to class or engaging in conversation).

When sense needs to be made of a situation, when a complex math equation has to be solved, when directions are followed, when a new language is learned, the Reflective System is called upon. But the Reflective System is slower and not involuntary or spontaneous like its counterpart, the Automatic System. This relationship between the two systems is the exact point where decisions are made. But the two processes are not equally weighted — most likely it is our gut, our Automatic System, that we follow more closely.

Because of this assumption, experts in the field, such as Jespersen and Krukow, have identified this to be the point of intervention for designers to “create an environment that makes it easy for people to do the right thing”. This recognition and understanding of the mechanics of behavior coupled with the use of choice architecture by designers to help people make healthier and more meaningful personal decisions for themselves, for the social and physical environments and for future generations is at the heart of the concept of nudging.

WHAT IS A NUDGE?

Jespersen and Krukow define a nudge as “an attempt to influence people’s choices and behavior in a predictable way without limiting their options or significantly changing their incentives (including economic, time, hassle, social sanctions, etc.)”

In the early stages of the conference, Head of Interaction at the Kolding School of Design and DesignCamp organizer, Barnabas Wetton, asked the question: “How might we design something that helps people make better choices and provides people with tools and interventions to make better choices, not by forcing, leading, limiting or manipulating?”

The stairway of intervention was introduced to the DesignCamp by Ph.D Director at the University of Southern Denmark and Danish Nudge Network Chairman, Pelle Guldborg Hansen, to explain the current behavioral model of intervention.

He focused on the different stages of behavior intervention, from the bottom rung of the “ladder” which is purely educational and information oriented (as Sunstein states, “Structuring choice sometimes means helping people to learn, so that they can make better choices on their own”), to the middle rung of the “ladder” which houses an intervention with a set of clearly defined positive and negative incentives, and to the top of the “ladder” which is the site for the outright “ban” of what is deemed to be unreasonable, unhealthy, unsafe, etc.

There are bans that people can generally agree are not only acceptable but important and necessary, such as bans on excessive speeding and the sale of cigarettes to children. Recently, a ban “which bars the sale of many sweetened drinks in containers larger than 16 ounces” ([nytimes.com](https://www.nytimes.com)) was introduced in New York City by the Mayor and Council (since overturned) and stirred up controversy with segments of the population who question under what terms do others have the right to make decisions of their behalf, undermining their right to freedom of choice. Hansen explained that nudging is a tool that makes both bans and incentives redundant, and, targets “insights into how we actually work and think”. He stressed that a nudge was not to be confused with a ban, as there should be limitations placed on the user. Because the nudging behavioral model doesn’t mirror the Automatic and Reflective Systems mode of thinking, and because nudging keeps a close eye on ethics and better understands how choice architecture can be used, there are several aspects of the model that need to be considered when nudging people to change their behaviors.

The Danish Nudging Network presenters made clear that every design that involves user interaction features choice architecture, and along with that comes a set of intentions. They put forward the contention that it is the goal of the designer in the 21st century to ensure that this “set of intentions” contains the best intentions possible. How one defines “best intentions” has pitfalls and caveats, echoed by designer and educator, Katherine McCoy, in her essay *Design as a Social and Political Force*, where she states, “the ideal of value-free design is a dangerous myth. In fact, all design solutions carry a bias, either explicit or implicit.”

WHY USE A NUDGE?

To begin the discussion on why “nudges” are used, the Danish Nudging Network gave the conference participants a set of method cards with clear explanations. “Nudges are used to either create [a new behavior], stop or change an existing behavior.” Hansen went on to explain the importance of feedback in the construction of a nudge. With the inclusion of signals that let the user of the design know if they are doing something successfully or not, the user is more likely to change their behavior and adapt to the system. Andersen added that “this underscores the point that most people want to reach an optimal solution, but limited analytical capability often becomes a hindrance on the way. By creating very tacit and simple feedback, we acknowledge that mental energy and analytical ability needs to be preserved and kept low in a complex world.”

Hansen made the concept accessible by providing the straightforward example of flossing one’s teeth. While we are all aware of the benefits of flossing our teeth and the prevention of gum disease, the act of flossing has no feedback cue or mechanism and no immediate reward. Hansen concluded that since human behavior had not been worked into the design of flossing, people were less likely to floss.

Without immediate feedback, we can begin to understand why so many systems fail, and why our own decision-making processes often fall short of the mark. Thaler and Sunstein give the example in “Nudge” of a person eating a high fat diet for many years with no signs of heart disease – yet the heart attack could strike without warning at any time. In my interview with Robyn Sussel, Health Communicator and Principal at Signals Design, I was introduced to the concept of “implementation science”, succinctly explained to me as the practice of obtaining and sharing knowledge as a methodology or process, and one that completes a desired process. The gap between this

knowledge and the final intended action has people making decisions that significantly affect their health and the health of others. Sussel identified that “part of that gap is what ‘nudging’ has identified. Anything we can learn about motivation and moving from knowledge to action can actually help a lot of systems.”

Andersen provided a streamlined example of this complex system, asking us to imagine that we could visibly see weight gain on a day-to-day basis, or, to imagine that we had a clear picture of our lungs and access to information about the tissue breakdown caused by smoking. He then asked whether we would eat as much as we do or smoke.

Defaults and nudges

Further to the concept of knowledge and action in behavior change, Rani Saad, of ideas42, spoke in his presentation of designing with the intention of bridging the gap between intention and action and introduced the concept of the default decision-making process. He explained how, in many cases, the default must be changed for a successful action, or nudge, to take place. A default is the option in a system that requires no effort to take place and is ever present. It is what happens the user does nothing, it has to exist, and if ignored can have crucial consequences.

Defaults are designed into every system — an example being the sleep mode on your smartphone or other electronic device. Each device comes with the “sleep mode” programmed into it by the manufacturer. You can adjust your settings manually to suit your needs, but if you choose the option of doing nothing, the system will continue to use the default mode and move automatically to the “sleep mode”. This example is commonplace, but at the other end of the spectrum there are carefully designed defaults that can act to save lives. Such a case is organ donation legislation in some European countries, where the default is set to be automatically “opted-in”. With effort required to “opt-out” if they prefer not to take part in the program, many more people, by default, are organ donors. For some, this default is fraught with ethical concerns, and Hansen has opted to oppose this use of a nudge in the American Journal of Bioethics.

Nudges and designing for human error

Along with defaults, a nudge must take into account and design for the mitigation of human error. A quintessential example of designing for human error is found in Bruno Latour’s *Where Are the Missing Masses?* Latour delves into



“the ideal of value-free design is a dangerous myth. In fact, all design solutions carry a bias, either explicit or implicit.”

KATHERINE MCCOY, DESIGN AS A SOCIAL AND POLITICAL FORCE



the default designed into the “Berliner Key” — a key designed because “undisciplined tenants forget to lock the door behind them” (Latour 172). In response to this behavior and practice, this double-sided key is designed to be impossible to remove from the outside once inserted to unlock the door. “The only way to retrieve the key is to push the whole key through the door to the other side” (Latour 173), and then rotate once more, which in turn re-locks the door and the tenant goes on his/her way.

Another uncomplicated or unambiguous example of a default is provided in “Nudge” is that of the birth control pill pack which contains 28 pills, 7 of which are placebo pills and are added to the pack to ensure that error of missing a pill is less likely to happen. A well-designed system must both expect and anticipate error, accept it as a natural behavior, and use it as a tool for the desired result or end.

“Nudges”, incentives and gamification

A contentious addition to the toolkit of strategies for constructing a nudge is the “incentive”. Hansen reports that current developments and research in behavioral economics have found that “incentives often do not work as anticipated, if they work at all.” The addition of an incentive can be interpreted as manipulative to the user. While incentives are widely used in the marketplace and can create beneficial competition between and among businesses in the private sector, the use of economic incentives in nudges was for the most part downplayed at the DesignCamp, with the presenters challenging the participants to find non-economic motivation to change behavior.

Social Business Consultant, Polle de Maagt, spoke of the use of gamification as a tool when designing strategies to solve difficulties facing businesses. He cautioned the DesignCamp participants that a true nudge was not be confused with gamification.

He explained that people, or consumers, have a certain level of expectation, and if businesses exceed the consumer’s expectations through service, they are more inclined, even seduced, to speak about their user experiences. This, in turn, can create much more “buzz” than any clever advertising campaign alone.

How do we construct a nudge?

At this point, we understand that a nudge is a term that represents a system created or designed to change a specific behavior — a tool that helps people make better decisions. In order to design an effective nudge, the following questions need to be answered:

- » What is the observed behavior that needs to be changed?
- » What is the target behavior we would like the user to exhibit?
- » What are the barriers that are keeping the user from the target behavior? (“often seen in the form of psychological biases or the unconscious use of heuristics” — Jespersen)
- » What is the motivation behind the observed behavior, and, what can be done to motivate the user to exhibit the targeted behavior?
- » Where can feedback be placed in the system to alert the user they are making the right/wrong decisions? (“or, how can the system be changed so that the observed behavior now produces a different outcome — for instance, changing the size of the plates in a buffet”— Jespersen)
- » How can the behavior change be measured for effectiveness?
- » The genuine involvement of user groups/ stakeholders in the design process

By answering the preceding questions and conducting simultaneous and inclusive field research, a successful “nudge” which is conducive to fostering behavior change can be created and measured.

The simplest, or most basic, solutions are always the most effective, and, the characteristics of a nudge can be characterized in the following manner (French 157):

- » they are voluntary;
- » they are avoidable;
- » they are passive/easy, i.e. require little effort and work on mindless choosing; and
- » they are low cost, to both the person targeted and to the government or organization utilizing them (consequently, they are highly cost-effective)

TIPS FOR CREATING BEHAVIOUR CHANGE

1. "make it easy – even the little obstacles can sway us towards procrastination or make us postpone important decisions"
– from Sille Kruskow and Andreas Jespersen, *inudgeyou.com*
2. "Design your system to engage people's emotions, or make them emotionally connected to their behaviour"
– from Dan Lockton's "Design With Intent" Toolkit
3. "People tend to rely on the default option, so make it the desired option"
– from the Irrational Designers Group at the IIT Institute of Design, "Brains, Behaviour & Design: Tools to understand and influence decision making"
4. "Priming is one mechanism to influence behavior outside awareness. It involves presenting a stimulus that activates or inhibits an associated mental representation (a concept, action, or goal)" – from Theresa Marteau's "Changing Human Behavior to Prevent Disease: The Importance of Targeting Automatic Processes"
5. "we are less benevolent, prone to careless and antisocial behaviour, and more selfish when we feel we are alone and that no one is watching our actions"
– from Sille Kruskow and Andreas Jespersen, *inudgeyou.com*
6. "The identification and removal of 'external barriers'. External barriers are constraints that make the logistics of completing a desired activity difficult"
– from Stephen Clune in his "Design and Behavioural Change" from the Parson School of Design's *Journal of Design Strategies* Spring 2010 Issue.
7. "To encourage one behaviour or selection over another, emphasize its associated gains rather than its associated losses"
– from Artefact Group's Nikki Plour in her "Applying Behavioural Economics and Cognitive Psychology to the Design Process"
8. "reduce complexity – good nudge designs should reduce technical complexity for the user, through the development of objects, and also when designing encounters, systems and communications" – from Sille Kruskow and Andreas Jespersen, *inudgeyou.com*
9. "Draw attention to and praise the sensible behaviour of "neighbours" or members of the same "community" in order to make ecological behaviour a social norm that consumers will adopt spontaneously"
– from Centre D'Analyse Strategique in their "Green Nudges": *New Incentives for Ecological Behaviour*



WHERE ARE NUDGES USED TODAY?

In 2010, the Institute for Government in the United Kingdom issued MINDSPACE, a report that looked at how advances in the insight into behavior change could influence public policy making, with the goal of lowering costs in areas such as crime reduction, public health and sustainability. When compared to traditional public policy making tools, identifying cases where behavior change could be used could have an impact that is not only cost effective, but long lasting. Influencing citizens to make better personal health decisions could lessen the strain on overextended healthcare systems. In the “Designed to Move” study, commissioned by Nike Inc. in 2008, it was estimated that “the cost of illness associated with physical inactivity in China, India, the U.K. and the U.S. was more than \$200 billion U.S. dollars. By 2030, the direct costs alone in China and India will each increase by more than 450 percent.”

Where unhealthy eating, lack of physical activity and obesity cited as major risk factors for cancer, with 50% of people in the developed world considered either overweight or obese to the point that it threatens the quality of life (Gitte Laub Hansen, Danish Cancer Society), the case for nudging should be enhanced and gain traction as an effective design tool.

Even with the advances in the fields of neuroscience and behavioral science supporting the tendency to use the Automatic System to make decisions, “most interventions aimed at changing health-related behavior target reflective processes.” (Marteau et al). In her “Judging Nudging: Can Nudging Improve Population Health?”, Theresa Marteau, professor of Health Psychology at King’s College London, cites two effective nudges that increased fruit and vegetable purchases significantly simply by altering the placement of these items closer to the cash register and by creating shopping cart signage.


These simple interventions, which don’t explicitly either call or design for change in behavior, are successful and allow the users/customers to remain free in their decision-making processes — the choice architecture has been altered to allow for healthier decisions to be made. Further examples of simple nudges are found in many other areas ranging from traffic control, litter elimination, to personal debt reduction.

Globally, the use of nudges and their ethical boundaries have been challenged, an example being the approval of a Japanese law to “trim down” the societal costs of obesity by legally restricting the size of waistlines (Thaler 263). In this instance, “companies and local governments are required to measure waists of people between the ages of forty and seventy — a group consisting of 56 million people” to ensure they fall within the prescribed waistline limits for men and women. By Western standards, this may seem to be an inappropriate, even extreme measure, pushing the acceptable interventional boundaries of what people are comfortable allowing their governments to control.

The team presenting the MINDSPACE report suggested a new role for public policymakers, heralding them “as brokers of public views and interests around the ecology of behavior”(mINDSPACE 51). As a caveat, they cautioned that this method of thinking, which shifts from the idea of an independent citizen making sensible, rational (Reflective System) decisions to a citizen whose behavior is automatic and intuitive — benefiting from the intervention of choice architecture — could increase the concerns of those citizens questioning who has the moral right to decide on what defines a preferable future.

Mirroring this, the recent study, “Acceptable Behaviour? Public opinion on behavior change policy” produced by the Ipsos MORI Social Research Institute, surveyed approximately 18,500 adults from across 24 countries on their viewpoints on behavior change policies that targeted smoking, healthy eating, retirement saving and sustainable living. They found firm public support (92%) for the requirement for providing behavior change information but less support (62%) for approving government regulations that would ban unhealthy behavior such as smoking and harmful eating habits. With this result in mind, the benefits of adopting and incorporating behavior change strategies in public policy are evident, as is the caution that nudging should embrace “a more facilitatory role for government rather than a nannying or authoritarian approach characterized by the use of laws and promotional campaigns aimed at hectoring or forcing people into change”(French 156).

A PIVOTAL AND FUNDAMENTAL QUESTION: WHAT IS THE ROLE OF DESIGN IN THE NUDGE?

Ideally, design is an integrative, multi-faceted discipline. Designers should be at “ease” and comfortable as much as possible when dealing with the inherent uncertainties of solving design problems, and they should willingly and actively seek out combinative relationships with other disciplines to create solutions to these problems. Design as a discipline or profession is not unique in its goals to work with and overcome challenges. Designers must be well-equipped and expect to work in multi-disciplinary environments. wWith this skill and mindset, designers should be able to visualize and comprehend the problem “spaces” encountered when working in and with other disciplines. Designers face the constant challenge of recognizing and understanding the specific elements and mechanisms that shape each individual problem, as well as share, borrow, integrate, and learn from the plethora of past findings and collaborations. As community activist and architect, Richard Evans, explained during the course of our interview for this project on nudging, design is the act of marshaling and gathering the energies around a problem, and knowing intuitively that the ensuing synthesis will be the force that guides the designer. 

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Figure 1. Group of seven clarinets invented by Linsey Pollak (Left to right): John, Donna, F Minor Clarini, Crow, Gaidanet, Mrs. Curly, Norwegian Smoking Pipe

Clarinet Improvisations: Linsey Pollak's "Loop of Design" and Ethics of Musical Practice

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The versatile Australian musician, Linsey Pollak, is an improviser, in both broad and specific senses. As might be surmised from a glance at his musical instruments (Figure 1), his entire oeuvre is imbued with a spirit of play, discovery, surprise and delight. He conjures musical instruments from all manner of material, and coaxes out of them sounds that are folkish and sometimes otherworldly. Pollak presents his ideas to audiences through theatrical "shows," but also in concert performances, although elements of each context/format inevitably cross over into the other. Similarly bifurcated is his approach to musical instrument design and construction. Some of these are fashioned rather quickly from readily available, "everyday" items, however others involve elaborate craftsmanship and scientific expertise.

In this article I propose that Pollak's design "thinking" forms part of an integrated creative cycle or loop, where especially in his theatrical shows, musical instrument construction is part of the performance, which culminates in music making, a process that frequently involves digital looping. As a case study of an aspect of Pollak's work, the article explores some of the ways he plays with, manipulates or improvises upon the form and sound of the musical instrument known as the clarinet, and how this impulse and activity arises from his longstanding engagement with Other musics, in particular idioms from the Balkan Peninsula. It also exposes a kind of instructive ambivalence in Pollak's work: in his shows he often projects the persona of "musical magician" who creates from scratch, while at the same time he appears to question the idea of the designer-artist as godlike originator.

Pollak's design and other creative activity can also be understood as an instance of ethical musical practice (Benson 2003; Warren 2014), since it strives to set up a dialogue not only with the history of the clarinet—which Pollak does not consider to be a fixed form—but also with Balkans and other

musical materials and processes, as well as with audiences. Through play and improvisation, Pollak invites audience members to imagine themselves as improviser-creators. In Benson's terms, Pollak attempts to bring the voices of the designer, craftsman, composer, performer and listener into an open dialogue without drowning any of them out, so that "the particularities of [the] respective voices are allowed to flourish" (Benson 2003: 164). He connects "things"—materials and objects that become musical instruments, which in turn produce context relevant music—with people, through stories, instrument names, and local and distant places.

The loop of design and the centrality of improvisation

In 2011 and 2014 TEDx presentations, Pollak contemplates a design idea then, working against the clock, implements it (TEDx Brisbane 2011; Carrot clarinet 2014). He takes the audience on a step-by-step journey as he fashions musical instruments from unlikely materials—in the 2014 talk he crafted a clarinet from a carrot. As the end of his allotted time approaches, Pollak sets up a "tease" by playfully threatening not to make a sound on the finished instrument, claiming that in fact, time is up. Audience members audibly express their disappointment, so Pollak obligingly completes the circuit by fluently improvising a melody on the new instrument to sounds of delight and laughter. As he concludes with a trill, applause erupts.

This "game" raises two points that are worth considering. The first is quickly grasped: for Pollak, thinking up the instrument then making it and making music on it are inseparable and interdependent parts of the creative process or loop. It is helpful here to consider aspects of Pollak's musical biography. He played the clarinet throughout his high school years, dropped out of university to make bamboo flutes, then discovered Renaissance music and became fascinated with wooden flutes. Soon after, he went to Europe on a grant to study Renaissance wind instruments housed in museum collections, with the aim of making copies of these. While there he set himself up as a wood turner in London and started making baroque flutes, which he sold through a specialist Early Music store. In Sydney he had "discovered Macedonian music from an album in a friend's collection" and decided he "wanted to learn the Macedonian bagpipes [...]". He made the move from England since "[i]t was cheap to travel from London to Macedonia—£25 on the bus to Skopje" (Pollak quoted in Van Gilder 2014: n.p.). Pollak spent a revelatory eight months in Macedonia learning to play the *gaida* bagpipes from Lazo Nikolovski, while visiting and absorbing the music of the Romani minority people in the

area. Upon returning to Australia in the late 1970s, Pollak became a central figure in the nascent multicultural and world music scene (see Smith 2005: 148).¹

It could be said that as Pollak widened his circle geographically, he expanded his musical and cultural worlds. Always a performer and musical improviser, during those years he broadened and honed his skills, and from classical, popular, jazz and folk elements developed an eclectic musical language that combines rock-type riffs with Balkan meters, modes, and timbres, elements that in the live context he layers texturally by way of a digital looping device.² Similarly, he began creating theatrical shows featuring characters that are often eccentric, and who themselves, through trial and error processes, end up constructing a musical bricolage.

The second point concerns Pollak's challenge to common understandings of creative origination. His loop of design practice draws on and in ideas from "the margins"—the less likely, the previously unconsidered. Important to this loop is that it should pull others in, prompt them to engage in creative play in some way, much as Pollak himself followed an unconventional pathway towards musical discovery. Early in Pollak's 2014 TEDx presentation, he told the audience: "It's crazy—music is such a communal activity, but we tend to leave it in the hands of the experts, and all of us consume music. But you yourselves can become carrot clarinet players very easily" (Carrot clarinet 2014). In this case, the (almost) requisite TEDx line, "you too can do it," feels somewhat unconvincing however, since most in the audience have an inkling that even if they could modify a carrot for musical purposes, developing an embouchure requires dedication, and some might think, innate ability. Pollak's clever improvisatory flourishes on the carrot would only seem to confirm that some sleight of hand was involved.

The impact of this revelatory moment in such performances turns on the novelty of extracting authentic, even beautiful, sounds from such mundane materials. Audience members are in awe of the performer for working a small miracle before their very eyes and ears. If in such circumstances Pollak seems to fall back on the notion of the musician as quirky genius, it is only for a moment; after all, such transactions with audiences are essential to the success of theater. However, the DIY aesthetic is a crucial, even fundamental aspect of Pollak's work.

1. This biographical sketch is derived from Linsey Pollak, personal communication (interview with the author, 4 November 2014, Blaxland, N.S.W., Australia).

2. For a representative piece of Pollak's music, listen to the track 'Sour Sop' by Pollak and percussionist Tunji Beier, who perform as the duo, Dva, which can be heard here: <http://linseypollak.com/wordpress/six-four-five-eight-six-four-seven-eight-dva/>.

In his mid-to-late 1990s one-man show, *Knocking on Kevin's Door*, aided by looping technology the character Kevin, a roadie, makes all manner of noise, then music, from apparently meager materials. For example, he improvises a three-part riff piece simply by manipulating rolls and lengths of the cloth-based gaffer adhesive tape³—which raises the question considered next, of what, for Pollak, defines a particular kind of musical instrument.

Clarinets improvisations

As should be clear from the biographical sketch above, Pollak has always been attracted to the sound of aerophones— instruments whose sounding involves a vibrating column of air—and in particular, single and double reed aerophones, especially clarinets, bagpipes and instruments related to these.⁴ Technically, a clarinet is a single reed cylindrical bore aerophone with fingerholes. To bring to mind the characteristic sound of a clarinet, think “the cat” in Prokofiev’s *Peter and the Wolf*. This will give only a partial aural picture of Pollak’s clarinet world however; seeking out the playing of Ivo Papasov, the music of Anouar Brahem, and classic *Rembetika* and *Klezmer* groups featuring clarinet, will assist in comprehending Pollak’s clarinet sound aesthetic. Certainly, in terms of shape and construction materials, generally Pollak’s clarinets do not *look* like clarinets.

Regarding his approach to making clarinets, Pollak explains that he works from a basic premise:

With any design you have certain ground rules, whether it’s a clarinet or a skyscraper. I’m wanting to make a wind instrument, so it needs a mouthpiece with a single reed and it needs a tube—a column of air. I’ll look laterally to decide what is a useful tube. That might mean constructing a tube from scratch, turning it out of wood, or drilling out a carrot. Or, it might be using an existing tube—a feather duster handle that just happens to fit a soprano [saxophone] mouthpiece exactly on to it. It’s that utilitarian, found object approach.⁵

This is more than simply an imaginative version of Kaplan’s “law of the instrument,” where every tube Pollak comes across that is of the relevant bore shape and size has the potential to be a clarinet. As he states here, he not only

3. A recorded excerpt from this moment in the show is available here: <http://www.abc.net.au/arts/adlib/stories/s861359.htm>.

4. Pollak has devoted time equally to exploring and developing bagpipe-type instruments, and to a lesser extent, flutes.

5. Linsey Pollak, personal communication (interview with the author, 4 November 2014, Blaxland, N.S.W., Australia). Unless indicated otherwise, all quotes from Pollak are derived from this source.

“finds” tubes; he sometimes *makes* them himself in order to solve particular practical problems (more on this below). Also, perhaps a more accurate way of describing Pollak’s utilitarianism is that it relies on “found materials” rather than “found objects,” although the latter is sometimes the case.

As was noted at the outset, Pollak takes a dual approach to fabricating his clarinets. For ease of discussion these can be called simple and complex types, categories that allude chiefly to materials and construction processes. A more nuanced understanding of Pollak’s design thinking can be gained from considering individual clarinets from among his diverse range. In connection with the discussion that follows, the photographs of the respective instruments should be consulted, and listening to recordings of the instruments is highly recommended (sample excerpts are available on Pollak’s website, www.linseypollak.com, and on iTunes).⁶ Bear in mind that overall length of pipe determines the fundamental pitch, and that Pollak’s instruments tend to sound in either the mid-to-upper soprano or the mid-to-lower bass register. The

“IT’S CRAZY—MUSIC IS SUCH A COMMUNAL ACTIVITY, BUT WE TEND TO LEAVE IT IN THE HANDS OF EXPERTS, AND ALL OF US CONSUME MUSIC. BUT YOU YOURSELFS CAN BECOME CARROT CLARINET PLAYERS VERY EASILY.”

critical factors for both the simple and complex clarinets, that is, those that require very precise measurement, are internal bore size and fingerhole size and placement, as well as the relationship between these (Figure 4 provides a summary comparison of features that contribute to the characteristic sound of Pollak’s clarinets).

Mr. and Mrs. Curly

Beginning with this simple and complex pair, Mr. and Mrs. Curly (Figure 2 and Figure 1 respectively) are almost identical in appearance, however they are constructed from radically contrasting materials. Both are narrow-bore contrabass clarinets; Mr. Curly is fitted with an alto saxophone mouthpiece and Mrs. Curly with a soprano mouthpiece. The

6. Pollak’s website, www.linseypollak.com, which features numerous video clips of his instruments in performance, is a rich resource worth consulting for a more comprehensive understanding of his artistry.



Figure 2. Mr. Curly (narrow-bore contrabass clarinet)

sound of both is otherworldly and pitched in an extremely low register, yet each is distinguishable from the other. Mr. Curly is made from two meters of narrow-bore garden hose, while Mrs. Curly is one of a number of instruments Pollak made in collaboration with the glass artisan, Arnie Fuchs. It can be immediately grasped that creating a spiral of tubing and placing the fingerholes more or less in line across successive coils of the tubing, allows the hands to assume a natural and relaxed playing position. According to Pollak, Mrs. Curly is a “fairly randomly tuned instrument” due to the imprecise placement and size of the finger holes (Pollak 2014: n.p. description accompanying Track 9). Making a Mrs. Curly from glass presents the home project maker with a considerable challenge hence Pollak offers the option of making a very similar instrument from material that is inexpensive and easy to manipulate. Both instruments—in fact most of his instruments—are electro-acoustic, that is, they are fitted with small microphones in order to reinforce the sound they produce. This means the player does not have to push so much air through the instrument to project the sound, which makes it susceptible to pitch and timbral distortion, and it also allows the sound produced to be modified by way of digital effects.

INSTRUMENT	TUBING	MOUTHPIECE ⁷	TUNING
Mr. Curly	garden hose	alto	F Dorian (with slightly flat 2nd)
Mrs. Curly	glass	sopranino	“random”
Bella	glass	sopranino	C Major/D Dorian
Donna	glass	sopranino	G <i>hijaz</i>
Crow	wood	alto	C Major/D Dorian
Feather Duster Clarinet	plastic	sopranino	F Dorian
Watering Can Clarinet	irrigation pipe	alto	EbMixolydian/F minor
Carrot Clarinet*	vegetable	alto	C chromatic
John*	wood	alto	C chromatic
Norwegian Smoking Pipe	wood	alto	F Major/G Dorian

Figure 4. Table comparing features that contribute to the characteristic sound (and soundworld) of the 13 clarinets discussed in this article. With the exception of those instruments that are starred in the left hand column, all others should ideally be played electroacoustically.

Bella, Donna, and Crow

Bella (Figure 3), Donna (Figure 1), and Crow (Figure 1) are among Pollak’s most unusual instruments—all three are narrow-bore bass clarinets. The challenge of having bass instruments without keys to cover the fingerholes is one of Pollak’s self-imposed limitations. The implication of this is that the instrument’s tubing will have to be coiled or

7. All are fitted with saxophone (or modified saxophone) mouthpieces.

wrapped in such a way as to allow the player's own fingers to reach all of the holes, as has already been seen with Mr. and Mrs. Curly. Bella and Donna resulted from further experimentation with glass as a material, and the instruments are especially appealing visually. Pollak explains:

I've made these beautifully crafted glass instruments together with someone who can bend glass and bring it into a form. And I've got certain limitations—I want my fingers to be able to reach the holes. So suddenly you go, "OK that's one of the reasons to use glass!" Another is that it looks beautiful. A negative thing is that it breaks easily, but it also bends easily, so I can put the holes exactly where I want them. And that's what immediately attracted me to glass. So suddenly, I can make contrabass clarinets where I don't have keys.

Crow is fashioned from an Australian rainforest timber with the common name of Crow's Ash. This instrument delivers a surprise in concert in that it "sounds much lower than one would expect" for its size and compactness (Pollak 2014: n.p. description accompanying Track 7). This is because to construct it, Pollak "cut the timber in two ... along the length ... and routed out a very curly bore going backwards and forwards ... and then glued the two parts back together" (Pollak 2014: n.p. description accompanying Track 7). Hence Crow represents still another solution to the same self-imposed limitation.

The decision to make only keyless instruments means Pollak is firmly committed to the folk clarinet and its (possible) forms. He calls this kind of narrow bore instrument a clarini (see Pollak 2014: n.p. description accompanying Track 5). Crucial to understanding Pollak's loop of design is the knowledge that he places the fingerholes on his clarinis according specific scales or pitch sets. This is an overtly "cultural" decision, that is to say, the instrument becomes fixed to its own soundworld, due to both the timbre it produces and its melodic possibilities. These scales may be diatonic, chromatic (via the use of cross-fingerings), or Greek or Arabic and so on, which means that Pollak intends particular melodies and moods to be produced on each of his instruments. Donna, for example, is "tuned" to, or has a *hijazkar* scale (G Ab B C D Eb F# G) built in to its design, a scale with equivalents across much of the Middle East. Bella on the other hand is tuned to play in C Major and/or D Dorian.



Figure 3. Bella (narrow-bore bass clarinet)



Figure 5. Feather Duster Clarinet

Feather Duster Clarinet and Watering Can Clarinet

This idea of an instrument being bound to its sound world is well captured in a number of what Pollak refers to as his “house and garden instruments” (Pollak 2014: n.p. Background section). The rather simple Feather Duster Clarinet (Figure 5) is fashioned from the plastic handle of this house cleaning implement, and is pitched on the high side of the soprano instrument register. Tuned to an F Dorian scale and played with a sopranino saxophone mouthpiece, Pollak has it sounding like a cross between a folk clarinet and a *gaida* bagpipe.

The Watering Can Clarinet (Figure 6) is tuned to an F minor/Eb Mixolydian scale, and in Pollak’s hands projects an Arabic-like ambience, playing in a register equivalent to the middle octave of the Bb clarinet range. It is made from a molded plastic watering can, which serves as the bell of the instrument; a length of irrigation pipe is attached to the spout of the can, and this is capped with an alto saxophone mouthpiece.

“THE MATERIAL AFFECTS THE SOUND BUT NOT AS MUCH AS YOU WOULD EXPECT. THAT’S WHY YOU CAN GET A PRETTY AMAZING SOUND FROM SOMETHING LIKE A CARROT”

Carrot Clarinet & John

The carrot clarinet (simple “garden” variety?) (Figure 7) is the instrument with which Pollak is most widely associated (a recent short feature piece on Pollak is titled, in speech quotes, “I invented the carrot clarinet” [Van Gilder 2014]). It is of course a novel idea to make a musical instrument from more or less fresh organic material, and musically it produces surprising results in the hands of an experienced improviser such as Pollak. “It really is as simple as making a tube,” Pollak instructs, “as it’s the air in the tube that is vibrating” (Pollak quoted in Van Gilder 2014: n.p.). Unlike any of his other clarinets, with the exception of a wooden one called John after his late father, the tube for this model is bored lengthwise down the center. “The material affects the sound but not as much as you would expect. That’s why you can get a pretty amazing sound from something like a carrot” (Pollak quoted in Van Gilder 2014: n.p.). A plastic funnel is inserted into the distal



Figure 6. Watering Can Clarinet

end of the carrot, serving as a kind of bell, which as Pollak puts it, is done for “mostly aesthetic [reasons], but [it] also affects the tuning of the lowest note. That means I don’t have to find carrots quite so long (and that can be a challenge).”⁸

John (Figure 1) is crafted from Wongai, a timber from the Torres Strait Islands in Australia’s far north. Pollak writes, “[i]t was initially inspired by the carrot clarinet and so is quite short and stubby with thick walls” (Pollak 2014: n.p. description accompanying Track 13). A brass bell is fixed to its distal end and John is played with an alto saxophone mouthpiece.

Norwegian Smoking Pipe

At first glance the Norwegian Smoking Pipe (Figure 1) seems like an anomaly in Pollak’s collection, being fashioned as it is from an heirloom. Certainly, it qualifies as a found object, and like almost all of Pollak’s instruments, it comes with either a story or a name or both. Two of Pollak’s Norwegian cousins, relatives with whom his family lost contact, brought the pipe to Australia in 2013, as a gift when they reunited. It had belonged to their common ancestor and dates from around the mid 19th century. Pollak doubled the bore size, increasing it to eight millimeters in diameter, drilled holes along its length so that it plays in F Major/G Dorian, and replaced the smoking mouthpiece with a soprano saxophone mouthpiece. In register and sound, the Norwegian Smoking Pipe is very similar to the Watering Can Clarinet, although the former sounds a little more robust and slightly less pure—has a little more “character,” perhaps—when the dynamic is increased in performance.

*Aluminium Narrow-bore Clarini*⁹

Listening to Pollak play the Aluminium Narrow-bore Clarini (Figure 8) provides more evidence that a clarini’s tubing material does not affect the sound as much as might be thought, since although it is pitched slightly higher than the Watering Can Clarinet, it produces a sound quite similar to it and also to the Norwegian Smoking Pipe. It is slightly more pure in sound than the Norwegian Smoking Pipe, perhaps because Pollak seems to play it consistently at a mid level dynamic. The instrument is tuned to a C sabah scale (C D Eb Fb G Ab Bb C), which is common in some Greek folk music including *Rembetika*.

8. Linsey Pollak, personal communication (email to author, 26 February 2015).

9. Pollak follows the British spelling of aluminum/aluminium.

F Minor Clarini

Pollak's *F Minor Clarini* (Figure 1) is shaped from the Australian timber known as Gidgee, and employs an alto saxophone mouthpiece. In his recent book-album, *Mrs Curly and the Norwegian Smoking Pipe* (Pollak 2014), Pollak uses the *F minor Clarini* to play a moving tune he composed entitled, 'A Crystal Night,' which refers to *Kristallnacht*, the night of raids and terror against Jews that took place in Germany and Austria in November 1938. The sound of the *F Minor Clarini* on this track provides a reminder that Pollak often uses his instruments to set up specific dialogues with people and places, past and present, or to improvise and compose memorials, through the instruments' characteristic sounds and through their associated names and stories.

Gaidanet

The *Gaidanet* (Figure 1) is fashioned from a timber known as Brigalow and requires a soprano saxophone mouthpiece. Pollak designed the *Gaidanet*, a *gaida*- or Macedonian bag pipe — like narrow — bore clarinet (hence the name) with the same fingering system as the *gaida*. The tiny "flea-hole" for the top fingerhole "enables the player [to use] the same ornamentation style as used when playing the *gaida*" (Pollak 2014: n.p. description accompanying Track 2). In a sense, the instrument represents a marriage between the two instruments that have consumed much of Pollak's creative and design thinking and music making over the past three decades.

This short survey does not exhaust the range of clarinets Pollak has invented, which in any case comprise only one branch or family within his larger instrumentarium. Nevertheless, it hopes to provide a basic non-technical introduction to Pollak's design thinking, which I have characterized as a loop, one that is always completed in performance, and often, recording. It should be clear from the above discussion that the instruments are designed with specific timbres and melodic capabilities in mind, and that it is this loop that keeps bringing Pollak back to experimenting with new materials, forms, and possibilities.

Conclusion: blending voices

In this article I have briefly explored a range of the clarinis or non-keyed, folk-like clarinets designed and crafted by Linsey Pollak. It is clear that Pollak engages in a dialogue with not only the history of the clarinet, but also with music from various places and times. For him instruments and musical expressions are not static forms or practices, but rather opportunities to experiment with, and improvise and



Figure 7. Carrot Clarinet



Figure 8. Aluminium Narrow-bore Clarini

build on what has come before. Pollak's creative practice is respectful of traditions, yet he does not revere them, and thus it provides a reminder that all traditions are in a state of flux or becoming, and that all creativity involves building on what already exists. He takes delight in the materiality of musical instruments as well as their form and sound; in giving them names, and through their various associations, stories and melodies, and through making music with and for others, Pollak makes the point that human relationships are essential to musical experience. He also binds himself, and by extension his listeners, to places through materials—various local Australian timbers, for example. Through his creative practice, he indirectly and directly invites listeners to rediscover their own sense of play and curiosity, to not take music for granted, and to find delight in making their own musical sound and expression, with and for others.



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Footnotes

1. This biographical sketch is derived from Linsey Pollak, personal communication (interview with the author, 4 November 2014, Blaxland, N.S.W., Australia).
2. For a representative piece of Pollak's music, listen to the track 'Sour Sop' by Pollak and percussionist Tunji Beier, who perform as the duo, Dva, which can be heard here: <http://linseypollak.com/wordpress/six-four-five-eight-six-four-seven-eight-dva/>.
3. A recorded excerpt from this moment in the show is available here: <http://www.abc.net.au/arts/adlib/stories/s861359.htm>.
4. Pollak has devoted time equally to exploring and developing bagpipe-type instruments, and to a lesser extent, flutes.
5. Linsey Pollak, personal communication (interview with the author, 4 November 2014, Blaxland, N.S.W., Australia). Unless indicated otherwise, all quotes from Pollak are derived from this source.
6. Pollak's website, www.linseypollak.com, which features numerous video clips of his instruments in performance, is a rich resource worth consulting for a more comprehensive understanding of his artistry.
7. All are fitted with saxophone (or modified saxophone) mouthpieces.
8. Linsey Pollak, personal communication (email to author, 26 February 2015).
9. Pollak follows the British spelling of aluminum/aluminium.



Inside and Out

*Gillian Harvey,
Information Designer & Instructor at
the Department of Art and Design,
University of Alberta*

About a year ago, I became involved with a group of twenty professionals in Edmonton who met regularly to discuss the problems of urban growth in Edmonton, the disappearance of downtown pedestrians, and the absence of a wayfinding and signage system. The team that met included several designers, an editor (who founded the group), an inclusive design specialist financial analysts and an advisory board of several prominent Edmontonians (most notably an architect, a University professor, a former councilor and an expert in downtown business development). The diverse nature of our backgrounds has helped to assemble a strong team. Our analytical, finance guru is adept at understanding how to navigate the complexity of grants and proposal writing for non-profits. Our group's founder has political and news connections and has been able to discuss the benefits of wayfinding to politicians with influence. Several of our designers understand the logistics of signage production while others have an architectural background, considering the "making of place" and the way that people experience the world. We have an inclusive design specialist that designs from the perspective of a user with a disability in mind. We also have writers, editors and human factors experts.

After meeting for over a year, I started to reflect on a way forward. I had read about Daniel Kahneman's principles of the inside and outside view. Daniel Kahneman, the Nobel laureate, has spent his lifetime studying the effects of psychology on decision making. His work on the inside view/outside view reminds us to be aware of the inside view where we focus only on what we know, our specific circumstances, and our natural biases. In a design project, the inside view leads us to search for evidence that will only support what we know, rather than considering outside information, and other perspectives. If considered, an outside view will present different information and suggest alternative solutions for its use. Designers naturally do this. Clients come to designers with their own ideas of how things should look and function, and it is our job to provide them with solutions that are based on interdisciplinary research and outside influence.

As the Committee worked toward our big plan which was to improve wayfinding and the way that people navigate spaces in



Edmonton, I can now see how we applied both the inside view and the outside view.

Here is an example. Last fall, we had a civic election. The Edmonton Wayfinding Society challenged all of the candidates for mayor to follow a route that we designed downtown that would take them through the pedways—the labyrinth of tunnels and walkways above and below our downtown streets.

The challenge was to try not to ‘get lost’. It was a way that we were able to get people to use and talk about the pedway system. It got a ton of media attention and an interdisciplinary dialogue about wayfinding in our City started. Some of the questions that came up were: Why would the City be funding a new City arena plan when the pedway system is in disrepair? It was one of the first times that the word “wayfinding” started to appear in the public vocabulary, in news reports, on the street, over coffee. For the first time since the 1980s, people welcomed the idea of being able to navigate the downtown without feeling overwhelmed, frustrated, or silly. The word wayfinding had made it into the public consciousness. And now that the public had identified the problem, it became easier to talk about solutions. Helping people in Edmonton find their way downtown is a complex problem. We have an underground maze of walkways that leads underground pedestrians to street level exits above ground, or, even further to overhead pedways. People can

start in our subway system to escape the cold, and end up in our shopping malls connected by glass walkways above the streets. However, that's only if they have the confidence and the knowledge needed to enter the system. Many people new to the city don't use this network because they don't want to get lost in it. The confusion over where the exits are and the lack of current wayfinding and signage system can lead to people feeling unsafe or, at least, unwelcome.

There was considerable work done by an outside consultant in the early eighties named Lance Wyman who developed comprehensive guidelines and documentation for Edmonton's pedway system. He determined that there were 78 different signage types throughout the pedway network, including 13 in the library parkade alone. His initial recommendations were that the signage and wayfinding system be implemented thoroughly in the pedway and through all adjacent developments. This implementation and follow through of one City system for wayfinding hadn't happened but this outside view provided a perspective that allowed us to think differently not only about the design but also the importance of having an implementation plan that included all City Departments.

Part of our mandate as a Society is to encourage public outreach, collaboration and education about wayfinding. This is one example of how we encouraged the outside view. We



OUR JOURNEY

Presentation
+ Outreach

Education
+ Awareness

Engagement
+ Knowledge

MARCH
2013

Make Something
Edmonton Proposal

Pedwalk 2014

Engagement with
the City of Edmonton

Re-engagement of
Mayoral Candidate
"get lost" Challenge

Use of social media
for awareness

Established
Partnerships:
EDMONTON PUBLIC LIBRARY
THE EDWARDS, HARCOURT HOUSE

Organized Public
Lecture with
Harcourt House
ADRIAN BELL FROM APRIL 2013

2 Exhibitions at
Harcourt House

Downtown
Edmonton Community
League Meeting

IID conference, UK
Edmonton Wayfinding
Project presented

City of Edmonton
Awareness video presence
+ prototypes launched

Official Society status
+ establishment of a
Wayfinding Advisory Board

IDEO Human Factors
Course underway

Edmonton Pedway
Research initiated

Presenters at the
Winnipeg Design
Festival

WE ARE IID
NOW



held a public engagement exercise at a local gallery and on the exhibition's opening night, asked the public to draw an example of a five minute walk downtown. We had covered a gallery wall with chalkboard paint and then mapped out a grid of the major downtown streets with major landmarks on the chalkboard wall.

After several hours, we started to see some themes appearing. We made observations based on the stories and perspectives that were brought forward on the wall. These observations were limited to personal experience, varying perspectives and a very small sample group of concerned pedestrians and public transit users. Many people made notes on the wall that the City needed to add additional pedestrian crosswalks. People also remarked on the wall that various parts in the City were important historically and culturally. There are points on the map where ancient aboriginal burial grounds are indicated. Without this valuable insight we would have missed an opportunity to preserve and share a historical area of interest. Even though as a group we had access to best practices in the field of wayfinding, our inside view overconfidence could have led to a missed opportunity to learn from the outside view. What was evident through both of these examples was that meaningful connections to the issue of wayfinding in Edmonton had resonated with the public and we began to gain a deep understanding of the intricate and specific knowledge that Citizens had. This knowledge about the city is important in the development of a wayfinding system, and one that would never be uncovered through looking only at the outside view.





**HERE
I AM**

Here I Am! Sticky Note

Miccudo Multimedia Co., LTD

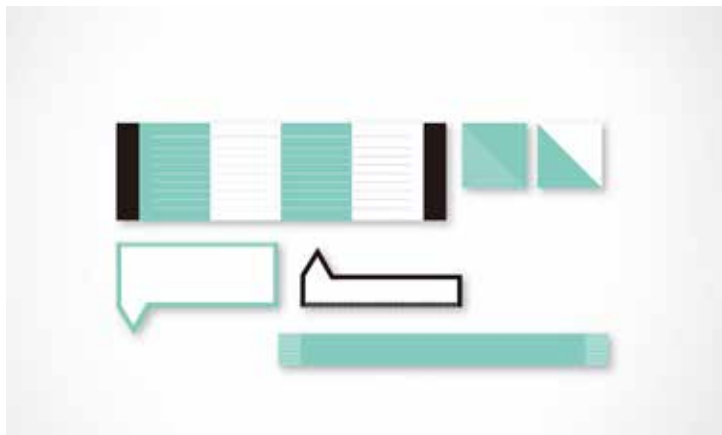
Miccudo Multimedia Co., Ltd (Miccudo) is a design company located in Asia where design jobs are usually demanded fast and intense. Under that circumstance, how can Miccudo produce the best result within specific timeframe as well space has become the daily concern if not challenge. The better originality of Miccudo, however, very often comes from the problem-solving processes.

Miccudo has been focusing on stationery as both office supplies and gifts, and constantly producing commodities featuring innovation, cleverness and the sense of design for the users to experience firsthand the flow of intelligent work.

The “Here I am” is one of the commodities derived from such kind of thinking.

Stationery like post-it notes or memo notes are everywhere to be seen in our day-to-day lives, but here at Miccudo we are hoping to equip them with more varieties of functions or appearances so that the way of recording our lives can be easier and much more eye-catching.

So, we have translated the idea into different die-cuts and pressing marks so that the users can for example create a 3D space for keeping notes simply by folding the “Here I am”. In fact, such simple idea enables the users to not only applying make-up to their books or planners, but also have the opportunity to ‘derail’ from their rigid thinking and engage in conversations with themselves in an extended space.



Any good idea or new inspiration? Note it down with the Here I am! Sticky note! There are 4 series with 6 Sticky note in total, Here I am! Sticky note is equipped with interesting combinations for you to create more dialogues and interaction with yourself while reading or taking notes. Also, through breaking up your old habits, you get to discover more pleasure in note taking while mastering it. 🧠





OCDA

Winning Brand Work from the 2014 Orange County Design Awards

The OC Design Awards recognizes design solutions and the designers, students, companies and organizations throughout the country that use their creative influence to create a positive impact for the graphic design profession. The competition recognizes design that challenges us to think of solutions that solve everyday problems and is based on the organization's fundamental belief that, through better design, we can build a better society. Work that is entered reflect these attributions. The work that was entered, needed to be for Orange County or made in Orange County.



Encouraging all designers to show their creative talent, the AIGA OC accepted work in the following categories to be juried by experts in the field: including brand identity, print design, motion graphics, packaging design, ad design, packaging design, sustainable design, environmental graphics and web, interactive, UI Design. The following work were winners in the brand identity category.

<http://orangecounty.aiga.org/>



Designer: Jovenille
Client: John Wayne
Project: Interactive Annual Report









Designer: Mike Kornoff
Client: Pure Inventions
Project: Packaging



Designer: Daniela Mocan
 Client: Placewright Designs
 Project: Rent vs. Own





CASE STUDIES



Agricultural Needs

Ongeza Tanzania Ltd is a social enterprise operating out of Northern Tanzania. The main goal is to “create agriculture products that are appropriate to rural Tanzania farmers”.

First they worked to identify the agricultural needs in Tanzania to help focus the team on the things they were unaware of and helped them identify their core research questions. Then they identified different farmers based on income levels, age, gender, size of farm, and areas that varied in the amount of rain and soil types that they were going to speak to. A total of 44 farmers across northern Tanzania were interviewed and 3 Agricultural Extension Officers. They had a great deal of difficulty coming up with useful sacrificial concepts, mainly because the scope of research was so wide. In Ongeza’s HQ for CREATE they realized empathic design was a default option and wished they had hosted some of the CREATE sessions in



the field and followed more of a participatory codesign method. They used sticky notes to summarize and move through the 44 different interviews and isolate various themes. Starting with barriers was a great way to stimulate new solutions. Next they worked on making the ideas real, but unfortunately, the senior management team members didn’t feel that they knew enough about the customers to select one or two ideas to move forward with and make real. After a vote, they decided to launch a mini-HCD cycle, where they would concentrate on a specific HMW and upgrade it to a design challenge in itself: How can Ongeza sell seeds and fertilizer in rural areas? This more precise question will help the farmers in Northern Tanzania improve their agricultural needs.



Revitalizing Community

After first hand on site experience in the poor neighborhood architecture students met and decided that the most impactful and feasible intervention they could manage would be the upgrading of an existing dilapidated voting structure into a civic space for the residents of Slovo Park to meet and coordinate their future development from.

Each day presented new design and building challenges as partnerships evolved, the site was flooded twice and the project dynamics were in constant flux with additional sponsors and donators coming and leaving weekly. The construction of Slovo Hall introduced them to an alternative process of co-design, co-funding and co-construction. This 8 week project broke down our myopic understanding of the role of architecture and design in a re-developing South Africa and revealed crucial weaknesses and strengths in their skills as spatial practitioners. More specifically it laid the foundation in their understanding of one of the most powerful forces in development design - collective user vision and ownership.

The developed relationship with the residents and community groups of Slovo Park has allowed for both groups of practitioners and the leadership of Slovo Park to better articulate the roles they each play in the development of poor and unsafe areas in South Africa. Their hopes lie in advancing this role more clearly while sharing the knowledge amongst students and practitioners engaged in this field.





Provider/Patient Interaction

Mayo Clinic physician Nicholas LaRusso reasoned, “New technology, new diagnostic tests, and new therapeutics will be most effective if we can improve the ways we deliver these enormous advances to patients.”

In 2002, in consultation with IDEO, LaRusso and colleague Dr. Michael Brennan opened a skunkworks outpatient lab called SPARC, where physicians and designers could test hypotheses about ways in which providers and patients interact. They dealt with a number of challenges: recruiting busy physicians to a new and untested type of research, crossing the cultural divide between physicians and designers, doing experimentation with real patients, and gaining institutional support for their unusual endeavor.

Within six years, the lab had grown from a small venture to an enterprise-wide Center for Innovation, a dedicated research institute that studies the processes of health care provision, from the initial phone call, to the clinic visit, to the diagnosis and treatment of the problem, to follow-up and preventive care.

In 2010, it undertook projects to reorganize the workflows in a practice, test new strategies for patient education, use technology to improve physician consultations, and redesign the traditional exam room. CFI designers and physicians acknowledged that the innovations they had developed were small, and they spoke of the goal of “transformational” change



Design Notes

This Design Symposium Journal (DSJ) and the graphics utilize the following:

To achieve visual harmony a modified version of the Van de Graaf Canon and Tschichold's 2:3 page-size ratio and grid were employed.

MINION PRO Chapman's serif family, is a digital typeface designed by Robert Slimbach in 1990 for Adobe Systems. The name comes from the traditional naming system for type sizes, in which minion is between nonpareil and brevier. It is inspired by late Renaissance-era type.

BERTHOLD AKIZEDENZ GROTESK is Chapman's sans serif family. It is a grotesque typeface originally released by the Berthold Type Foundry in 1896 under the name Accidenz-Grotesk. It was the first sans serif typeface to be widely used and influenced many later neo-grotesque typefaces after 1950.

Journal design by EMC Illustration & Design. EMC's work has won a Gold Advertising Award, been selected for inclusion into *LogoLounge: Master Library, Volume 2*, and been featured on visual.ly, the world's largest community of infographics and data visualization. The studio has 16 years of experience in the communication design industry. To view a client list and see additional samples please visit www.behance.net/ericchimenti.



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Established in 2013, Chapman University's Design Symposium and refereed Design Symposium Journal (DSJ) cover all aspects of design. Our second symposium and journal were dedicated to the issues of innovation thinking.

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