Unlocking Innovation

How To Generate And Realize Great Ideas

SMASHING MAGAZINE

Imprint

About This Book

Some of us feel super creative while lying awake at 4.30 in the morning, while others generate idea after idea in the shower, or while taking a walk outside. How we find and feed inspiration is different from person to person, but we all have something in common: our ideas are quite unpredictable. Sometimes they keep flowing, at other times, when we need to come up with a solution for a complex project, the spark just won't hit. But even if we can't tame our ideas, certain strategies can help to unlock our creative insight, and make our ideation process — and that of our team members — more effective.

We want to equip you with such strategies, but also go beyond the mere process of generating ideas and look at how we can actually bring them to life. Different ways of experimenting with that first vague idea and mocking it up are thus part of the eBook, just like suggestions on finding the idea that is really worthy of our time and energy. The tips that our authors have to share are very practical, and can easily be incorporated into your (or your team's) workflow. So, take your time and examine them carefully, and, most importantly, try them out to see what works best for you.

— *Cosima Mielke, Smashing eBook Producer*

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On Creative Leadership

BY JESSE FRIEDMAN ❧

I have spent nearly a decade experimenting with a single goal in mind: to create scalable, predictably insightful, inspirational environments. I have led creative teams in these environments, and I'm currently doing it as the Director of Web Interface and Development at Astonish (a digital marketing company in Rhode Island, US).

It hasn't been easy, because forcing inspiration is impossible. You have to use finesse and let it come to you. What follows is what I've found to help my team and me harness inspiration effectively.

Accessing Your Creativity ...In The Shower

It's 4:30 in the morning. The sun is starting to smear pink across the sky, and I'm in bed, working. Laying in bed in the dark is comfortable, but it's hardly a working environment. Yet, I am solving problems. At this moment, I am more connected with my subconscious (the most creative part of my brain) than I will be at any other time today.

I have been practicing this combined meditation and creative thinking for several months now. It has been a hugely beneficial experiment, which started early one morning in the shower. Ever have a great idea in the shower? I have had hundreds, and I now know why.

Your morning shower is a breeding ground for ideas and sparks of inspiration. When you stumble into the shower shortly after you wake, you're able to relax and, because you're still tired, you're able to reconnect with

your subconscious. I've found this state to be so helpful in solving problems that I've had to devise ways to take notes on the shower wall.

The relaxed state of your morning shower helps you to reconnect with your subconscious. (Image source: Simon Law[1])

My wife is constantly surprised to find product diagrams, flow charts, code and wireframes written in soap, kids shower crayons and anything else I can find. I've even considered painting the walls with idea paint, to have a bit more creativity.

I'm sure you've had a spark of inspiration or maybe just a moment of clear insight in the shower. I've asked many people about their creative abilities during their morning routine, and the answers always support my as-

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1. http://www.flickr.com/photos/sfllaw/211883272

sumption. The reason? It's because your insight, inspiration and creative abilities were always there; they're just more accessible in that relaxed state because you are not grasping for them.

Science

You see, the harder you grasp to be creative, the more easily it slips through your fingers. Have you ever noticed how difficult it is to sit down at work and just flip on the creative switch? Do you find yourself intentionally distracting yourself? Browsing Amazon, reading your news feed and skimming Facebook are all ways to indirectly access your creative abilities. Sometimes it's important to turn off your desire to be creative and just let it come to you.

John Kounios of Drexel University studies the brain and looks for scientific explanations for the delivery of insight. In one study, Kounios asked subjects to solve puzzles while undergoing a brain scan. He found that insight, or the inspiration needed to solve a problem, comes from the visual cortex. However, in the time leading up to a puzzle being displayed on the screen, the subjects' brain activity was around the temporal lobe. As Kounios explains in his TED talk[2]:

> *This is the mind turning in on itself. This is the mind disengaging from the world. This empowers a person to*

[2.] http://www.youtube.com/watch?v=7uyw5y_tHEM

imagine new and different ways to transfer reality, creatively, into something better.

Our brain looks for a distraction-free environment to get inspired. This might seem a bit contradictory to what I just said. Believe it or not, your intentional distraction (Amazon and Facebook) can help to relax your brain and "take your mind off the problem" just long enough to get the answer you're looking for.
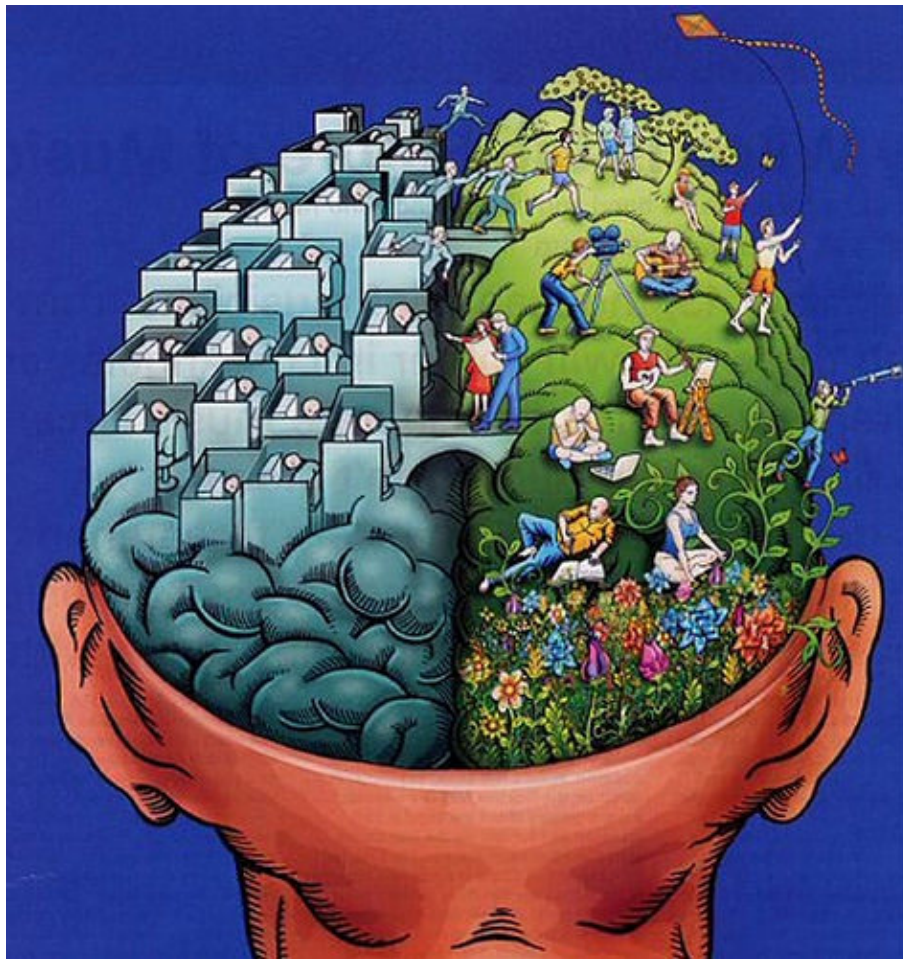
Distraction-free environments help our brains to "take our minds off the problem" just long enough to get the answer we're looking for. (Image source: TZA[3])

Managing A Team

This creates an interesting situation for individuals in a corporate environment. Small studios and agencies usually respect and understand the creative process a bit more. I've known a lot of directors who understand the need for a little distraction at work, even if they don't really know why it works.

When it comes to managing a team of creatives, you have to balance finesse and creative leadership. In fact, I like to eliminate the word "manage" altogether. Take a Web designer. A Web designer already needs to manage their time, creative process, projects, clients and more. Isn't that enough management already?

If you have the right people on your team, they shouldn't need to be managed — they need leadership. They need someone to pull them to an answer, not push them. If you trust your team, they'll come through for you. However, they'll do a much better job of it if they enjoy their work and are trusted to work openly when they want to. Why restrict your team? Why force them to work the way you want them to or even *when* you want them to?

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3. http://www.flickr.com/photos/tza/3214197147/

Trust and good leadership can steer your team to enjoy their work and do a much better job. (Image source: opensource.com[4])

This notion that a creative team should have working hours, such as 9:00 to 5:00, baffles me. Sure, I get it: Your accounts team answers the phone during that time. Well, the fact is that they don't need to be inspired to answer the phone. And yes, motivation and inspiration are very different.

Work With The Grain, Not Against It

An extremely talented designer and front-end developer named Jeff is on my Web development team. Jeff commutes 30 miles to and from work every day. Having a set schedule from 9:00 to 5:00 would require Jeff to get up earlier every morning to fight traffic for over an hour. Sitting in stop-and-go traffic and getting frustrated by the

4. http://www.flickr.com/photos/opensourceway/5364620816/

people around him doesn't exactly scream "distraction-free moments of inspiration."

Having the freedom to arrive at work around 9:30 or 10:00 cuts Jeff's commute by over 25 minutes. Does this mean that Jeff works less? Absolutely not! Not only does Jeff make up his time, but he also works smarter. And because his day starts off with way less stress, he's even more likely to enjoy his work and stick around to get the job done.

This is just one example; there are hundreds. Some people like to listen to music while they work; others play Netflix in the background. Sometimes a good meeting can get a team in the right mindset; other times, they just want to be left alone. Lead people with respect and trust and you'll get so much more out of them. Not to mention that you'll learn whether they are the right fit for your team.

There is no better way to make the cream rise to the top than by letting it sit for a while. If you keep stirring it, you'll never get it to settle.

"Rage, Rage Against The Dying Of The Light"

As a leader of creatives, your job is to provide an insight-sparking, inspirational environment, while guarding against distraction.

The creatives on my team work smart and fast. They do this because they are in touch with their brains' ability to perform different tasks. At 4:30 in the morning, I might be working on a problem that I went to bed with. You

might work on a coding problem at 11:00 pm until about the time I wake up. We are all different; the important thing is to know why and how we are different.

I get to know my team and work closely with everyone on it. They all have different needs and like to be communicated with differently. At the same time, they all enjoy working on different types of projects at different times.

Each member of my team has an inspiration schedule, a time when they know they are more likely to be creative. During those times, there are no meetings, distractions or interruptions. This is their time to increase their working memory, to build, to design and to solve problems.

Being a leader, my job is to help them understand what this time means for them and to fight anyone who jeopardizes it. Don't dismiss this point. It is vital to the clients, products and team that your creatives have the time to do their job right. Remember that they will get the job done either way, because you trust them to come through. Wouldn't it be better to ensure that they have time during the day to do it, when they have allocated time to do it, rather than bombard them with meetings and problems?

Finding And Feeding Inspiration

It's as if the sky parts and a divine entity comes down and delivers the answer directly into your brain. Understanding where inspiration comes from or how you've solved the problem isn't easy, but at that point you don't care because you're off and running.

Today, learning code, understanding design patterns and analyzing data are extremely easy. Our tools, documentation and frameworks are accessible and ubiquitous. What's both rare and stubborn is a great imagination. The concept of "thinking outside the box" is based on the idea of being creative with knowledge.

Imagination is vital, but without inspiration, it can lie dormant. If imagination is the playground, then inspiration is the gravity that pulls you down the slide, bounces you on the seesaw or propels you on the swing. Without inspiration, imagination is as pointless as a slide in outer space. It's the powerful force behind creation.

Harnessing inspiration is almost impossible. Yet, we can cultivate ideas by finding patterns in our moments of inspiration. We've already talked about relaxation, daily schedules and the link to your subconscious. What about your mood and other factors that play into it?

Music

I love music. In fact, music is the only thing I love more than food. Music comes in so many different forms, is readily available and is creative in itself. I bet you already know that different types of music have different effects on people. Some types help you to concentrate, while others make you want to get up and dance; some types help you to relax, while others keep you up all night.

I remember my science teacher in school telling me that listening to classical music helps mice navigate a maze faster than listening to heavy metal. Is this really true?

Remember when we talked about John Kounios and brain activity around the temporal lobe? Well, that temporal lobe is in charge of receiving auditory signals, such as from music. When your brain activity is focused on this area, it's redirecting energy from other areas, helping you to concentrate. This, and the fact that music has a direct correlation to increased amounts of dopamine and adrenaline, means you can have a direct and significant emotional response to the right type of music.
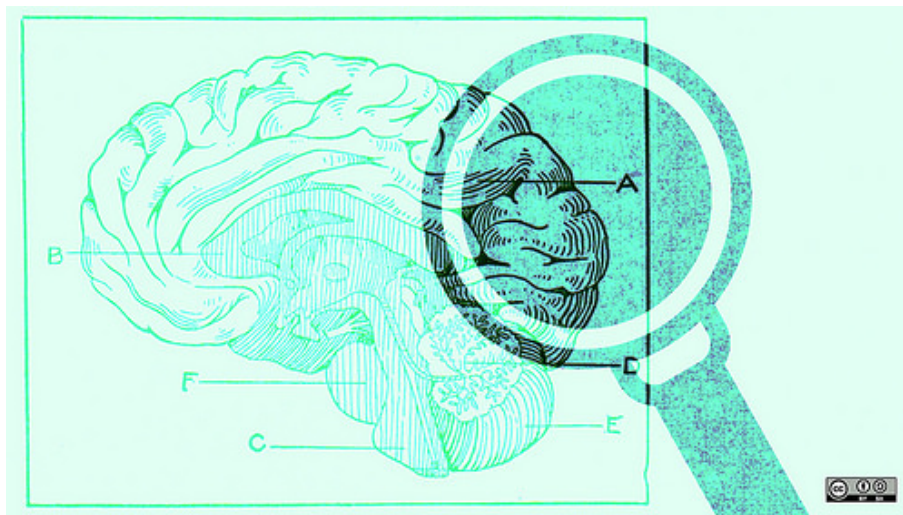
When your brain activity is focused on this area, it's redirecting energy from other areas, helping you to concentrate.
(Image source: opensource.com[5])

Classical music is very rhythmic and, oddly enough, predictable. Classical also usually has a slower tempo, less than 60 beats per minute, whereas pop and jazz have unpredictable variances in tone and rhythm and often a much faster tempo.

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5. http://www.flickr.com/photos/opensourceway/6006414578/

Why is this important? Remember that the more opportunities your brain has to turn in on itself, away from distraction, the greater the chance of finding insight. Classical music lends itself to a distraction-free environment and provides relaxation, which the brain enjoys. You're favorite Coldplay song might trigger a powerful emotional response, but that type of music is actually better saved for menial tasks. Upbeat pop music can help you stay on track by distracting you from what you are doing, which is helpful when you're inputting data and answering emails.

Vinod Menon, Professor of Psychiatry and Behavioral Sciences at Stanford University's School of Medicine, has written an interesting article on the subject[6]. In the paper, Menon writes about music's effect on the brain during an MRI. To simplify, the brain performs better when predictable patterns are in the music. During sudden breaks in the sound, the brain reacts to check on what's happening. Your brain turns its attention back to the music, rather than stays on what you were concentrating on.

Experiment with this theory on your own. I have found Italian opera to be particularly conducive to creative thinking. Take some time today to create a short playlist on Spotify[7]. Add five to eight of the top-ranked classical pieces, then drop in an AC/DC song. Shuffle the playlist, and then try to focus on a task. I bet you won't even consciously hear the classical music (once you get into the groove), but when "Highway to Hell" comes on,

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6. http://www.cell.com/neuron/abstract/S0896-6273(07)00500-4
7. https://www.spotify.com/

you'll be pulled away from what you're working on, as if waking from a great dream.

Weather

Controlling a playlist is easy, but one thing science may never solve is how to control the weather. And what has the human race done for thousands of years when it can't control something? We try to understand it, which helps us control our response to it.

The things in this world that affect our brain are absolutely amazing. For example, even subconsciously, wet and rainy weather will depress us, while beautiful sunny days will make us happy. So, if we have a big creative deadline and the forecast calls for rain, we must be screwed, right? Wrong.

As Joe Forgas of the University of New South Wales puts it[8]:

> *It seems counter-intuitive but a little bit of sadness turns out to be a good thing.*

You see, memory is actually more active and accessible during periods of sadness. Forgas studies the brain and the weather's effect on it. He found, surprisingly, that subjects retain more information on rainy gloomy days than subjects who are asked the same things on beautiful sunny days. In his book *Imagine: How Creativity Works*, Jon-

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8. http://www.science.unsw.edu.au/news/memory-better-bad-weather-research

ah Lehrer attributes this as the reason why some tortured artists are so amazing at what they do.

Memory, especially our working memory, is vital to the creative process.

Human RAM

Random access memory (RAM) is a computer's ability to access data without (for lack of a better explanation) having to dig for it. The human brain works like this, too. Our RAM is called working memory. This working memory directly correlates to our ability to be creative and unique.

If you want to redesign the interface of a Web form, what's the first thing you do? You go onto the Web, trying to find something. Can you guess what you're not finding? Inspiration. You're building a working memory. Whether you know it or not, your brain is retaining everything you see. And your ability to access it randomly later is the working memory in action. The more you see, the more your brain can hold.

I am not a scientist, but I suspect that this is one of the reasons why you have that moment of insight during your morning shower. You try so hard during the day to solve a problem; you're trying to force the answer by re-searching and scouring the Internet. During that time, your brain is retaining all that information. Later that night, during REM sleep, your brain catalogs everything it's seen.

I propose that your mind, tapped into the subconscious during deep sleep while recounting the day's working memory, is able to solve the problem for you. It's

only after you wake — during that morning routine — that you're able to access it. This is why forcing inspiration, while impossible, does reap positive results.

Finely Tuned Problem-Solving Sessions

We've learned that you can't force inspiration, and, although we try to control our environment, doing so is hard as well because so much plays into it. The problem is that sometimes you have to be inspirational on the fly. Well, practice makes perfect.

Last summer, I read an article by Seth Godin titled "Impresarios[9]." In the article, Godin talks about how impresarios "weave together resources and opportunities and put on a show." This gave me an idea, and I will forever be in Godin's debt because I am now my own version of an impresario. An impresario is someone who organizes and often finances concerts, plays and theatrical productions. In my case, I organize brainstorming events.

Every month, my team and I enter our planning room for at least three hours. We lock the doors, opening it only for pizza and beer deliveries. Our mission is to solve one problem. In past sessions, we have redesigned the user interface that powers our systems, solved marketing problems by "remarketing," and found new and creative ways to present information. The role of an impresario has had such a direct and positive impact on the way we do business that I am now introducing the role to every team in our 100+ person company.

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9. http://sethgodin.typepad.com/seths_blog/2012/08/impresarios.html

Why does having an impresario work? Well, certain rules guide the team to moments of insight:

1. Identify a very specific problem to solve, and stay focused.

2. Provide the necessary tools to spark inspiration (white boards, markers, paper, etc.).

3. Be technology-agnostic! Don't worry about *how* you will solve the problem; focus only on the *why*.

4. There are no wrong answers; some are just better than others.

5. Celebrate failures.

   My team looks forward to their time spent locked up together because it gives us an opportunity to be creative in front of each other. Support their ideas, and help them grow. Don't force your opinions and thoughts. If the group is moving in the wrong direction, ask them questions until they find the right path.

Celebrating Failures

Admitting defeat is one thing; celebrating it an entirely other. Only good can come from openness and honesty. We all learn from our own mistakes, but if you don't share yours, how can I learn from it? Celebrating failures and realizing that "missing the target" isn't a bad thing will help your team to grow, recover and build things faster.

At the end of the process, my team always has something to show for it. On occasion, we have realized that the problem we set out to solve was the wrong problem to focus on. We failed to find a solution because there was no reason to find one. That in itself was the solution, and presenting the outcome of the session to our company helped us to refocus.

The only failure I'm not comfortable with is the failure to try.

In Retrospect

I've found a groove. I go to bed, thinking hard about a problem, and fall asleep trying to solve it. Waking early in the morning and refocusing my efforts brings the solution closer to my consciousness. I'll often get to work quite early, continually working on the problem. Then, when I feel my creativity beginning to slip, I'll hit the gym.

Getting my energy level up, increasing my adrenaline and getting my mind off the topic help to realign my thoughts. Then, I hit the sauna for a good 20 minutes. Nothing like 80 °C heat in a quiet room and with eyes closed to restart that relaxed, creative meditation. Then, I head back to work.

Keep in mind that we all have our own ways of getting our minds off topic, and later realigning our thoughts — and making things better. (Image source: opensource.com[10])

I don't know if I'll be able to continue this schedule over time, nor do I expect you to follow it. Right now, I'm treating this as an experiment, and it's proving to be highly fruitful. Here are the big take-aways from my experience:

• Respect your teammates and their periods of inspiration.

• Protect your team from the day's distractions and interruptions.

• Deliver freedom as a gift. You'll see boundless gains in creativity from the team.

• Try to more deeply understand your brain and its ability to be affected by its environment.

• And, of course, celebrate your failures! ❧

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10. http://www.flickr.com/photos/opensourceway/5319988695/

Examining The Design Process: Clichés and Idea Generation

BY DAN MAYER ❧

Where do good ideas come from? It's a question that matters a great deal to designers, yet seems to be curiously discounted in the common perception of graphic design. Any time I talk with, say, an uncle at Thanksgiving about my work, I'm reminded that, in most people's minds, the job of being a designer is mainly a matter of learning a set of computer applications — programs which, when properly operated, presumably do the work of generating ideas on their own.

If pressed further, most people will offer up some version of the Genius Theory: the idea that certain individuals are simply blessed with a force called 'creativity' that (as the theory goes) allows them to summon remarkable visual solutions to problems where the rest of us see only a blank canvas.

In this chapter, we will look at four examples of successful visual solutions created by well-known designers, and examine the process by which each designer arrived at his final concept. In each case, we will see that the solution did not arrive as a sudden flash of inspiration from out of the blue; rather, a good idea emerged methodically out of a sensible analysis of readily-available ideas and impressions.

In particular, we will zero in on the dual role played by clichés in this process: while clichés can derail the creative process, for seasoned designers they can act as the building blocks for effective solutions by telling them what *not* to do. In the final balance, we will see that good ideas are not created by magic, nor are they generated by computers — the process of developing them is a skill that can be learned, taught and practiced, and, like a muscle, gets stronger the more it is used.

Exhibit A: Imaginary 'Drive Safe' Campaign for Teens

Suppose we are working together at a studio and we receive a job to design a poster for a public service campaign aimed at educating teenagers about the dangers posed by drinking and driving. We meet for our first internal review to critique our initial ideas, and I present the proposal on the right.

Don't Drink and Drive

In this case, the problem with my work is painfully easy to diagnose: the image simply has no connection to the message. It may or may not be nicely illustrated… but this is somewhat beside the point: unless it's trying to speak to eight-year-old girls, this poster is not going to

make a meaningful impression on its audience. If we imagine a spectrum of all possible design solutions to this job ranging from 'totally clear' to 'totally unclear', this would rank pretty far in the latter direction:

CLEAR ⟵ ⟶ UNCLEAR
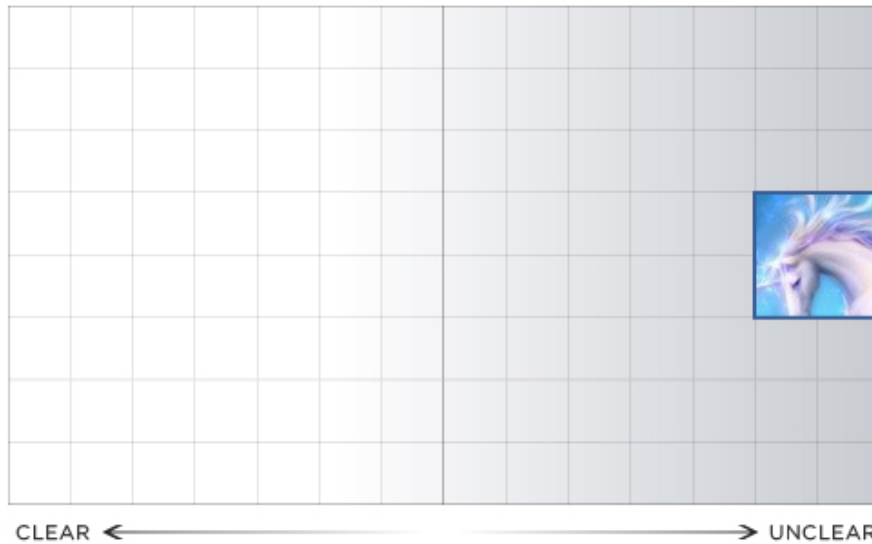
'Fine,' I reply, tearfully storming back to my desk. A week later, I present a revised concept, confident that it speaks to the audience more directly (see image on the right).

This time, the problem is a little harder to put one's finger on. The image communicates clearly... but it does so at the cost of boring us half to death, with no humor, inflection or engagement. Also dis-

turbing is the fact that I'm using a pre-existing visual symbol from the urban environment — the stop sign — to do my communicating for me.

If we had never before seen a red eight-sided shape with the word 'STOP' inside, it might be a powerful and abstract creation; as things stand, however, the symbol has become so deadeningly familiar that it has lost all capability to impact us in a meaningful way. In my eagerness to communicate clearly, I've run headlong into the arms of a cliché — which, in the context of graphic design, can be defined as 'an image that may or may not have been memorable at one point, but has since been so overused that it has lost all ability to surprise.'

TOO OBVIOUS ⟵ ⟶ UNCLEAR
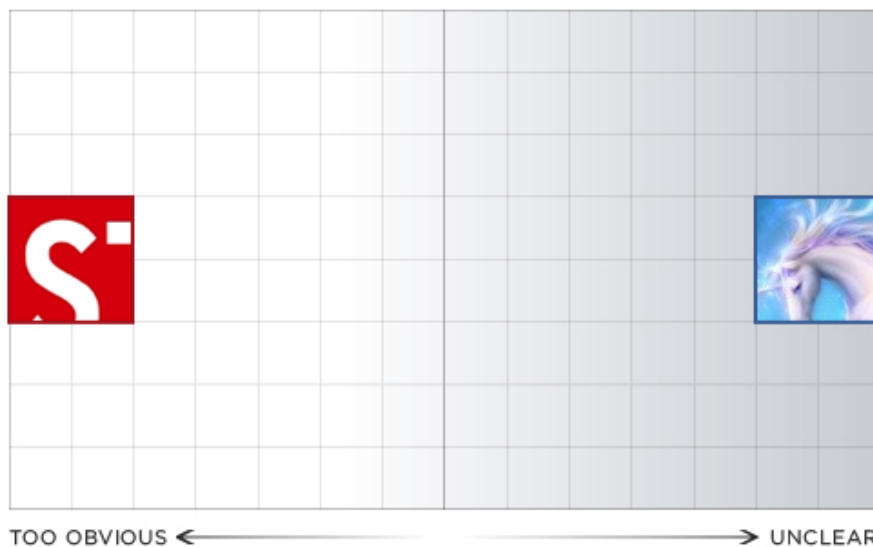
The Problem of Clichés

This imaginary case study demonstrates why clichés are such a stubborn problem for designers. In the example above, I didn't arrive at a cliché because I'm a terrible or uncreative person; I arrived at it because I took the most

readily-available solution from the environment around me, and stopped there.

Clichés are hard to banish from our thoughts because their sheer familiarity makes them appealing: they are always at hand, ready to be put into service; and — especially if we are working under pressure — their familiarity offers a certain amount of reassurance, a guarantee that we won't be misunderstood. Design solutions that employ clichés are the hardest for me to critique in the feedback sessions that I run as a teacher: often, there is the frustrating sense that the student has done nothing *wrong* exactly, yet the overall design leaves us wanting more.

Most depressing of all is the fact that clients often prefer clichéd solutions to original ones. This is the syndrome of the Chinese restaurant owner who wants us to use the same tired chopstick lettering for her sign because 'that way, people will know it's a Chinese restaurant'. Wanting only to be correctly identified, the client is drawn to the universality of clichés: they have, after all, the same meaning for everybody within a particular culture, which — if only they weren't so hackneyed — would make them an ideal communication tool for designers.

In the haste to fit in, the need to stand out has been forgotten. It is our responsibility as designers to make the case that design can serve both ends at once: it can speak plainly while still leaving a mark on its audience.

Every area of graphic design has its built-in clichés. But none more so than images that seek to convey a sense of ethnicity, where the same predictable type choices pop up again and again (shown left to right: Sunamy, Papyrus, Neuland). See Rob Giampierto's indispensable article New Black Face[11] for more on this topic.

Clichés, in short, are the empty calories of the design world: like junk food, they are available everywhere and easy to consume, but pass through us without leaving nutrition behind. Their prevalence arises from the shared nervousness with which designers often view their clients and their clients view design: satisfied merely to get to the point across in an obvious manner, both sides neglect to create a message that will live in a viewer's memory and foster long-term recognition and loyalty.

If the above hypothetical campaign has given us examples of two flawed extremes — one too obvious and the first not obvious enough — what does it look like when a

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11. http://blog.linedandunlined.com/post/404938892/new-black-face-neuland-and-lithos-as-stereotypography

designer hits the sweet spot in between? And, more importantly, how did he or she get there?

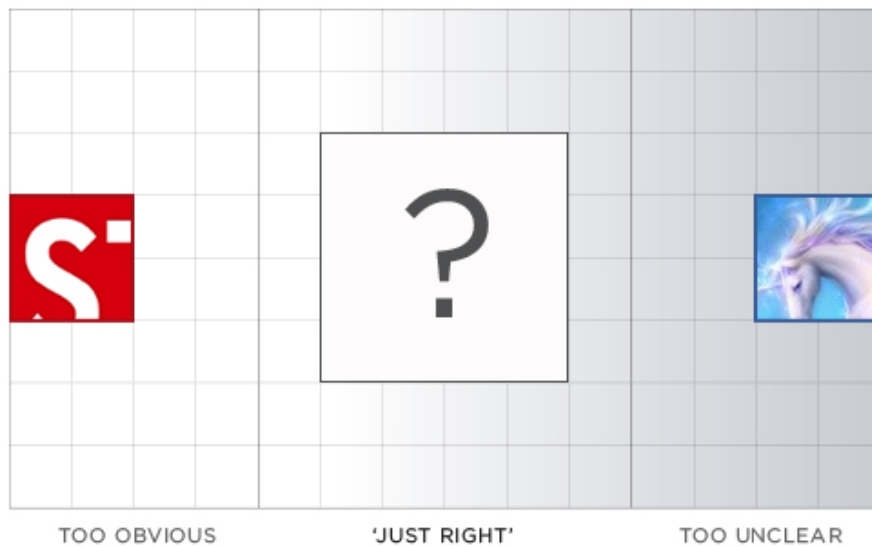TOO OBVIOUS   'JUST RIGHT'   TOO UNCLEAR

Exhibit B: Craig Frazier

In 1987, the designer Craig Frazier did a poster for this very purpose, a public service campaign aimed at persuading kids to not drive home drunk from their senior high school prom.

Like Goldilocks' bowl of porridge, this solution is just right: it communicates its message with appropriate urgency, but the weapon of surprise is also part of the attack. "It has an art quality that removes it from the realm of ordinary public service campaigns," Frazier noted in a 1996 interview with *Critique* magazine, in which he also identified it as a personal best. "It presents a visual riddle that's almost attractive at first glance, but gets more gruesome the more you study it."

Too much fun isn't always a pretty picture. Party safe.

The unconventional presentation of the subject matter requires us to spend a split second visually decoding the image, discerning its story… and, in that moment of cognitive engagement, a connection is formed between viewer and image. The abstract and original treatment of the topic allows the poster to sneak past our defenses — in Frazier's words, "it proves that you don't have to be condescending to convey a deadly serious message." Whereas the Stop Sign approach droned authoritatively at its viewer, this execution lures the onlooker into a perceptu-

al dialogue, and refrains from talking down to its touchy teenage audience (note the quiet treatment of the tagline in the lower left corner).

In sum, by avoiding an overly obvious delivery, the designer cleared the way for a work that leaves a lasting impression: "I still get tingles when I think about the poor guy on the road," Frazier commented nearly ten years later. "I have a visceral, emotional reaction." Impactful? Check. Emotional? Check. Clear in meaning? Check. "What makes the poster work is the same thing that makes any good ad or brochure work," Frazier concludes: "It's engaging and memorable to its intended audience."

So how did he get there? Not, as my uncle might assume, by virtue of being a creative genius who effortlessly vaults over commonplace ideas (nor simply by owning a computer). Rather, to judge from his own comments, Frazier arrived at his solution by taking accurate stock of the commonplace and determining in what direction the fresh territory lay: "These kids had already been hit with plenty of preaching and scare tactics about drunk driving and drug abuse, not only from their parents, but also the media," the designer recalled, explaining his thought process.

"I knew what I didn't want to do — a poster that presented the consequences in such a grizzly fashion that the student could dismiss it as another image from a Highway Patrol film. Even though I knew these images could be effective — like the ads of that time by Fallon McElliot — I wanted this poster to be gripping, not scolding." Put in the simplest possible terms, Frazier came up

with his idea by identifying the resident cliché and then setting out in the opposite direction.

Simple as this approach might sound, the tangible benefits are worth taking note of: "All reports indicated that the students received the poster well," Frazier recalled, "and many students requested copies for their bedroom walls. The effectiveness of any poster is hard to measure, but the fact that they looked at it, and are still looking at it, makes it a success." What the reaction to Frazier's poster, and the process behind its making, point to is the surprisingly *transparent* nature of graphic design — the extent to which the creator's subjective experience in making a piece bleeds over into the observer's reaction to it.

Creative solutions that take no searching on the part of the designer rarely make a mark on the audience either. If the designer is willing to set out in a direction whose end point is not immediately apparent, on the other hand, the journey taken is relayed back to the viewer in the split second of perception, and this experience of *distance* — of having a message relayed to us in terms that are clear and yet outside the ordinary — can make the experience of seeing memorable. In the next section, we will look at another work whose dramatic impact derives from the fact that its author moved beyond his immediate first impressions in order to create it.

Exhibit C: Art Spiegelman

Best known as the creator of the acclaimed graphic novel *Maus*, Art Spiegelman was working as a staff artist for the

New Yorker magazine on September 11th, 2001. A resident of downtown Manhattan, he lived a short distance from Ground Zero and was grappling with the day's events when a call came through from the *New Yorker* office explaining that, incredibly, the magazine would be putting out a special issue at the end of the week and needed a cover from him as soon as possible.

Settling down to a daunting task, Spiegelman started out by painting his most immediate visceral impressions of the day: the vivid blue sky that hung over New York on that day and its incongruity with the smoke, ruin and destruction that had transpired. After a while, he had created an illustration that looked something like this:

We know what this image looked like because Spiegelman later used it for the cover for an anthology of writing about the September 11th attacks called *110 Stories*. But, for his magazine cover, Spiegelman rejected this direction. Why? "I was barking up the wrong tree," he later told *The Progressive* magazine: "It had a blue sky and orange building; it was channeling [René] Magritte, with the thought bubble, 'It's such a nice day, what a bummer.' It was a reasonable cover for a book that came out a year later, but it just wasn't sufficient, because anything with a nice blue sky and pretty orange building was just too pretty. And pretty outweighed whatever meanings those shrouds had."

Spiegelman's use of blue sky here isn't a cliché in the conventional sense... but in the context of his design process, it was functioning in much the same way that a cliché does: a too-readily-available impression that speaks too literally to its audience and thereby dulls the piece's potential emotional charge.

Rather than trashing his canvas and starting from scratch, however, Spiegelman simply responded to what he didn't like: "I kept trying to gray down and dim down the image, so, OK, a less blue sky, less orange buildings. [...] Then I finally said to Francoise that it should just be a black-on-black cover because every time I was walking to my studio from my house I kept finding myself turning around to make sure the towers were not there, as though they were a kind of phantom limb":

What binds both Frazier and Spiegelman's accounts together is the evidence that neither artist could have visualized his final solution from the outset of the process. Both used (perhaps it's even fair to say *needed*) the intermediary steps of (a) identifying cliché and (b) reacting to cliché to set them in the right direction.

Exhibit D: Ivan Chermayeff

Our fourth example involves a case where simple associations were not so much rejected as stitched together in an imaginative manner to create a complex and engaging message.
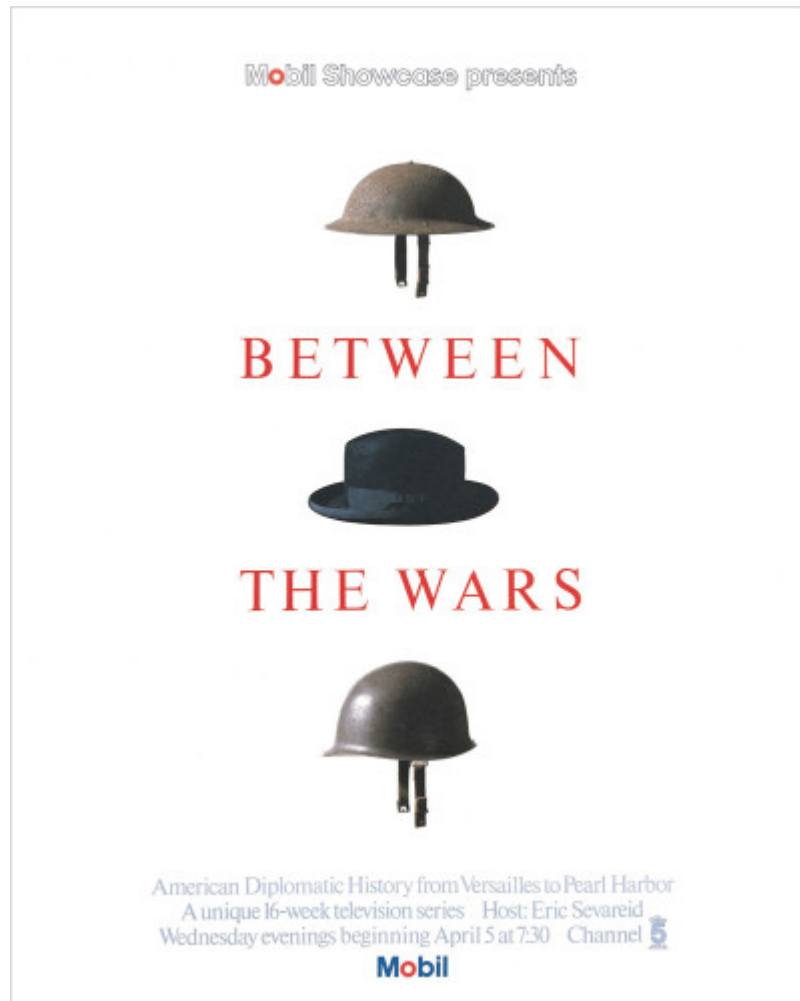
For decades, the office of Chermayeff & Geismar has managed to produce memorable images with a narrative capability, pieces that quickly tell a story in an engaging manner. One such work is Ivan Chermayeff's poster for a television series called Between the Wars that covers the

diplomatic efforts that transpired between 1914 and 1940. Even more overtly than Craig Frazier's poster, this work deliberately presents a puzzle to the viewer, whose enjoyment of the piece lies in the process of assembling its visual clues.

The designer did not, however, set out with the intention of being clever. When I emailed Chermayeff to ask about the challenge of Between The Wars, he replied as follows: "A title which raises many questions. The process of illustrating such a title was the search for images that will immediately answer those questions. Together those images must connect as a coordinated and related whole image."

"What are possible symbols of World War I and World War II that existed and that are immediately recognized in our time?" Note that, again, the process again begins with the gathering of simple, readily-apparent associations: "Maps, armaments, tanks, nationalities and their physical characteristics, trends, battlefields — there are many, many things. Most of them too complex to be a simple, resonating image." In response to the problem — complexity — the designer sets out looking for its opposite, simplicity: "One thinks and searches, one looks at the available visual records of two world wars, and what comes up — Helmets!"

"Helmets evolved and they changed over the years. But they are always there in the photographs. Once seen, they are seized. One can hold them in one's hand, and everyone recognizes them. So what remains to fill the gap between 1918 and 1940? What is the image of the 22 years between to match the simplicity of the two helmets at ei-

ther side? Talk and discourse and ambition all surround the nations engaged in these two conflicts. The common thread is diplomacy. What is like a helmet but not a part of war? A hat! A diplomatic hat of a statesman in the twenties and thirties is the homburg, and it fits between the wars on the head just like a helmet."

In this case, the final design does not so much refute the clichés of the field as cleverly assemble them. But the thought process behind it works in the same way: it starts with the readily-available information and works methodically, step by step, to react to what is lacking in the first sweep of associations.

Exhibit E: Jesse Bennett-Chamberlain

It seems to be easier to talk about idea generation in the context of print than web. A designer's success, or lack thereof, in coming up with a good idea shows itself more plainly when the medium is something like a poster (as in the Frazier and Chermayeff examples above) or a magazine cover (Spiegelman), which are only called upon to communicate a single visual message to the onlooker. A typical web interface, in contrast, must balance a host of competing priorities — navigational, functional, hierarchical — the sum of which can frequently obscure our understanding of how successful the designer was in one particular area.

Nevertheless, web design needs fresh thinking just as much as print design, and the role played by clichés can be every bit as detrimental. Jesse Bennett-Chamberlain's account of redesigning the website for Steinway and

Sons[12] explains how a formulaic approach to one issue (in this case, layout) can deprive the design of strength in another key area (aesthetic/emotional impact). Bennett-Chamberlain has a nice write-up of this project[13] in the Notebook section of his site, 31three.com[14] — the following discussion is drawn from his account and from follow-up questions I posed to him by email.

Having never worked with the client before, Bennett-Chamberlain recounts that he "played it safe" in his initial process and "started off with a design that closely followed a wireframe that they provided":
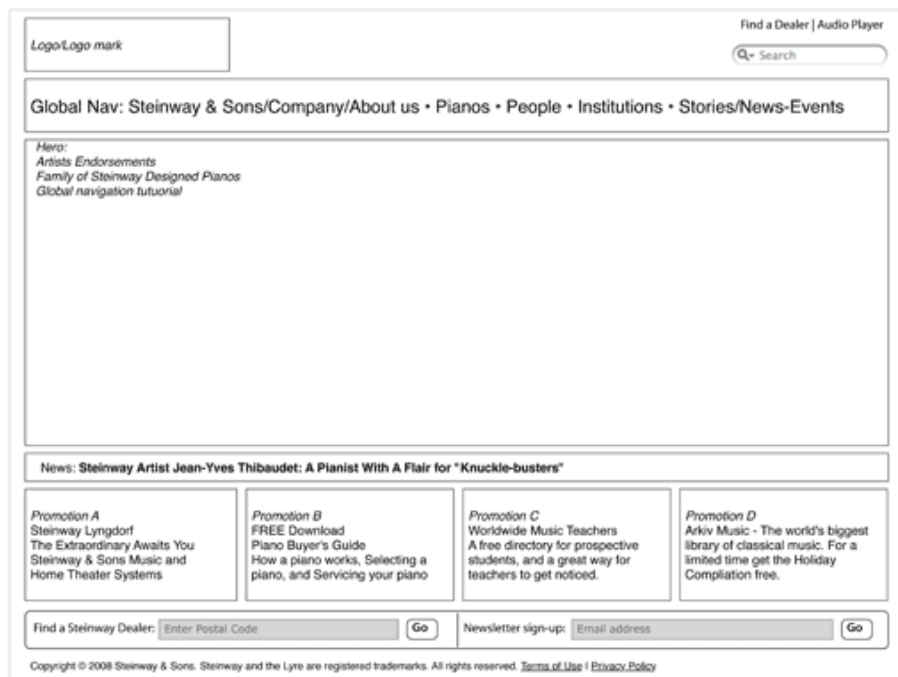
This wireframe suggests a classic template for usability — "a layout that was very typical," Bennett-Chamber-

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12. http://steinway.com/
13. http://www.31three.com/notebook/archive/steinway_sons/
14. http://www.31three.com/

lain recalls, "and reminded me mostly of Apple". While there is nothing necessarily wrong with following the lead of an acclaimed site like Apple's, in this case, the boxy, conventional guidelines proposed by the client's wireframe led to an initial design that failed to do justice to the subject matter:

Not a bad design, by any means... and yet if you removed Lang Lang from his piano bench and placed him inside a luxury car, this could quickly become a site for Audi or Lexus. "I thought the initial design was okay," Bennett-Chamberlain explains, "but it still didn't feel 'Steinway' to me. It seemed a bit underdeveloped, too easy of a solution for such an elegant brand."

Much of the problem lay with the cookie-cutter wire-frame: "Although the image of Lang Lang was dynamic and had some energy, the layout of the site felt pretty lin-

ear, boxy, and well… boring." Lost in the conventional presentation were the aspects of the grand piano that make it truly remarkable: its shape, its contours, and, of course, its sound. "I wanted the piano to be in the spotlight," he recalls, "and not share the stage with anything else." Bennett-Chamberlain presented a variant design that strayed a bit from the recommended wireframe by "placing the piano front and centre, and then building the site around it":
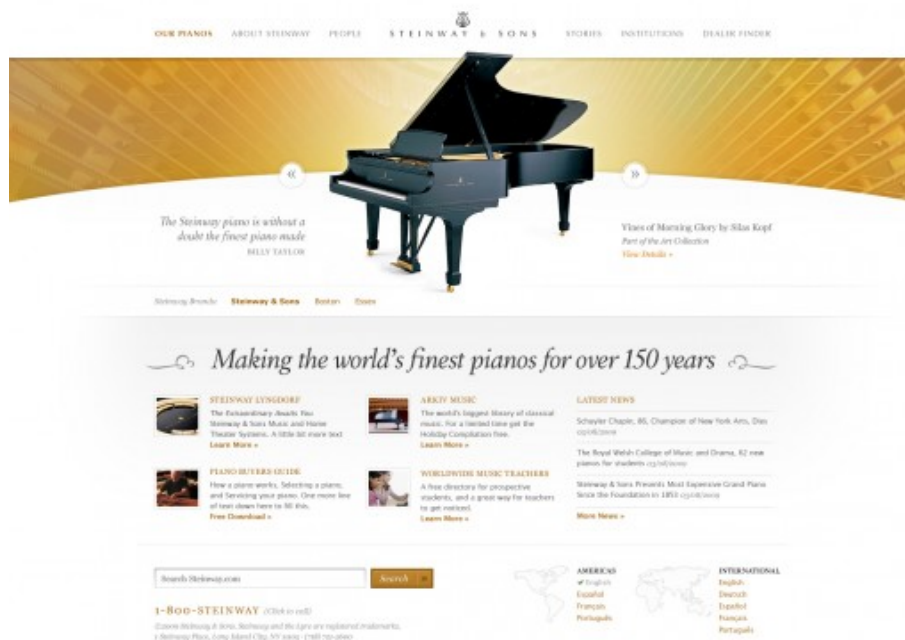
In the final iteration, Lang Lang has been reluctantly whisked off the stage, and the instrument itself is the star of the show. The piano's distinctive contours are emphasized by the graceful arc placed behind it, and by the decision to have its lid peek up above the designated promo area into the top nav. The background motif of piano strings has been ramped up to create a semi-abstract, ra-

dial representation of sound (indeed, you can almost hear the piano in the final design).

In the nav bar area, the usual 'logo left' convention has been discarded here for centered treatment that makes you feel like you're sitting on the bench itself and gazing at the Steinway and Sons trademark sitting over middle C. Yet nothing has been lost in terms of ease-of-use compared with Bennett-Chamberlain's original design — it simply took an effort of self-critique and problem-solving to do justice to both the functional and aesthetic possibilities of the project: "I figured that if these guys can spend a year making a single piano, I could probably spend an extra couple hours here and there on refining these details."

Putting It Into Practice

These works by Frazier, Spiegelman, Chermayeff and Bennett-Chamberlain are classic examples of what designers like to call 'process work' or 'methodology', terms that refer to a method of drawing ideas, direction and inspiration from the *process* of working on the design itself, rather than simply having a fixed destination from the outset. No one can write step-by-step instructions on how to do this — the entire point, after all, is to react, rather than obeying fixed directives — but there are certain steps we can take at the outset of a project that help clear the way to let this process happen:

- Start with a sketchbook, not a computer. There was a time when I once suspected that the teachers who tried to im-

press this point on me were just cranky technophobes...
but over time, I came to appreciate the wisdom of this
suggestion. The computer is a bad companion to start
with because its particular toolset pushes us in certain di-
rections (towards clearly defined shapes and hard edges)
and because it tempts us to focus overly on execution (by
offering up sexy drop shadows and whatnot) before our
concept has really come together.

- Using your sketchbook, start by drawing every associa-
tion you come up with for the subject matter. Draw it
quickly, and don't be critical. At this stage, it's not about
making pretty pictures, and it's not about evaluating your
ideas (in fact, the ability to turn the critical part of your
brain on and off is one of the most helpful tricks you can
develop).

- Don't try to avoid clichés — let them happen. Trying not to
think of clichés is like the old joke where someone says
'Don't think of a pink elephant.' It's best to get them down
on paper and get them out of your system.

- Once you've jotted down every association you can think
of, take a break, come back and jot down a few more.
Then, take a longer break...

- Come back with fresh eyes and look at what you have in
front of you. Now is the time to be critical, but also to be
fair. Seeing our own work clearly for its merits, without
bias and defensiveness, is one of the hardest things for
graphic designers to do. George Orwell wasn't thinking
about graphic designers when he wrote, "To see clearly

what is in front of one's face requires constant struggle,"
but he might as well have been.

Conclusion

There is no single answer to the question of where good
ideas come from. Some designs actually *do* seem to come
out of thin air, like the Citibank logo that Paula Scher in-
famously drew on a napkin during an early meeting with
the client. But a great many more good ideas come about
through the incremental process described in this chap-
ter, of gathering and making decisions about readily-
available information.

The viability of this approach suggests that coming up
with good ideas is not a matter of genius, but rather sim-
ply a challenge of seeing clearly and thinking sensibly.
The good news that this implies is, idea generation is a
learnable skill that can be cultivated in many of us, not
just in a chosen few. The only disappointing part is that
you don't get to feel like a genius while you're doing it.

If idea generation is a process that is accessible to
everyone, then what accounts for the fact that it can be so
hard to pull off? Part of the answer lies in our inability to
get out of our own way, a condition which stems largely
from our ideas about what it means to be a 'professional'.
The term 'professional' is generally used to connote a per-
son who is in control of their work process at all times…
and, yet, as we've seen in this chapter, the condition of ab-
solute control is rarely a place where exciting design
comes from.

"What is required in our field, more than anything else, is the continuous transgression," Milton Glaser writes in his wonderful essay *Ten Things I Have Learned*. "Professionalism does not allow for that because transgression has to encompass the possibility of failure and if you are professional your instinct is not to fail, it is to repeat success." Graphic design is one of the few fields where it works to our advantage if we can let go of the reins from time to time, a feature that makes it to be an exhilarating place to work if we can manage not to find it unnerving.

CREDITS

I would like to thank Craig Frazier for his assistance in locating a copy of the *Critique* "My Best / My Worst" interview used in this chapter, and also Ivan Chermayeff and Jesse Bennett-Chamberlain for taking the time to answer my questions.

SOURCES

- Neumeier, Marty and Frazier, Craig (1996) "My Best / My Worst", *Critique*, Summer 1996

- Siegal, Nina (2005), "Art Spiegelman Interview", *The Progressive*, January 2005

- Unicorn illustration by Xploitme[15], used under Creative Commons license

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15. http://www.flickr.com/photos/45928872@N08/

Other Resources

You may be interested in the following articles and related resources:

- Craig Frazier Studio[16]
  Web site for this noted designer, illustrator and writer

- Chermayeff & Geismar[17]
  Founded in 1958, Chermayeff & Geismar is one of the world's most acclaimed brand design firms, and have also produced their fair share of remarkable and engaging poster work

- Art Spiegelman Interview in *The Progressive*[18]
  Complete transcript of interview quoted from in this chapter

- 31three.com[19]
  Portfolio of Jesse Bennett-Chamberlain

- Ten Things I Have Learned[20]
  Invaluable essay from Milton Glaser, another long-time practitioner of idea-driven design

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16. http://www.craigfrazier.com/
17. http://www.cgstudionyc.com/
18. http://www.progressive.org/mag_intvarts
19. http://www.31three.com/
20. http://www.miltonglaser.com/pages/milton/essays/es3.html

- New Black Face[21]
  Must-read article by Rob Giampierto on the complicity of typography in ethnic clichés

- Brainstorm #9 Logo Process[22]
  Nice writeup from Fabio Sasso tracing the creative process behind a specific logo project ❧

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21. http://blog.linedandunlined.com/post/404938892/new-black-face-neuland-and-lithos-as-stereotypography
22. http://abduzeedo.com/brainstorm-9-logo-process

Using Brainwriting For Rapid Idea Generation

BY CHAUNCEY WILSON ❧

When a group wants to generate ideas for a new product or to solve a problem, you will usually hear the clarion call, "Let's brainstorm!" You assemble a group, spell out the basic ground rules for brainstorming (no criticism, wild ideas are welcome, focus on quantity, combine ideas to make better ideas) and then have people yell out ideas one at a time.

Brainstorming is often the method of choice for ideation, but it is fraught with problems that range from participants' fear of evaluation to the serial nature of the process — only one idea at a time. Brainwriting is an easy alternative or a complement to face-to-face brainstorming, and it often yields more ideas in less time than traditional group brainstorming.

What Is Brainwriting?

When I teach my graduate course in "Prototyping and Interaction Design," I start with a class on ways to generate ideas. Because brainstorming is a well-known and popular technique, I generally begin with a discussion on how to do good brainstorming, something that is very hard, and then introduce brainwriting as a worthy, and sometimes preferred, alternative to brainstorming. The term "brainwriting" often brings forth smiles and quiet laughter because it is a strange word.

Brainwriting is simple. Rather than ask participants to yell out ideas (a serial process), you ask them to write down their ideas about a particular question or problem on sheets of paper for a few minutes; then, you have each participant pass their ideas on to someone else, who reads the ideas and adds new ideas. After a few minutes, you ask the participants to pass their papers to others, and the process repeats. After 10 to 15 minutes, you collect the sheets and post them for immediate discussion.

In my experience, the number of ideas generated from brainwriting often exceeds what you'd expect from face-to-face brainstorming because you've reduced anxiety somewhat, followed a parallel process in which a dozen people may add items simultaneously, and reduced the amount of extraneous talk that happens during brainstorming, which takes time away from idea generation.

Instead of getting one idea at a time, lots of ideas can emerge simultaneously, if you let your participants "brainwrite" them.
(Image credits: opensourceway[23])

When To Use Brainwriting

Brainwriting can be used in the following situations:

- You have too large a group for effective brainstorming. You could conduct brainwriting at a conference of 500 people simply by leaving a large card on each seat, asking a question, and then having each audience member pass a card to someone else, and then repeat three times for a minute of writing.

- You have quiet people in your group who are intimidated by traditional brainstorming.

- You are working in a culture in which brainstorming about "wild ideas" or expressing ideas that diverge from those of senior management is not accepted.

- Your time is limited. I've used brainwriting to brainstorm questions for a website visit when I had only 10 minutes to get feedback from the product team. I ended up with more than 50 different questions, without the fuss of having to set up a formal brainstorming session.

- You don't have an experienced moderator. Brainstorming, contrary to what many blog posts claim, is difficult to do well. Brainwriting, in contrast, requires that you be able to ask a question, read a clock and collect answers.

- You are worried about loud or forceful individuals influencing others, as they might in traditional brainstorming.

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23. http://www.flickr.com/photos/opensourceway/4378920267/

Brainwriting can be used to understand how different groups view an issue. You might try to conduct separate brainwriting sessions with different internal groups. For example, if you asked groups to brainwrite about "What are the most important problems faced by our customers?" you might find that developers have a different perspective from the UX team, who have a different perspective from product managers. In my experience, the differences emerge more strongly through brainwriting than through face-to-face brainstorming.

Brainwriting can help you get a better understanding of how different groups or departments view a problem. (Image credits: opensourceway[24])

When To Avoid Brainwriting

While brainwriting is easy and accepted in many environments after a single demonstration of its productivity, you might want to avoid brainwriting in a few situations.

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24. http://www.flickr.com/photos/opensourceway/4371000846/

There may be times when your colleagues find it difficult to express ideas in writing. If you are working on complex issues, then you might want to opt for small group brainstorming or another ideation technique that allows for clarification and discussion.

If you are forming a team, then you might want to opt for traditional brainstorming, because participants will be more familiar with that method (rather than the strange name "brainwriting"), and the social interaction will foster team-building. You might want to avoid brainwriting if you are in a culture with strict rules about which methods and procedures to follow. People who follow a highly structured product design and development process might find brainwriting a bit too radical.

How To Conduct A Brainwriting Session

My first suggestion is to search for "brainwriting" on the Web and peruse some of YouTube videos[25] and short articles[26] that describe brainwriting techniques and tips. There are several approaches to brainwriting: interactive brainwriting, the 6-3-5 method, the idea card method, and the remote spreadsheet method. We'll cover the basic procedure for each of these techniques.

25. http://www.youtube.com/watch?v=TR1i1PPd8ZU&noredirect=1
26. http://dux.typepad.com/dux/2011/01/method-2-of-100-brainwriting-brainwriting-is-an-ideation-method-for-quickly-generating-ideas-by-asking-people-to-write-thei.html

INTERACTIVE BRAINWRITING

Here are the basic steps for interactive brainwriting:

1. Introduce the procedure.

2. Hand out paper for each person to write down ideas.

3. Provide a clear and legible problem statement. (You could print out a page with the statement at the top, project the statement on a slide, or write it on a board.)

4. Describe the timing of the brainwriting (for example, three minutes for the first round, and two minutes for four subsequent rounds) and the process for passing the pages (for example, counterclockwise around a table). A page-passing process that is not clear could undermine the credibility of the method and waste time.

5. Ask if anyone has any questions about the problem statement or the brainwriting process.

6. Remind people to read the ideas quickly before entering their own ideas and to feel free to add, modify and combine ideas. Let people know that extra paper is around the room if they run out.

7. Begin the rounds. Announce the end of each round, and ask people to pass their paper to another person.

8. At the end of the session, collect the brainwriting pages and post them for comment, additional ideas or review.

BRAINWRITING 6-3-5

In brainwriting 6-3-5, six people are given a form and asked to provide three ideas for solving a problem in five minutes. Participants are invited to consider out-of-the-box ideas and to combine ideas with others. The ideas are written in silence to prevent participants from influencing each other. After the first five minutes, each participant passes a form like the one below to the adjacent participant, who then reviews the ideas and adds new ones.

Participants/ Ideas	Idea 1	Idea 2	Idea 3
Participant 1	Filters to reduce the size	Search	Elliptical browsers
Participant 2	Tagging	Concordance feature	Automatic clustering of related data
Participant 3	Break the list up into categories	Provide a birds-eye view and zoom	Most recently used feature
Participant 4			
Participant 5			
Participant 6			

A 6-3-5 brainwriting form. (Problem Statement: "How can we deal with extremely long lists in our application?")

The process is repeated six times, with a potential for 6 × 3 × 6 (or 104) ideas. In practice, I've found that people often come up with more than three ideas in five minutes, so you could create a 6-6-5 form.

IDEA CARDS

This approach to brainwriting gets participants to write ideas continuously on sticky notes or cards and, as they finish a card, to place it off to the side. When other participants need inspiration, they can take a few cards from their colleagues and continue. Each card would hold only one idea.

A variation on this approach is the "one idea, quick pass," whereby each person lists one idea on a sheet and then hands the sheet to another participant, who adds one more idea. If participants don't have any sheets to look at, they can grab one off of a pile and continue writing. This continues until the leader of the session declares "The end."

THE SPREADSHEET TECHNIQUE

If you want to conduct remote brainwriting, you can use Google Spreadsheet as a brainwriting tool. You'll need to set up a list of people who will participate and then ask each of them to enter ideas in a single column of the spreadsheet. As each person enters an idea in a cell, others would see the idea and use that as inspiration for new ideas. This process can foster a bit of mild competition if done in real time and can also be fun.

Practical Tips And Tricks For Better Brainwriting

Here are a few tips and tricks that I've picked up over the last 10 years or so of using the brainwriting method:

- If you are using handwritten sheets, ask people to print or write legibly.

- Ask people to be succinct but to provide enough information for the idea to be understood two weeks later.

- Ask participants to do some easy homework to prepare for brainwriting (and brainstorming). Homework can make the sessions more productive. One example of homework would be to send your problem or question to participants and ask them to jot down or think about three ideas. Make the homework fun if you can.

- Put the problem statement or ideation question on all of the sheets or write it on a board or slide if you are doing it remotely. If you use the Google Spreadsheet approach, put the question at the top of the spreadsheet.

- Ask your participants to avoid jargon and acronyms that wouldn't be understood in a week's time.

- Be clear about the rules for sharing idea sheets. If you have people pass them to others, designate the direction of passing the pages to avoid confusion.

- Set a timer. Most smartphones have countdown timers that work well for brainwriting.

- Mix brainstorming and brainwriting with other ideation methods. Brainstorming may generate few ideas, but sometimes the social aspects of brainstorming generate a sense of teamwork and creativity.

- If you want to create an affinity diagram from the ideas, you could prepare pages with sticky notes and then remove them when you are ready to diagram. The image below shows six pages from a brainwriting session on the topic of how to improve remote collaboration. Each page would have six sticky notes on which participants can write ideas for the topic. After the brainwriting is complete, the notes can be organized into categories using the affinity diagramming method.
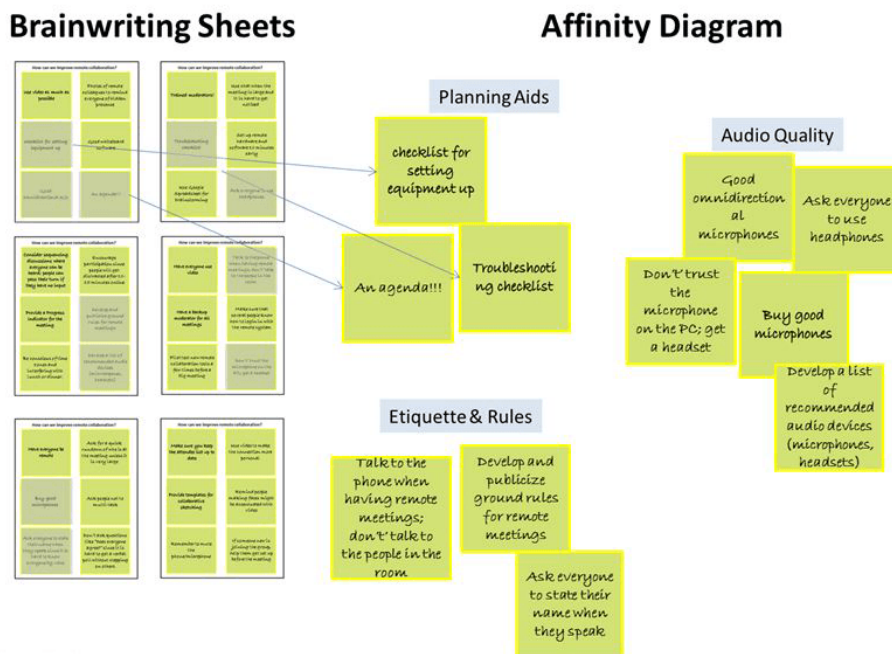
You could use affinity diagramming to organize and interpret the data from brainwriting sessions. (Large view[27])

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27. http://www.smashingmagazine.com/wp-content/uploads/2013/12/brainwriting-affinity-diagram-large-opt.png

How To Sell Brainwriting To Your Colleagues

Brainwriting is easy to sell in most organizations and client settings. There are five ways to sell brainwriting:

- The first selling point is its scalability. You are able to gather data from a few people on your design team to hundreds of people at a conference without great cost or detailed planning.

- It does not require great facilitation or social psychology skills. All you need is a brief script, some cheap supplies or a remote tool like Google Spreadsheet, and between 10 to 30 minutes to conduct the session.

- It is efficient. Unlike brainstorming, with its serial approach to idea generation, everyone is writing ideas at the same time.

- While brainwriting is generally done in silence, each person is still stimulated from seeing other ideas.

- Perhaps most importantly, the number of ideas generated from brainwriting generally exceeds those from brainstorming.

Enjoy your experiments with brainwriting.

Resources On Brainwriting

The resources listed below are a mix of videos, articles and books. My recent book, *Brainstorming and Beyond*, has

a full chapter on brainwriting (and on brainstorming and braindrawing).

- "Applying Creativity: Using Brainwriting to Generate Options[28]" (video), Buffalo State College

- "Brain Writing[29]," Knowledge Sharing Toolkit

- "Brainwriting[30]," CreatingMinds

- "Creativity Techniques in Product Planning and Development: A View From West Germany[31]," Horst Geschka, *R&D Management*

- "Creativity Techniques in Germany[32]," Horst Geschka, *Creativity and Innovation Management*

- "*101 Creative Problem Solving Techniques: The Handbook of New Ideas for Business*[33]," James M. Higgins

- "Brainwriting[34]," Mycoted

- "Enhancing Ideational Creativity in Groups: Lessons From Research on Brainstorming[35]," Paul B. Paulus and Vincent R. Brown, *Group Creativity: Innovation Through Collaboration*

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28. http://www.youtube.com/watch?v=MOMp0wm19I8
29. http://www.kstoolkit.org/Brain+Writing
30. http://creatingminds.org/tools/brainwriting.htm
31. http://onlinelibrary.wiley.com/doi/10.1111/j.1467-9310.1983.tb01143.x/abstract
32. http://onlinelibrary.wiley.com/doi/10.1111/j.1467-8691.1996.tb00125.x/abstract
33. http://www.amazon.com/101-Creative-Problem-Solving-Techniques/dp/1883629055
34. http://www.mycoted.com/Brainwriting
35. http://books.google.com/books?id=9QE2fXW_ce0C&pg=PA110

- *"Brainstorming and Beyond: A User-Centered Design Method[36],"* Chauncey Wilson ❧

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36. http://www.amazon.com/Brainstorming-Beyond-User-Centered-Design-Method/dp/0124071570/

Up On The Wall: How Working Walls Unlock Creative Insight

BY LAURA BUSCHE ❧

Research wall, design wall, research board, ideation wall, inspiration board, moodboard, pinboard — working walls are known by countless names. Underlying them all is a single idea: that physically pinning our sources of inspiration and work in progress, and surrounding ourselves with them, can help us to rearrange concepts and unlock breakthrough insights.

In their 2009 paper on creativity in design[37], human media interaction researcher Dhaval Vyas and his colleagues coined the term "artful surfaces" to refer to "surfaces that designers create by externalizing their work-related activities, to be able to effectively support their everyday way of working." According to Vyas and his colleagues at the University of Twente (in the Netherlands), designers integrate these surfaces "artfully" and organize information in such a way that it empowers them to visualize and extend their work in progress.

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37. http://www.tandfonline.com/doi/abs/10.1080/
   14626268.2012.658522#.UrHaMGTuJaV

Working Walls And Design Thinking

In this chapter, you will learn how displaying data and ideas on a large vertical surface can enhance your design thinking process. One of the first things to know is that the practice of using "working walls," as we will call these surfaces from now on, is scarcely documented in scientific literature — hence, the need for a working definition of a working wall (redundancy intended). For the purpose of this chapter, we'll define it as a large vertical surface on which ideas, data and work in progress can be displayed, rearranged and extended.

This design thinking tool being as powerful as it is, it comes as no surprise that a myriad of other fields have adapted and used it for years. But just how do working walls come into play in design thinking? Tim Brown, president and CEO of IDEO, defines design thinking[38] like so:

> A human-centered approach to innovation that draws from the designer's toolkit to integrate the needs of people, the possibilities of technology, and the requirements for business success.

To further define this approach, The Institute of Design at Stanford[39] (or d.school) has outlined five steps in the design thinking process:

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38. http://www.ideo.com/about/
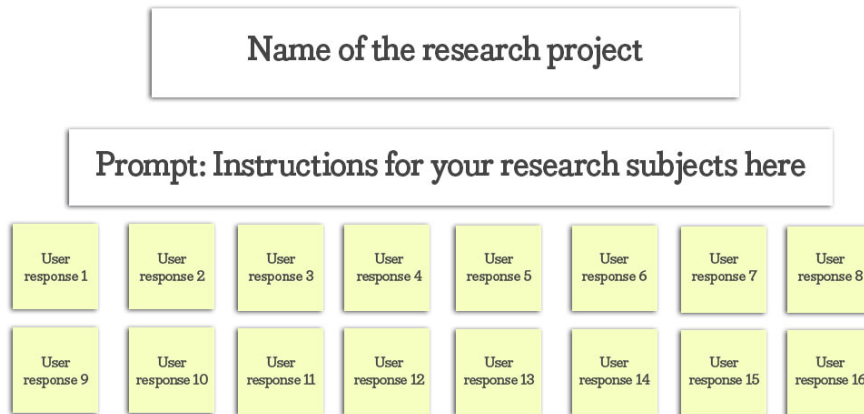39. http://dschool.stanford.edu/dgift/
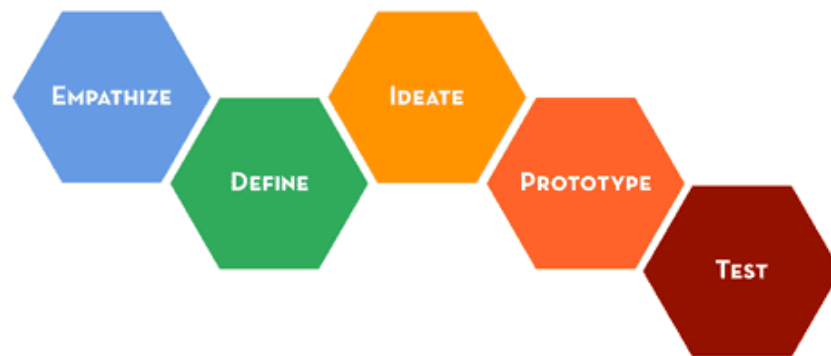
It all starts with empathizing with the people you are designing for. Then, you define a clear perspective of the process by making sense of a large amount of information. You proceed with ideation, exploring a wide array of concepts and generating possible solutions. Prototyping involves building an object (or artifact) that a user can experience and give you feedback on. Testing is about triggering an actual response from your intended user.

Working walls can facilitate every step of the design thinking process, and they offer unique advantages to bolster creative thought. The tool can help us empathize with and gather input from users, define a focused approach based on a large amount of data, capture the ideation process, display a low-fidelity prototype that users can interact with, and keep track of the way we've tested our creative assumptions.

Hopefully, the following benefits and working wall templates will inspire you to create your own today.

1. Empathize: Enable Peripheral Participation By Users

Large vertical surfaces can be used to spark interaction with your intended users. Wall-sized displays allow for easy visualization and intervention, which makes them particularly useful for consumer research.

Vyas and his group spent over 250 hours studying design departments at universities and companies in the Netherlands and concluded that artful surfaces are "an important vehicle for peripheral participation in a project, allowing visitors to enter its context."

They labeled this participatory environment a "creative ecology," where users are free to interact via their inputs on working walls.

5 Guys Burgers and Fries, for instance, has been using working walls to invite customers to describe their dining experience.

(Image: Carly Baldwin, NJ.com[40])

Here's a working wall template that you can use to gather input from your audience and to empathize with their wants and needs:

Name of the research project

Prompt: Instructions for your research subjects here

User response 1	User response 2	User response 3	User response 4	User response 5	User response 6	User response 7	User response 8
User response 9	User response 10	User response 11	User response 12	User response 13	User response 14	User response 15	User response 16

Try out some of these prompts:

- Name one thing you love or enjoy about X?

- Name one thing you hate or dislike about X?

- What would you change about X?

- How does X make you feel?

2. Define: Synthesize Key Findings By Detecting Affinities

Once you've collected information about your audience, pinning the raw data onto a working wall will help you to rearrange and make sense of it. This type of working wall

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40. http://www.nj.com/hobokennow/index.ssf/2008/10/lunch_at_5_guys_burgers_ and_fr.html

displays what we call an affinity diagram. Although people have been grouping similar ideas under labels for thousands of years, it was Japanese anthropologist Kawakita Jiro who originally developed the affinity diagram in the 1960s.

The premise of an affinity diagram is that, at first glance, several points of our data might seem unrelated, convoluted or unclear. However, by grouping related concepts, we are able to detect patterns that will help define our design approach.

Consider private detectives. You've seen them in the movies and on television. The sleuth will often map out a suspect's life on a sketching wall and proceed to make breathtaking connections. In this case, a working wall is used to find affinities along the subject's journey ("What are some patterns we can expect this person to follow?"), to find affinities in the lifestyles of the subject and their peers ("What do we know about A's relationship with B?") and to solve fuzzy criminal cases in general. Take the "gladiator wall" from Shonda Rhimes' award-winning television show Scandal:
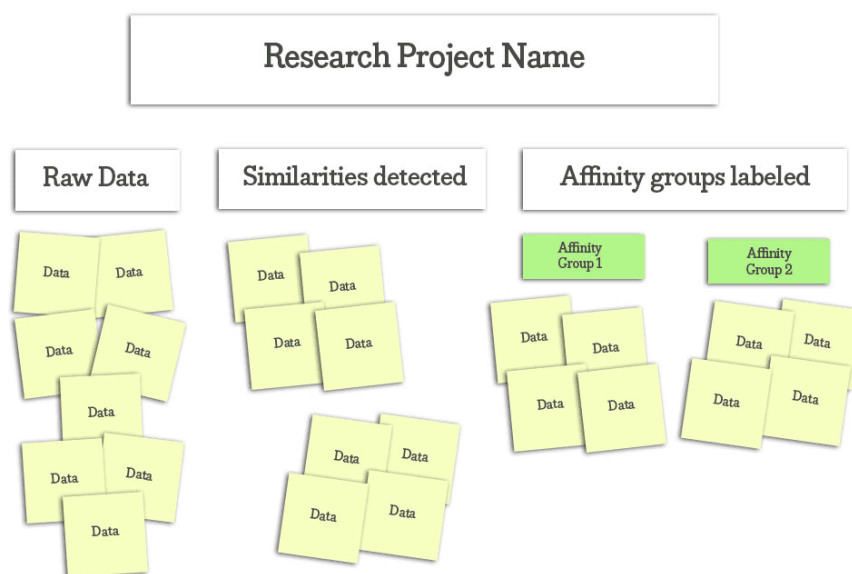

(Image: Scandal Moments)

(Image: Esther James[41]*)*

Here's a working wall template that you can use to identi-
fy affinities in a fuzzy dataset:

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41. http://estherjames.com/smart-brave-and-unrelenting/

These questions will help you get started with the template:

- "How is data point A similar to data point B?"

- "How are both A and B different from C?"

- "Is there a category (i.e. label) that describes these data points well?"

- "Why does a certain data point look isolated? Does this 'outlier' yield an interesting insight?"

3. Ideate: Stimulate Divergent And Holistic Thinking

Psychologist J.P. Guilford coined the term "divergent thinking," which the Gale Encyclopedia of Psychology defines as "the ability to develop original and unique ideas and to envision multiple solutions to a problem." This essential design skill is the key to ideation.

We could design several types of working walls to brainstorm, gather inspiration, and fully map out concepts and their relationships.

When brainstorming individually or in a group, stick notes at the top of the working wall to show all ideas. Then, using the affinity diagram method described above, identify which ideas are related, and categorize them accordingly.

(Image: Oranaozchi[42]*)*

To maximize inspiration for ideation, set up a "mood-board" layout on the working wall to collect ideas from different sources. Fashion designers, for instance, observe a phenomenon called "planned obsolescence," which basically means that they design garments knowing that those garments will eventually become unfashionable.

This instability demands a disciplined creative process in which (almost) everything can become a source of inspiration. Fashion designers everywhere use inspiration boards to capture seasonal trends, textures, accessories, sketches and muses when ideating for their next collection.

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42. http://oranaozchi.wordpress.com/2011/10/01/brainstorming/

Fashion designer Christian Siriano poses with the inspiration board for his spring/summer 2014 collection. (Image: The Derek Daily[43])

Here's a working wall template you can use to get inspired with ideating:

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43. http://renttherunway.tumblr.com/post/61588607521
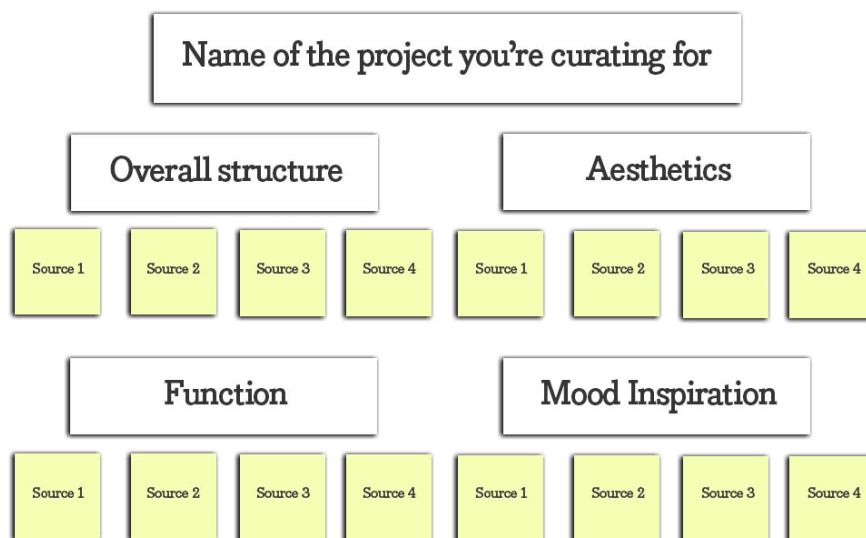
Ask yourself these questions to get started with the template:

- "Does this finding relate to the overall structure (such as the layout or grid) that I am trying to implement in this project?" (If so, include it as a source.)

- "Is this particular aesthetic treatment (such as the use of color or typography) similar to the one I am trying to convey in this project?" (If so, include it as a source.)

- "Is a particular functional feature associated with the utility I am embedding in this project?" (If so, include it as a source.)

- "Does a certain mood (such as an atmosphere or emotion) in this source inspire what I am trying to convey with this project?" (If so, include it as a source.)

The working wall style we'll explore next can help you map out a given concept and find important relationships between its subconcepts. Think about it: Doesn't working on a large surface help you to visualize the big picture? What if you had enough space to add more concepts related to your subject? Working walls get it done.

This kind of big-picture reasoning has been called "holistic thinking." According to psychologist Richard Nisbett at the University of Michigan, holistic cognition involves "an orientation to the context or field as a whole, including attention to relationships between a focal object and the field."

This is the opposite of analytic thinking, whereby we pay attention primarily to the object and its categories, using rules (i.e. formal logic) to understand the object's behavior.

East Asians tend to be more "holistic," while Westerners are more "analytic," according to Nisbett and his colleagues at the University of California (Berkeley), Seoul National University (Korea) and the Ecole Polytechnique (France) in a 2001 paper titled "Culture and Systems of Thought: Holistic Versus Analytic Cognition.[44]" This groundbreaking research earned the team a grant from the National Science Foundation.

Evidence suggests that if you were raised in a society influenced by classical Greek thought, holistic thinking might not come all that naturally to you. However, product and service design is holistic by nature and, thus, requires stepping out of our comfort zone and transforming our mindset. Working walls are invaluable tools in this process.

Wartime generals, for example, have been using working walls to map out large-scale military intelligence strategies for decades. Winston Churchill kept some nifty underground chambers covered wall to wall with maps, thousands of color-coded pins and tiny annotations. These maps helped Churchill and his administration plan military advances, ideate different scenarios and think collectively about the best tactics to pursue.

Failing to see the big picture could mean the difference between victory and defeat in war and design.

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44. http://psycnet.apa.org/index.cfm?fa=search.displayRecord&uid=2001-17194-001

Use the template below to map out a concept and its relationships. The width and marker of each arrow represent the strength and direction of a relationship, respectively.
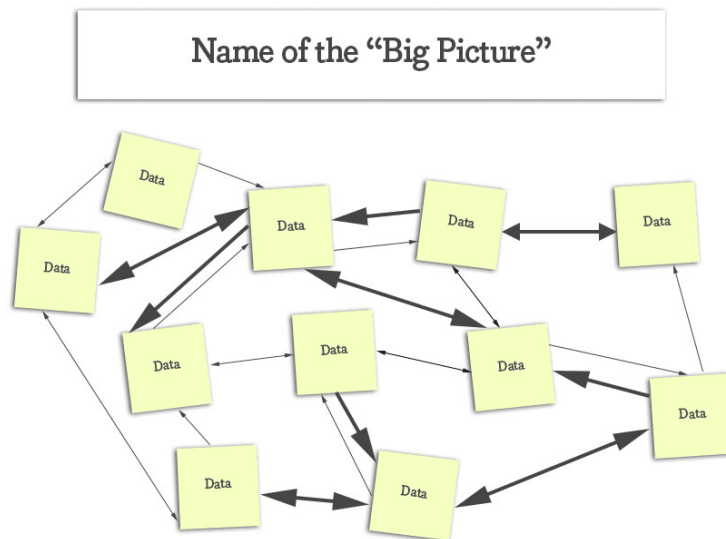
Ask yourself these questions to get started with the template:

- "Does concept A influence concept B, or is it the other way around?"

- "How strong is the relationship between concepts A and B? Is there one?"

- "If concept A influences B, is the effect reciprocal? Does A exert a stronger influence over B, or is the strength of their force upon each other equal?"

4. Prototype: Create And Change Prototypes Easily

You could combine elements on a working wall to create a prototype of a design solution. This low-fidelity version of the solution could make use of mixed media such as the following:

- magazines;

- books;

- sketches;

- screenshot printouts;

- 3-D material, such as textures;

- photos;

- wireframes, blueprints and diagrams;

- evidence from primary research;

- evidence from secondary research;

- text quotes that capture a mood;

- other artifacts.

  Interior designers combine elements on a working wall to create a scheme for a room. In the absence of a finished space, these boards serve as a low-fidelity prototype that gives the client sufficient clarity.

Working wall for a cabana design in Vero Beach, Florida.
(Designer: Erin Paige Pitts[45])

On the next page you'll find a working wall template you can use to create a low-fidelity prototype that users can give you feedback on.

And here are the questions to get you started:

• "Into what major components can this product or service be broken down?"

• "How can I show the user what the materials for a particular component will look like?"

• "How can I show the user the flow of their interaction with the product or service once it is finished?"

• "How can I give the user a glimpse of the final outcome? Would mockups, wireframes, sketches or blueprints help them to visualize it?"

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45. http://erinpaigepitts.wordpress.com/2010/05/30/its-all-in-the-details-from-design-boards-to-reality-how-to-effectively-communicate-design-concept-to-a-client/
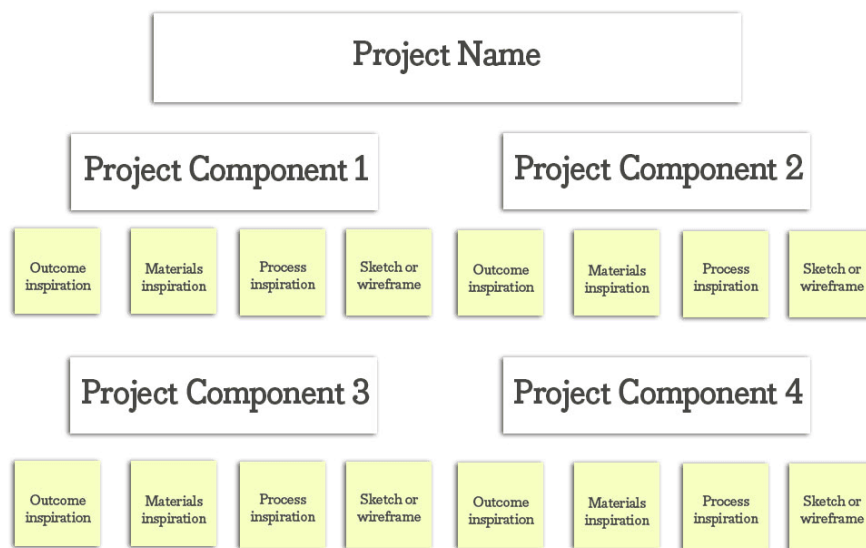
Prototypes evolve, and unless we have a quick way to access previous versions of our own work, that sense of progress will fade and we'll lose sight of the design decisions that took us from A to B in the first place. Second thoughts, insecurities and analysis paralysis take over. Understanding and being able to visualize our process give us the confidence that we are building on a strong foundation and give us the strength to justify our design choices.

Interaction designers, for example, must somehow navigate a dense jungle of user experience design, visual style, branding, layout, grids, typography and function changes. Working walls are an essential asset for succeeding in that.

The BBC UK published an amazing article[46] explaining how it redesigned its website. It printed out every single

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46. http://www.bbc.co.uk/blogs/bbcinternet/2010/02/a_new_global_visual_language_f.html

screen of the old website and pinned it up on what the team now calls the wall of shame. The team gathered around this large vertical surface to prototype and pin new versions of its website. The result is a triumphant wallpaper-sized timeline of where the BBC used to be and where it stands now.
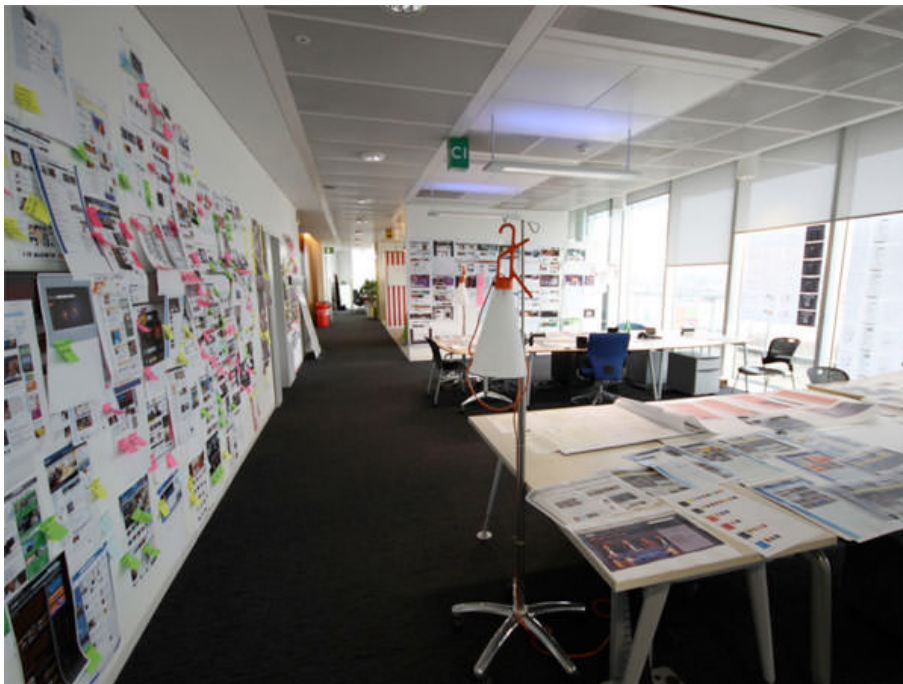
"*A New Global Visual Language for the BBC's Digital Services*[47]," *BBC Internet Blog*

Here's a template to visualize prototype changes over time:

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47. http://www.bbc.co.uk/blogs/bbcinternet/2010/02/a_new_global_visual_language_f.html
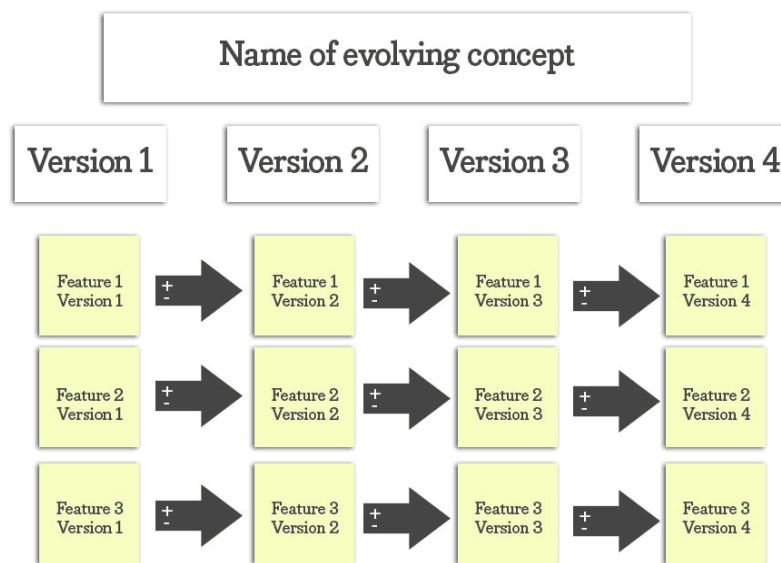
And here are the questions to get started:

- "Into what major features can this product or service concept be broken down?"

- "How does each feature currently look?" (Include this in the column for the version you are currently working on.)

- "What elements will we add to this feature going forward?" (Include them after the plus sign in each of the arrows pointing to the next version.)

- "What elements will we remove from this feature going forward?" (Include them after the minus sign in each of the arrows pointing to the next version.)

# 5. Test: Visualize And Validate Design Assumptions

Researchers in every field experiment and iterate on their results. In the previous step, we saw how to use a working wall to create and refine a prototype before introducing it to our target users. Stage five of the design thinking process, testing, can also be facilitated using a different type of working wall.

Startup founders use a "validation board" to visualize their prototype tests. The free canvas created by Lean Startup Machine helps you to display the different iterations (or pivots) that your design solution hypotheses have undergone. You can also classify your assumptions depending on whether they've been validated. As on other working walls, elements may be moved around as the process unfolds.

(Image: The Validation Board: A Free Tool for Testing New Startup Ideas From Lean Startup Machine[48]*," Harrison Weber, The Next Web)*

Use this working wall template to visualize and validate your design assumptions:
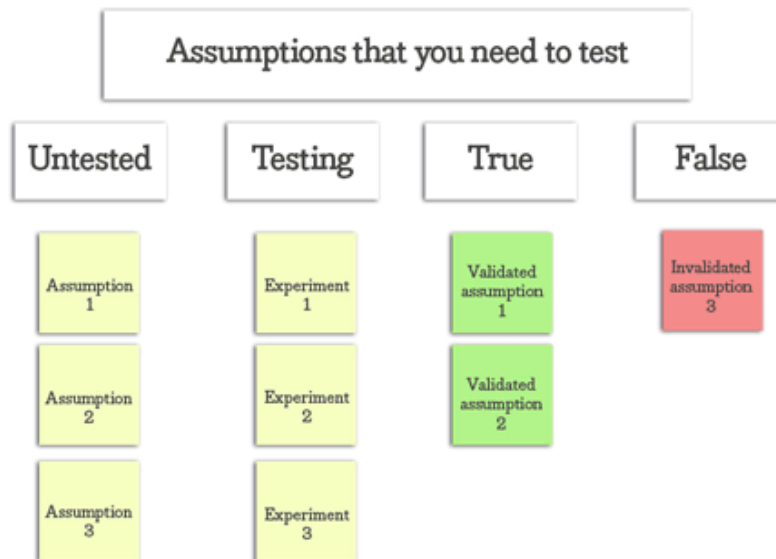
Here are the questions to get started with the template:

- "Which assumptions haven't we tested yet?" (Include them in the first column, labeled "Untested.")

- "How do we go about testing this assumption? How will we know whether it is true or false?" (Include this "experiment design" in the second column, labeled "Testing".)

- "Has this assumption proven to be true or false?" (Move the original sticky note in the "Untested" column to either the third or fourth column, depending on the result of the experiment.)

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48. http://thenextweb.com/entrepreneur/2012/10/02/the-validation-board-a-free-tool-for-testing-new-startup-ideas-from-lean-startup-machine/#!p8Lr5

Takeaways

Working walls are invaluable tools for design thinking. They empower research, sense-making, ideation, proto-typing and testing. Using wall-sized displays in our design process empowers convergent, divergent and holis-tic thinking — all essential creative skills.

I hope you've found inspiration in these different and innovative uses of working walls. The next time you start a design project, keep these templates and ideas close to heart. ❧

Design Better And Faster With Rapid Prototyping

BY LYNDON CEREJO ❧

The old adage, "a picture speaks a thousand words" captures what user interface prototyping is all about: using visuals to describe thousands of words' worth of design and development specifications that detail how a system should behave and look. In an iterative approach to user interface design, rapid prototyping is the process of quickly mocking up the future state of a system, be it a website or application, and validating it with a broader team of users, stakeholders, developers and designers. Doing this rapidly and iteratively generates feedback early and often in the process, improving the final design and reducing the need for changes during development.

Prototypes range from rough paper sketches to interactive simulations that look and function like the final product. The keys to successful rapid prototyping are revising quickly based on feedback and using the appropriate prototyping approach. Rapid prototyping helps teams experiment with multiple approaches and ideas, it facilitates discussion through visuals instead of words, it ensures that everyone shares a common understanding, and it reduces risk and avoids missed requirements, leading to a better design faster.

The Rapid Prototyping Process

Rapid prototyping involves multiple iterations of a three-step process:
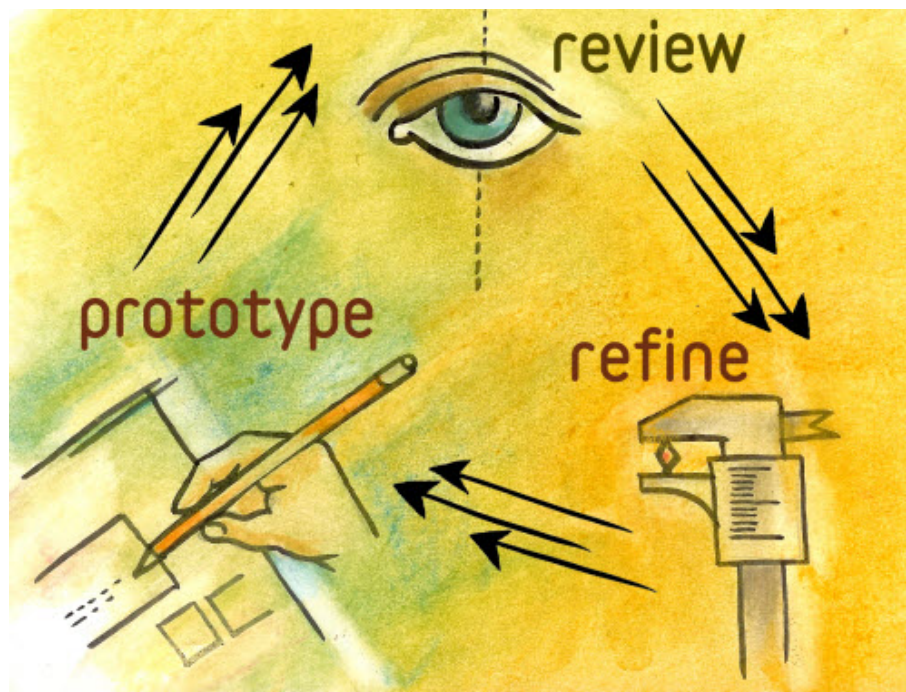
1. **Prototype**
   Convert the users' description of the solution into mock-ups, factoring in user experience standards and best practices.

2. **Review**
   Share the prototype with users and evaluate whether it meets their needs and expectations.

3. **Refine**
   Based on feedback, identify areas that need to be refined or further defined and clarified.

The prototype usually starts small, with a few key areas mocked up, and grows in breadth and depth over multiple iterations as required areas are built out, until the prototype is finalized and handed off for development of the final product. The rapidness of the process is most evident in the iterations, which range from real-time changes to iteration cycles of a few days, depending on the scope of the prototype.

Scoping A Prototype

The word prototype often conjures images of a coded, fully functioning version of an application or interface. Rapid prototypes are not intended to evolve into fully functional solutions, but are meant to help users visualize and craft the user experience of the final product. With that in mind, when scoping a prototype, decide on a few key issues before beginning any prototyping work.

WHAT NEEDS TO BE PROTOTYPED?

Good candidates for prototyping include complex interactions, new functionality and changes in workflow, technology or design. For example, prototyping search results is useful when you want to depart significantly from the standard search experience; say, to introduce faceted search or the ability to preview a document without leaving the search results.

HOW MUCH SHOULD BE PROTOTYPED?

A good rule of thumb is to focus on the 20% of the functionality that will be used 80% of the time; i.e. key functionality that will be used most often. Remember, the point of rapid prototyping is to showcase how something will work or, in later stages, what the design will look like, without prototyping the entire product.

FIND THE STORY

After identifying the areas to be prototyped, weave them together into one or more scenarios: identify the coherent paths through the user experience that the prototype simulates. For a website that sells shoes, one scenario could be "Boring Joe" buying the exact same Nike running shoes that he bought six months ago, while another scenario could be "Exploring Sam" browsing through size 10s to find a pair of Oxfords and pair of loafers that interest him.

PLAN YOUR ITERATIONS

The entire prototype is usually not built in a single iteration but rather piece by piece. A good approach is to start prototyping broadly and widely and then dive deep into selected areas of the solution. For a website, this would mean building out the home page and landing pages for the main sections in the first iteration (sometimes referred to as a horizontal prototype) and then reviewing and revising that framework. Subsequent iterations could drill down into one or more sections of the website (a vertical prototype); for a media download website, this could

be the steps a user would take to find a video and to download it, or how they would manage the media in their online library.

CHOOSE THE APPROPRIATE FIDELITY
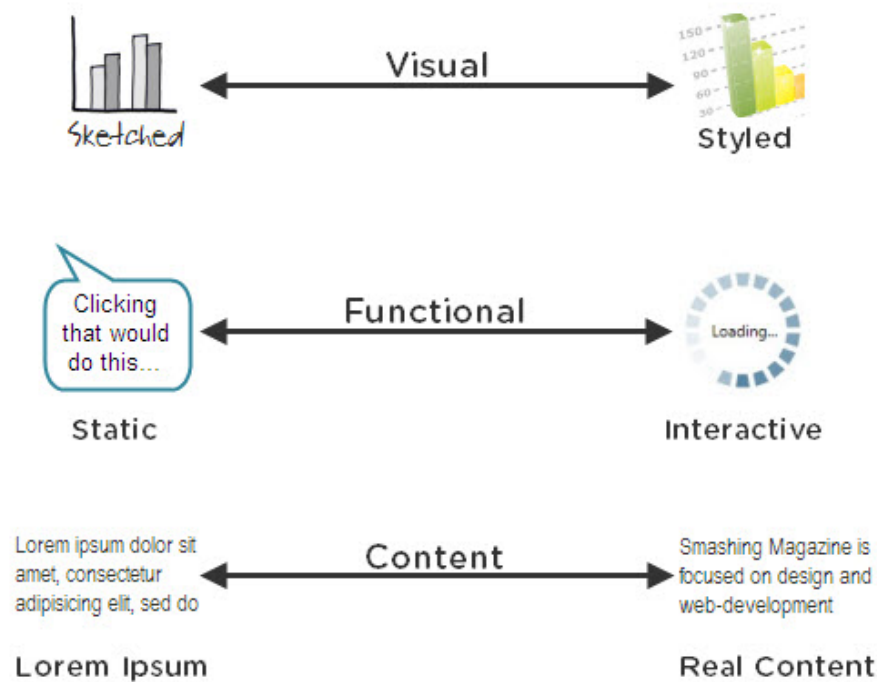
Fidelity refers to how closely a prototype resembles the final solution. There are multiple dimensions of fidelity, and prototypes can lie anywhere on the spectrum for each of these dimensions. Depending on the stage of the design process and the goals of the prototype, select the appropriate fidelity for each of the following:

- **Visual fidelity (sketched ↔ styled)**
  Look and feel are the most noticeable dimension of a prototype's fidelity and, if not properly selected, can sidetrack prototype reviews. Go hi-fi too soon and users will

focus on visual design, which is not appropriate in early stages. From a visual standpoint, prototypes do not have to be pixel perfect but should be proportional; for example, if the left navigation area has to occupy one-fifth of a 1024-pixel screen, it does not need to be exactly 204 pixels wide, as long as it is proportionally depicted in the prototype. As prototyping progresses through the design cycle, increase visual fidelity as needed by introducing elements of style, color, branding and graphics.

- **Functional fidelity (static ↔ interactive)**
  Does the prototype reveal how the solution will work (static) or does it appear to be fully functional and respond to user input (interactive)? This dimension is less of a distraction to users, but adding interactivity in subsequent iterations increases functional fidelity and allows the prototype to be used for usability testing and training and communications.

- **Content fidelity (lorem ipsum ↔ real content)**
  Another dimension that often distracts users is the content that is displayed in the prototype. Squiggly lines and dummy text like lorem ipsum are useful to avoid in early stages of prototyping. But as the prototype is refined, evaluate the need to replace dummy text with real content to get a feel for how it affects the overall design.

The Prototyping Spectrum

LOW FIDELITY

The quickest way to start prototyping is also the easiest: putting pen(cil) to paper. Sketching on paper is a low-fidelity approach that anyone can do; no special tools or experience required. Most often used during the early stages of a design cycle, sketching is a quick way to create rough mock-ups of design approaches and concepts and to get feedback from users. Paper prototyping is ideal during brainstorming and conceptualization and can be done alone in a cubicle with a sketchbook or in a group with a flip chart (or whiteboard) and markers.

Lying at the low-fidelity end of the prototyping spectrum, paper prototypes are static and usually have low visual and content fidelity. This forces users to focus on how they will *use* the system instead of what it will look like, and it makes designers more open to changes based on user feedback.

Low-fidelity prototyping lends itself to rapid prototyping. It has no learning curve but lets you make changes easily and quickly.

MEDIUM FIDELITY

As we start using computer-based tools such as Visio and Omnigraffle to prototype, the fidelity increases on most fronts, yielding medium-fidelity prototypes. Wireframes, task flows and scenarios that are created with these tools take more time and effort but look more formal and refined. While visual elements of branding, colors and style can be introduced, prototypers often stay away from them, focusing instead on demonstrating the behavior of the application. Interactivity can be simulated by linking pages or screens, but functional fidelity here is medium at best. These prototypes are best suited to determining whether user needs are met and whether the user experience is optimal.
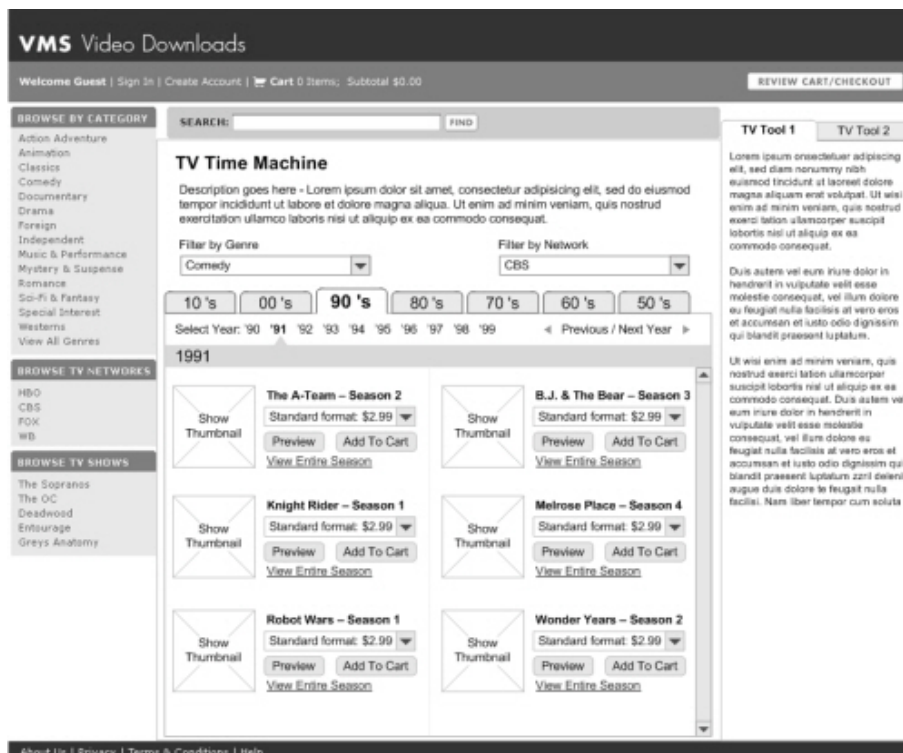
There are two reasons why one might intentionally make a medium-fidelity prototype *not* look like a medium-fidelity prototype:

- The first is that, by using Balsamiq or sketchy Visio stencils to make the prototype look low fidelity, you force users to view it as a draft or work in progress, rather than a polished and finished product.

- The second is that, by giving the prototype a high visual fidelity (for instance, in a comprehensive layout done in Photoshop), you get the user to focus on the visual design and look and feel, including color, fonts, layout, logo and images.

The speed of medium-fidelity prototyping is achieved with templates, stencils and reusable widgets and ele-

ments. It gets faster as you become more proficient with your tools of choice.

HIGH FIDELITY

High-fidelity prototypes are the most realistic and are often mistaken for the final product, but they are usually time-intensive. A few years ago, the only way to create high-fidelity prototypes was to actually code using a programming language, which often required the designer and developer to work together. These days, however, application-simulation tools allow non-technical users to drag and drop UI widgets to create high-fidelity prototypes that simulate the functionality of the final product, even for business logic and database interactions. Axure and iRise are some examples of application-simulation tools that can be used to create high-fidelity prototypes.

These prototypes are appropriate when high visual and functional fidelity is required; for example, when introducing a new technology (say, when moving from a mainframe application — yes, they still exist! — to a Web-based solution. Most of these prototypes cannot be converted to usable code, but they serve as an excellent reference for developers. These are also useful for conducting usability testing and training users.

High-fidelity prototyping is relatively rapid, considering the level of interactivity and fidelity involved, and it can be accelerated by using drag-and-drop simulation tools. In addition, some of these tools facilitate the gathering of user feedback and documenting of requirements, further speeding up the design process. Even though you do not need to learn a new programming language, these tools do have a learning curve.

SELECTING A FIDELITY LEVEL

In choosing the prototype fidelity, there is no one correct approach. Most designs of new products are best started

with sketches, then moving to either medium- or high-fidelity prototypes, depending on the complexity of the system and the requirements of the dimensions of fidelity.

In working with one particular client in the pharmaceutical industry, we went from whiteboards to interactive prototypes that had high functional and content fidelity but low visual fidelity. They cared less about the look and feel than about adhering to corporate guidelines.

For another client, this one in retail, our interactive prototype had to have high visual and functional fidelity. The content fidelity did not matter because they would be reusing content and were already familiar with it. To them, the look and feel and interactive experience mattered more because this was their first implementation of SharePoint, and they wanted to make the portal look "non-SharePointy"!

Selecting Tools

Depending on your approach, you have a wide variety of tools to choose from.

Each tool has its own feature set and strengths. Based on your needs and the requirements of the projects you work on, evaluate which tool would be most appropriate. Here are some questions to consider when evaluating tools:

- How easy is it to learn and use the tool?

- Is it flexible to support prototypes for Web, packaged and custom software applications, as well as desktop and mobile applications?

- Is there a repository of reusable stencils, templates or widgets available?

- How easy is it to share the prototype with others for review? Can their feedback be captured using the tool?

- How easy is it to make changes on the fly or to incorporate feedback?

- Does it have any collaboration features, such as allowing multiple people to work on it at the same time?

- What are the licensing terms and costs?

Dos And Don'ts

As you get started, here are a few points about effective rapid prototyping to keep in mind:

DO...

- Work collaboratively with users, business and IT stakeholders while rapid prototyping. Apart from giving valuable feedback, they also gain a sense of ownership of the final product.

- Avoid "prototype creep" by setting expectations for the process, including ones affecting the purpose, fidelity, scope and duration. Remind everyone, including yourself,

that rapid prototyping is a means to an end, not an end in itself.

- When creating interactive high-fidelity prototypes and simulations, build in realistic delays (for instance, for screen refreshing or moving through steps of a transaction), so that users do not expect instant response times from the final product.

- Reuse, reuse, reuse. For computer-based prototyping, this means saving reusable templates, stencils, patterns and widgets for future projects.

- Most importantly, begin every prototype review session with the disclaimer that this is just a prototype, a mock-up, not the actual solution. This reminds users that this is a work in progress, it encourages feedback, and in the case of high-fidelity prototypes, it prevents users from mistaking it for a working solution.

DON'T…

- Don't prototype features or functionality that cannot be implemented — often an issue with software package implementations. When in doubt, confirm with developers before starting.

- Don't take every change or request that comes out of a prototype review as a new requirement. Rapid prototyping helps capture missed requirements, but these new requirements should be evaluated carefully. Some may be implemented, while others are pushed to a future release.

- Don't begin prototype review sessions without clear guidelines for feedback. Be very specific about the type of feedback you are looking for. (Are the steps logically arranged? Is the navigation clear and intuitive?) If not, be prepared for, "I don't like the blue in the header," or "Can't we use this font instead?" or "Can you make this bigger, bolder, in red and flashing?"

- Don't be a perfectionist. In most cases, rapid prototyping does not have to be 100% perfect, just good enough to give everyone a common understanding.

- Don't prototype everything. Most of the time, you shouldn't have to. ❧

The Skeptic's Guide To Low-Fidelity Prototyping

BY LAURA BUSCHE ❧

Designer Paul Rand once said, "An understanding of man's intrinsic needs, and of the necessity to search for a climate in which those needs could be realized, is fundamental to the education of the designer." Prototyping helps us to unveil and explore these human needs, opening the door to insightful interaction and more empathetic design solutions.

Low-fidelity prototypes, in particular, are rough representations of concepts that help us to validate those concepts early on in the design process. Throughout this chapter, we will look at some of the features that make low-fidelity prototyping a unique tool to radically improve your work and to build an environment in which users' needs can be truly realized.

This chapter focuses on the practice and general principles behind integrating low-fidelity prototypes in design in general, covering applications that range from graphic, web and user experience (UX) design to business and service design.

What Is Low-Fidelity Prototyping And Why Will It Improve The Way You Work?

Have you ever spent an overwhelming amount of time and resources designing something that a client or user discards in a matter of seconds? I've seen it happen far

too many times. It is never pleasant, always frustrating, yet often preventable. Designing a product without continual validation is like walking blindfolded over a plank into a sea of sharks. Even Apple, a company that has repeatedly spoken against using focus groups to design products, pioneered a process called the Apple new product process[49] (ANPP), which involves creating and testing hundreds of early prototypes.

Some of us are quick to jump into building (what to us seem like) brilliant products, to the point of pixel perfection, without even stopping to ask whether our user or client feels the same way. The fact is that designing without introducing potential users to raw versions of our ideas is unsafe, uncomfortable and wasteful.

On the other hand, perfection can also haunt some of us to the point of inaction. While some are too quick to act and end up wasting resources, others are completely paralyzed by the "excessive" amount of work behind building something new. There's just "so much to get done" before delivering the product to the user that we end up feeling frustrated and overwhelmed.

Have you ever overspent resources in a rush or accomplished too little for being a perfectionist? Low-fidelity prototyping helps us to find the middle ground between overspending and overthinking, between too little investment and too much user validation. By building a practical, preliminary version of your product, you will catch

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49. http://thenextweb.com/apple/2012/01/24/this-is-how-apples-top-secret-product-development-process-works/

potential problems and promising insights faster and ear-
lier in the process.

UX designer Matt Tyas presents a prototype concept.

The word "prototype" comes from the Greek *prototypos*[50],
a compound of *protos* ("first") and *typos* ("mold," "pattern,"
"impression"). This initial, raw presentation of our ideas
is precisely what we've come to know as low-fidelity pro-
totyping. Unlike high-fidelity prototyping, this method
requires less time, specialized skills and resources. Its
purpose is not to impress users, but to learn from them.
Instead of wowing people with our product, the goal of
low-fidelity prototyping is to have users wow *us* with
their insight. In a way, the technique facilitates listening,
rather than selling. It opens a conversation in which

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50. http://books.google.com.co/books?id=Oo-9IwoQh6EC&redir_esc=y

users' needs, designers' intentions and other stakeholders' goals are discussed and aligned.

Scientist Jim Rudd and his colleagues at IBM helped to define the difference between the two major types of prototypes in a much recommended piece titled "Low vs. High Fidelity Prototyping Debate[51]" in Interactions Magazine:

> *Low-fidelity prototypes are generally limited function, limited interaction prototyping efforts. They are constructed to depict concepts, design alternatives, and screen layouts... These prototypes are created to communicate, educate, and inform.*

"Fidelity" can be a confusing term. In broad terms, it can be defined (according to Oxford Dictionary) as "the degree of exactness with which something is reproduced." In other words, a prototype's level of fidelity answers the question, How precisely does this represent the final solution?

Why Now?

Though low-fidelity prototyping has existed for centuries, it has recently become popular with the spread of agile design methodologies, inspired by several movements:

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51. http://dl.acm.org/citation.cfm?id=223514

- **Design thinking** advocates for "thinking with your hands" as a way to build empathetic solutions.

- **Lean startup** relies on early validation and the development of a minimum viable product to iterate on.

- **User-centered design** calls for a collaborative design process where users deliver continual feedback based on their reactions to a product's prototype.

As pointed out, we can't really say that low-fidelity prototyping is new because people have been laying out concepts on cavern walls since time immemorial. What we can say is that, given the speed with which we are expected to design market-appropriate solutions, low-fidelity prototyping has never been more important to all kinds of designers.

Designers in companies such as Nintendo use low-fidelity prototyping. Designer Kazuyuki Motoyama explains[52] that the only way to actually know what a Miiverse would feel like was to hold it. That's when he built this prototype out of cardboard. (Image credit: Nintendo)

Advantages

All low-fidelity prototypes, regardless of the type of product being built, bring the following advantages.

DETECT AND FIX MAJOR PROBLEMS EARLY

Building a low-fidelity prototype that can be quickly exposed to user feedback enables us to visualize and solve core issues related to the product's usability and proposed functionality. Because the prototype is not supposed to generate insight about the final look and feel of the product (they are rough approximations), users generally submit thoughtful ideas from what they see. By removing the bells and whistles associated with high-fidelity prototypes, we strip our concept down to the core. Addressing whatever problems we detect at this stage is vital to the product's eventual success.

Consultant Nigel Heaton wrote a key paper titled "What's Wrong With the User Interface? How Rapid Prototyping Can Help[53]," presenting it at the 1992 IEE Colloquium on Software Prototyping and Evolutionary Development. He explains that rapid prototyping should be able to solve around 80% of all major interface issues. In the process of designing products that truly match users' needs, low-fidelity prototyping provides a much-needed wake-up call right from the start.

Aside from helping us to detect major problems, low-fidelity prototyping also gives us the motivation required

52. http://iwataasks.nintendo.com/interviews/#/wiiu/miiverse2/0/0
53. http://smashed.by/rapid-prototyping

to fix them. In a 2012 study[54] of the psychological experience of prototyping, researchers at Stanford and Northwestern University found that "the practice of low-fidelity prototyping… led to reframing failure as an opportunity for learning, fostering a sense of forward progress, and strengthening beliefs about creative ability." The study concluded that building low-fidelity prototyping affects not only the final product, but our level of engagement with the design process itself.

BUILD CHEAPLY AND EASILY

Low-fidelity prototypes can be easily built by individuals and teams with little or no technical skills. As long as the goals of the product and project are clear, then the emphasis with low-fidelity prototyping will be not on form or function, but on focus. Where should we invest our resources next? Where should we avoid investing them? Which features will be key for the user? Are we headed in the right direction with this raw concept? Do we need to pivot towards new models or explore other options?

The best low-fidelity prototypes are built resourcefully, on a small or nonexistent budget and in a short time period. You may also be familiar with the term "rapid prototyping[55]," which is merely the practice of "quickly mocking up the future state of a system." In the spectrum of rapid prototyping, low-fidelity prototypes are on the speedy end.

54. http://www.sciencedirect.com/science/article/pii/S0142694X11000536
55. http://www.smashingmagazine.com/2010/06/16/design-better-faster-with-rapid-prototyping/

DRAW FEEDBACK THAT FOCUSES ON HIGH-LEVEL CONCEPTS, RATHER THAN EXECUTION

In his article "Prototyping for Tiny Fingers[56]," interaction designer Marc Rettig points to the imminent risk of working with high-fidelity prototypes, which is that you will likely "hear criticisms about your choice of fonts, color combinations, and button sizes." Being exposed to an elaborate prototype, users might feel compelled to comment on these details and neglect to gather their thoughts on high-level concepts such as user flow, layout and language.

Rather than being focused on validating the product's underlying assumptions and core value, high-fidelity prototypes redirect attention towards the aesthetics of the product. A rougher low-fidelity prototype, on the other hand, "forces users to think about content rather than appearance."

ITERATE MORE WILLINGLY

Because the effort and resources required to produce a low-fidelity prototype are significantly less, we are less reluctant to change the prototype completely. Think about it: When has it been easier for you to completely scrap something you've been working on? When you've invested a few minutes sketching it or when you've spent countless hours perfecting a prototype? In Rettig's words, "Spend enough time crafting something and you are likely to fall in love with it."

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56. http://dl.acm.org/citation.cfm?id=175288

Iteration is key in a truly agile design process. Only by continually evolving our concepts will we be able to create empathetic solutions that will succeed in the current market. Low-fidelity prototypes encourage this type of shameless, stress-free environment of iteration. Making sharp changes, pivoting to a new business model or even starting from scratch feels more natural to us because there is simply not that much to scrap.

CARRY AND SHOW THEM EASILY

While some high-fidelity prototypes require a special device or environment to be shown, most low-fidelity prototypes can be easily carried around and shared. Rudd states, "Low-fidelity prototypes are easily portable — they can be presented on paper, view graphs, or white boards."

How hard is it to transport a piece of paper? Does it require any special conditions, spaces or advanced instructions? Paper-based low-fidelity prototypes liberate us from the burden of technical and portability requirements.

If you decide to build a low-fidelity prototype using any of the software listed at the end of this chapter, then reconsider whether showing it on a screen is the best choice. A study showed that paper encourages collaborative work more readily than screens in several interesting ways. Researchers at the University of Nottingham, University of Surrey and Cambridge EuroParc examined how paper and screens foster collaboration[57] in three different

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57. http://dl.acm.org/citation.cfm?id=143475

work settings: an architectural practice, a medical center and the control room in London's underground railway. They concluded that paper generates an added flexibility that enables individuals to interact and collaborate in a wide range of ways.

The researchers noticed, among other things, that by handwriting (i.e. drawing, writing or sketching low-fidelity prototypes), participants were able to take notes quickly, while remaining engaged with subjects. This flexibility is particularly important when designing collaboratively and communicating with users to obtain feedback. The natural versatility of paper (it can be folded, cut, scribbled on) also made cooperation significantly easier. Consider these advantages when you decide to expose users to a low-fidelity prototype. Printing out your screenshots or wireframes could radically change the input that you receive.

Types

PAPER-BASED 2D

It doesn't get any simpler than a plain old sheet of paper. Marc Rettig estimates that paper-based prototyping frees designers to spend 95% of their time thinking about the design itself and to spend only 5% on technical issues (which he calls the "mechanics of the tool"). Reflect on your own experience: How many times has your attention diverted from the essential elements of design to the technicalities of a tool?

In web design, for instance, paper-based low-fidelity prototypes can include screenshots of interface elements. In his article "Using Paper Prototypes in Home Page Design[58]," former Sunsoft engineer Jakob Nielsen suggests that "Pop-up menus, messages, and dialog boxes can be simulated with Post-it stickers, or transparent overlays printed on overhead foils." Sunsoft's experience with redesigning its home page revealed that primitive, rough prototypes are valuable sources of insight into usability.
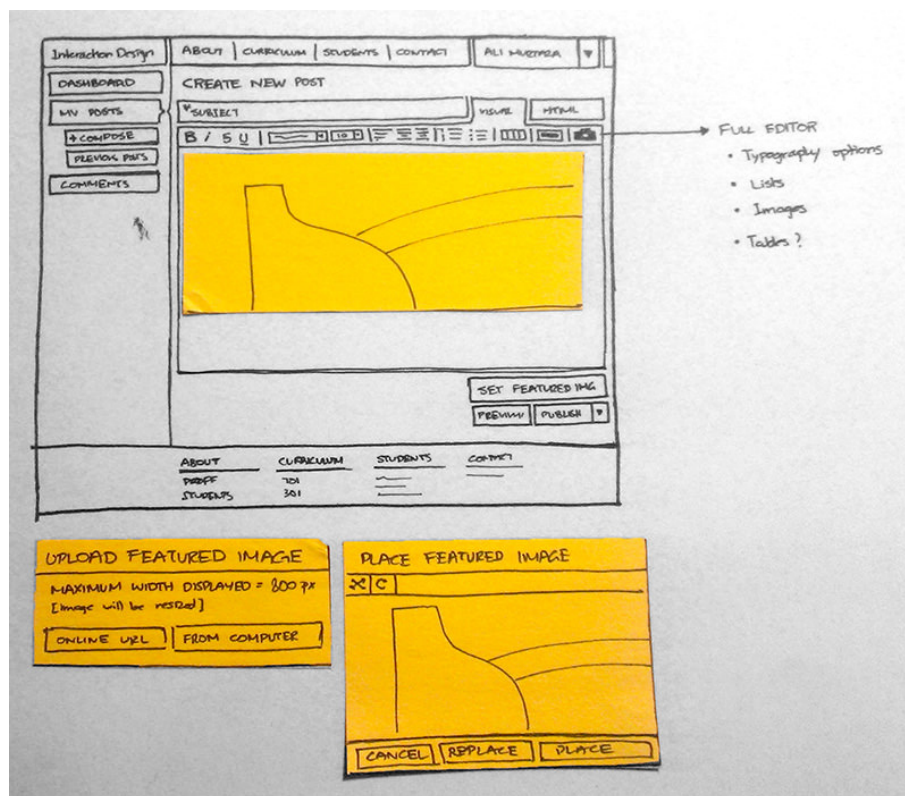
This low-fidelity prototype of a new web design for SCAD's Interaction Design department[59] shows the initial concepts for improving reading and posting interactions.

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58. http://smashed.by/paper-prototypes
59. http://www.iact.in/tag/prototype/

The team at Flow New Media Design shows how it starts with paper-based prototypes[60] *to "strip things back to the bare bones [and] concentrate on the important things."*

Two interaction design students launched a company named Sticky Jots[61]*, which offers kits to help anyone get started with low-fidelity paper-based prototypes, such as storyboards.*

60. http://www.floatdesign.net/blog/why-we-%28and-our-clients%29-love-pa/
61. http://www.smashingmagazine.com/wp-content/uploads/2014/10/sticky-jots-large-preview.jpg

3D

If you want to get more creative and provide users with a 3D prototype to interact with, several fascinating options are available. Using cardboard, foam, wood, plastic, clay and building blocks has become increasingly popular, especially with the spread of design thinking's hands-on approach.

3D prototypes add a level of interaction that 2D prototypes do not achieve. While building it might take slightly longer, a 3D prototype encourages manipulation and could draw a higher level of engagement in the concept-testing phase. The three-dimensional nature will add realism and open the door to valuable feedback.

Ashley Costanzo developed this 3D low-fidelity prototype for HealthyMade[62]: fresh ingredients and recipes packaged into a healthy preplanned meal. This product answers the question, "How might we provide healthier food options to people in need?"

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62. http://www.ashleycostanzo.com/healthymade

Business origami is a paper prototyping method developed by Hitachi to facilitate the design of services and systems. It was developed in-house but eventually attracted the attention of other organizations. The paper cut-outs of various objects improve prototyping systems and interactions with them.

LEGO Serious Play[63] was created to facilitate innovation and business performance. Liquid Agency, for instance, used this method[64] to prototype an answer to the question, "What type of health care do we aspire to offer that would make a difference today and tomorrow?"

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63. http://www.seriousplay.com/

Quick Start Guide

1. DEFINE YOUR GOALS: WHAT WILL YOU SHOW?

Which main features do you want to expose your users to? List two to three pieces of core functionality that you will include in the low-fidelity prototype. In the next step, we will make sure that these aren't left out.

You can use a simple table like the one below to list your features:

Core features	Complementary features

Here are some sample features that you might include as either core or complementary:

Sample features to prototype in graphic, web and UX design	Sample features to prototype in business and service design
• Geolocation	• Collaboration spaces
• Branch finder	• Retail experience
• Contact form	• Sales pitch
• Blog roll	• Price list and payment plans
• Instant quote generator	• Customer support

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64. http://www.liquidagency.com/blog/lego-serious-play-is-not-a-game/

- Image uploading

- Feedback system

- Color customization

- Social media integration

- Analytics

- Gamification

- Task manager

- PDF exporting

- Web conferencing

- Directory

- Consulting appointments

- Delivery

- Subscription payments

- Reward points

- Special packaging

- Business model

- Content generation

- Brand personality

- No-hassle contracts

- Returns policy
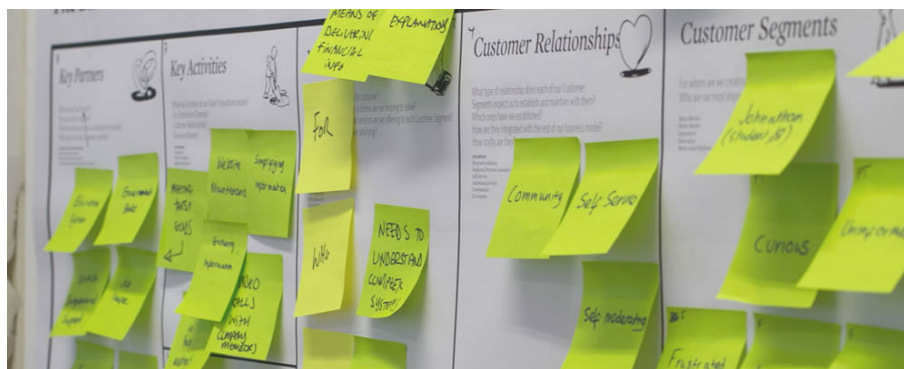
Business model canvas. (Image credit: Aberdeen Global Service Jam[65])

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65. http://gsjaberdeen.org/sponsorus/
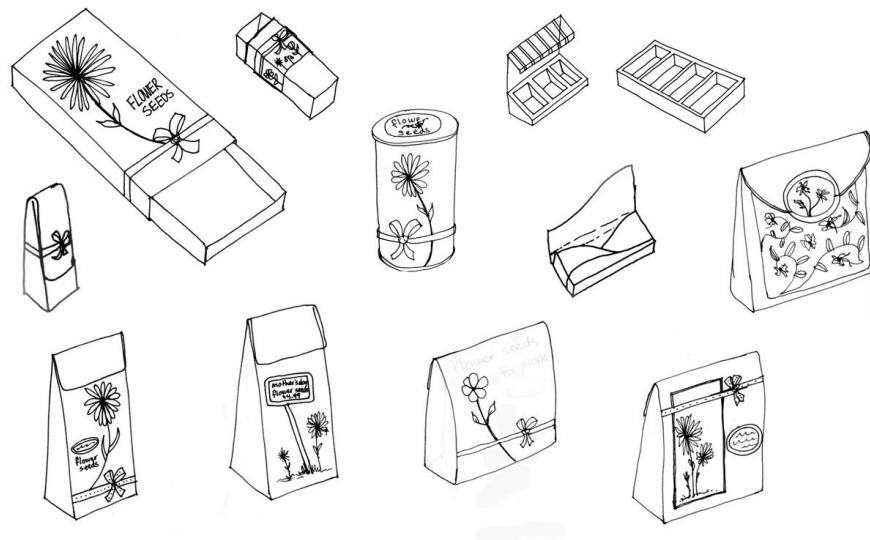
Concept development and sketches for flower seed packaging.
(Image credit: Shavonne Maclin[66])

2. DEFINE THE METHOD: HOW WILL YOU SHOW IT?

Decide what kind of low-fidelity prototype would suit your project best. What could you build quickly that would help users to deliver valuable feedback? How could you display and test the concept simply, investing the least amount of resources? To find the simplest method possible, continue asking the question, "Is there a simpler way to show this?" until you arrive at a feasible way to depict the product's features.

The level of detail that is right for your prototype will depend on a few factors:

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66. https://www.behance.net/gallery/5624949/Packaging-Design

- **What type of user will be exposed to this prototype?**
  Would they be able to deliver insightful feedback based on the model that you are presenting? Would they need to see a certain level of detail in order to understand the concept?
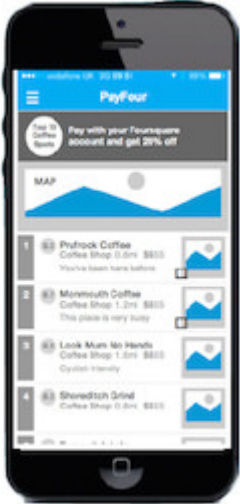
- **What resources are accessible to you?**
  With low-fidelity prototyping, agility is crucial. Think of the tools and resources that surround you as you ideate. Be resourceful and find clever ways to use what you have.

Think about it in this way:

What I want to show: inputting a QR code

| Is there a simpler way to show this?	Is there a simpler way to show this?	Is there a simpler way to show this?
(*Large version*[67])	(*Large version*[68])	(*Large version*[69])

What I want to show: geolocation feature (for browsing nearby)

Is there a simpler way to show this?	Is there a simpler way to show this?	Is there a simpler way to show this?
(Large version[70])	*(Large version[71])*	*(Large version[72])*

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67. http://www.smashingmagazine.com/wp-content/uploads/2014/10/prototype-1-opt.jpg
68. http://www.smashingmagazine.com/wp-content/uploads/2014/10/prototype-2-opt.jpg
69. http://www.smashingmagazine.com/wp-content/uploads/2014/10/prototype-3-opt.jpg
70. http://www.smashingmagazine.com/wp-content/uploads/2014/10/prototype-4-opt.jpg
71. http://www.smashingmagazine.com/wp-content/uploads/2014/10/prototype-5-opt.jpg
72. http://www.smashingmagazine.com/wp-content/uploads/2014/10/prototype-6-opt.jpg

Note: The prototypes above show the evolution of the design of the payment screen in Foursquare[73]'s existing app and were designed by Marta Fioni.

Still struggling to find a method that suits your project? Here are some ideas:
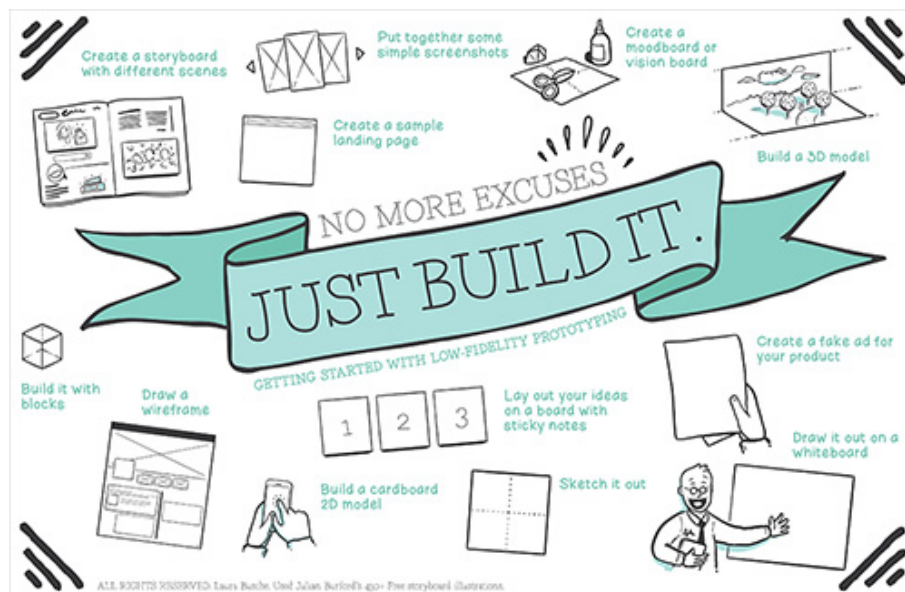
Download this graphic and hang it somewhere visible in your office. It will keep you motivated to make low-fidelity prototyping a consistent part of your design process. (Download Tabloid version, PDF, 383KB[74])

3. EXECUTE: SHOW IT

Start out by defeating your "My skill in [x] isn't good enough" mindset. Low-fidelity prototyping is not about how sophisticated your model looks, but about the conversation it generates about the future of the product. Remember, not form or function, but focus.

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73. https://medium.com/@martafioni/payfour-foursquare-ux-design-79965f6fb835
74. http://provide.smashingmagazine.com/justbuildit_poster.pdf

SAMPLE LOW-FIDELITY PROTOTYPES FROM DIFFERENT DESIGN FIELDS

Graphic, web and UX design

- user flow

- sketch board

- wireframe

- sketches

- mood board

Business and service design

- sample brochure

- landing page

- flyers

- business cards

- sample ad

- scenarios

- storyboard

- 3D model

- explainer video

- business model canvas

Try any of the following digital and analog tools to speed up your prototyping process.

Digital Prototyping Tools

Graphic, web and UX design

- Mockup.io[75]

- POP[76]

Business and service design

- Cacoo[77]

- Mural.ly[78]

- Flinto[79]
- Solidify[80]
- InVision[81]
- Proto.io[82]
- Balsamiq[83]
- Moqups[84]

- Canvanizer[85]
- Business Model Fiddle[86]
- Stickies.io[87]
- ProcessOn[88]
- Conceptboard[89]

Analog Prototyping Tools

Graphic, web and UX design

- paper
- whiteboard

Business and service design

- paper
- whiteboard

75. http://mockup.io/about/
76. https://popapp.in
77. https://cacoo.com/
78. https://mural.ly
79. https://www.flinto.com/
80. http://www.solidifyapp.com/
81. http://www.invisionapp.com/
82. http://proto.io/
83. http://balsamiq.com/
84. https://moqups.com/
85. https://canvanizer.com/new/business-model-canvas
86. https://bmfiddle.com/
87. http://stickies.io/
88. http://www.processon.com/
89. http://conceptboard.com/

- poster
- sticky notes
- sketchbook
- notebook
- napkin
- squared paper
- print template
- cards
- overhead sheet
- cardboard
- carton
- plastic
- wood pieces
- plastic pieces
- glue
- scissors
- markers
- foam pieces
- UI stencil

4. TEST: HOW WILL YOU EVALUATE WHAT YOU'RE SHOWING?

Go beyond the idea that "It's so rough-looking that users will hate it." Having to explain the limitations of your low-fidelity prototype is normal. In fact, it is expected. Guide users to understand the aims of the project, and ask probing questions. If it helps, prepare a short guide before you present the prototype. List a few of the questions that you'd like to be answered during the session, and write an introduction that you could read out loud to help the user contextualize what they are looking at. These are some of the types of questions you will want to ask:

- **Regarding perceived benefits**
  "What, in your opinion, is the key benefit offered by this product concept?" "From the features you have seen today, which ones would make you use the product?" "Which features didn't you see that would make you want to use it?"

- **Regarding positive and negative reactions**
  "On a scale of one to five, how much do you like this concept?" "Why?"

- **Regarding awareness**
  "Having looked at this concept today, what do you remember most about it?" "What do you recall?"

- **Regarding comparative advantage**
  (If you showed users two or more versions of a concept,

ask which variant works best.) "Which of these options appeals to you the most?"

- **Regarding emotional reactions**
  "How did looking at this concept make you feel?" (Help them by providing a list of emotions — happy, frustrated, angry, excited, bored, etc. — or face illustrations that depict these emotions. Have each user select one or more emotions triggered by the prototype.)

- **Regarding intention of use**
  "Having looked at this product concept today, on a scale of one to five, how much would you be willing to use it once it has been refined and launched?" "Why?"

- **General feedback**
  "Feel free to annotate any changes or corrections that you feel would improve this concept."

5. LEARN: WE'VE SHOWN. NOW WHAT?

Collect your users' feedback and find similarities in their evaluations of the concept. Build an affinity diagram[90] to identify the most common suggestions. Incorporate their feedback, and move on to building a high-fidelity prototype that reflects the product's look and feel with a greater level of detail. Repeat the testing session with as many users as needed.

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90. http://www.smashingmagazine.com/2014/01/02/how-working-walls-unlock-creative-insight/

Conclusion

Hopefully, this chapter has helped you understand the impact that low-fidelity prototypes can have on our design processes and outcomes. The five steps outlined above are meant to guide you through the process of building and testing a low-fidelity prototype, and they will surely improve the quality and depth of your design work. Think about the concepts that you are currently working on: How could you validate them before investing an overwhelming amount of time and effort into polishing them? It isn't always easy to see that a raw representation of what you are building might just be the right amount of fidelity needed to ask the most crucial questions about its effectiveness. When in doubt about whether you're ready to test an early concept, always keep author Elizabeth Gilbert's words close to heart:

> *Part of the elasticity that you need, in order to continue to try to create, is the foregone conclusion that not all of it is going to be fabulously successful. But it's all going to be part of a long lifetime body of experimentation.*

OTHER RESOURCES

- "50 Free UI and Web Design Wireframing Kits, Resources and Source Files[91]," Paul Andrew

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91. http://www.smashingmagazine.com/2010/02/05/50-free-ui-and-web-design-wireframing-kits-resources-and-source-files/

- "Free Printable Sketching, Wireframing and Note-Taking PDF Templates[92]," Paul Andrew

- "Design Better and Faster With Rapid Prototyping[93]," Lyndon Cerejo

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- "The Psychological Experience of Prototyping[94]" (PDF), Elizabeth Gerber and Maureen Carroll, *Design Studies*, 33:1 (2012), pages 64–84

- "Tasks-in-Interaction: Paper and Screen Based Documentation in Collaborative Activity[95]," Paul Luff, Christian Heath and David Greatbatch, *Proceedings of the 1992 ACM Conference on Computer-Supported Cooperative Work*, (New York, NY), pages 163–170

- "Chapter 10: People and Prototypes," Bill Moggridge, *Designing Interactions[96]*, Cambridge, MA: MIT Press (2007), pages 682–723

- "Using Paper Prototypes in Home-Page Design[97]," Jakob Nielsen, *IEEE Software*, 12:4 (1995), pages 88–89, 97

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92. http://www.smashingmagazine.com/2010/03/29/free-printable-sketching-wireframing-and-note-taking-pdf-templates/
93. http://www.smashingmagazine.com/2010/06/16/design-better-faster-with-rapid-prototyping/
94. http://egerber.mech.northwestern.edu/wp-content/uploads/2012/11/Gerber_PsychologicalExperienceofPrototyping.pdf
95. http://dl.acm.org/citation.cfm?id=143475
96. http://www.designinginteractions.com/book
97. http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=391840

- "Prototyping for Tiny Fingers[98]," Marc Rettig, *Communications of the ACM*, 37:4 (1994), pages 21–27

- "Low vs. High-Fidelity Prototyping Debate[99]," James Rudd, *Interactions*, 3:1 (1996), pages 76–85 ❧

98. http://dl.acm.org/citation.cfm?id=175288
99. http://dl.acm.org/citation.cfm?id=223514

Five Tips For Making Ideas Happen

BY SCOTT BELSKY ❧

Creative types have a problem. We have so many great ideas, but most of them never see the light of day. Why do most ideas never happen? The reason is that our own creative habits get in the way. For example, our tendency to generate new ideas often gets in the way of executing the ones we have. As a result, we abandon many projects halfway through. Whether a personal website, a new business idea or a long-dreamt novel, most of these projects stagnate and become a source of frustration.

Some creative people and teams are able to defy the odds and make their ideas happen, time and again. In my work, I have spent the better part of five years meeting these exceptional people and chronicling their habits and insight, which has resulted in the following tips and suggestions for making ideas happen.

1. Avoid A Reactionary Workflow

Without realizing it, most of us have gradually adopted a "reactionary workflow." We are constantly bombarded with incoming communication: email, text messages, tweets, Facebook posts, phone calls, instant messages, etc. Rather than be proactive with our energy, we spend all of our energy reacting, enslaved to the last incoming item.
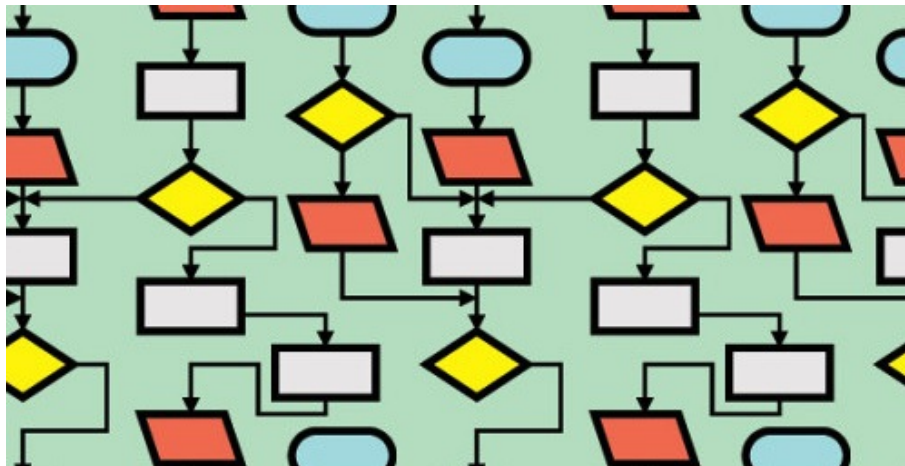
To avoid this reactionary workflow, some of the most productive people I have met schedule what can be called "windows of non-stimulation" in their day. For two to three hours per day, these people avoid email and all other incoming communication. In this time, they focus on their list of big items: not routine tasks, but long-term projects that require research and deep thought.

Another idea is to aggregate all messages in a central location. Setting your social networks to email you, and using filters to automatically manage these emails, will reduce your "hopping time" (when you hop between sources of communication) and focus your attention. Some people even have their voice mails transcribed automatically and forwarded by email. In a world of many inboxes, you have to consolidate.

2. Strip Projects To Three Primary Elements
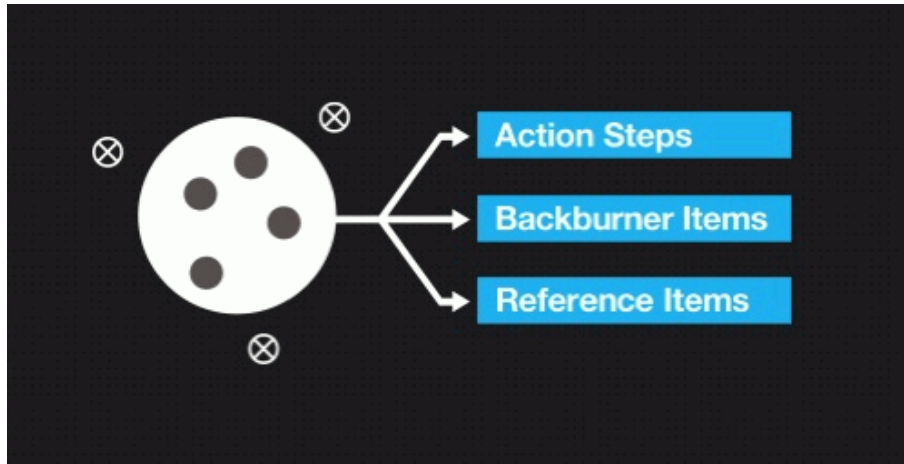
Every project in life can ultimately be reduced to just three primary elements: 1) action steps, 2) backburner items and 3) references. Action steps are tasks that can be articulated succinctly and begin with verbs. They should be kept separate from your notes and sketches.

Backburner items are ideas that come up during brainstorming or while on the run and that are not actionable but may be later on. Backburner items should be collected in a central location and revisited periodically as a ritual. One leader I met prints out his list of backburner items (which he stores in Word document) on the first Sunday of every month. He grabs the sheet (and a beer) and then sits down to review the entire list. Some items will be crossed off as irrelevant, some will remain on the list, and some will be transformed into action steps.

The third element of every project is references: the articles, notes and other stuff that collect around you. It turns out that references are overrated. Rather than

spend hours organizing your notes, consider simply filing your notes chronologically (i.e. not by project or anything else) in one big file. In the age of digital calendars, we can search for any meeting and quickly find the notes taken on that date.

3. Measure Meetings With Action Steps

Meetings are extremely expensive considering the cost of time and interruptions they represent. Beware of "posting meetings" or meeting "just because it's Monday." Such meetings are usually scheduled for the morning — when you're at your most productive — and often end without any action steps having been captured. A meeting that ends without any action steps should have been a voice mail or email.

When you do meet with clients or colleagues, end each meeting with a quick review and capture the action steps. The exercise should take less than 30 seconds per person. Each person should share what they captured. Doing so will almost always reveal a few action steps that

were missed, duplicated or misunderstood. Reading your action steps aloud also cultivates a sense of accountability.

4. Reduce Your Insecurity Work
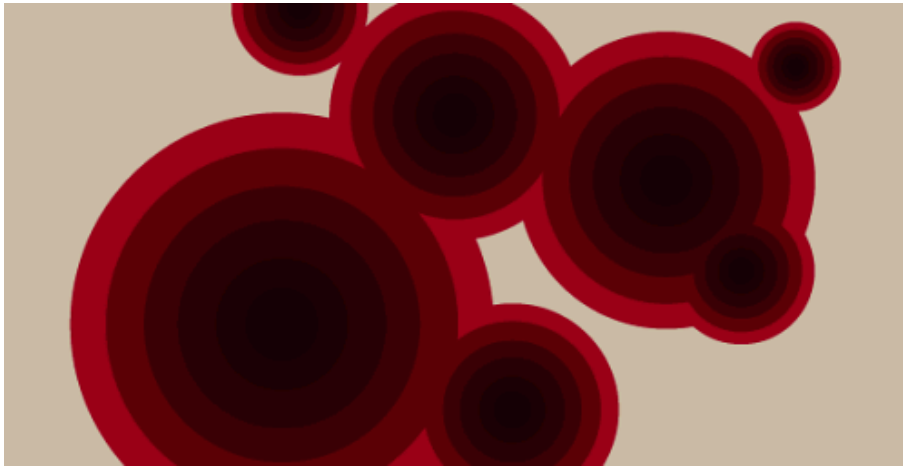
In the era of Google Analytics and Twitter, we spend too much time obsessing over real-time data because it's all at our fingertips. Whether it's your website's traffic or bank account, checking these repeatedly doesn't help make your ideas happen. They just make you feel "safe." Insecurity work is stuff we do that (1) has no definable outcome, (2) does not move the ball forward in any way and (3) takes up so little time that we can do it multiple times a day without realizing it. Still, it puts us at ease.

The first step to reducing insecurity work is becoming self-aware. Identify the insecurity work in your daily life. The second step is to establish guidelines and rituals for yourself that create discipline. Perhaps you could try restricting all of your insecurity work to a particular 30 minutes every day? The third step, if applicable, is to dele-

gate your insecurity tasks to a less insecure colleague, who can review the data periodically and report any concerns.

5. The Creative Process Is About Surviving The "Project Plateau."
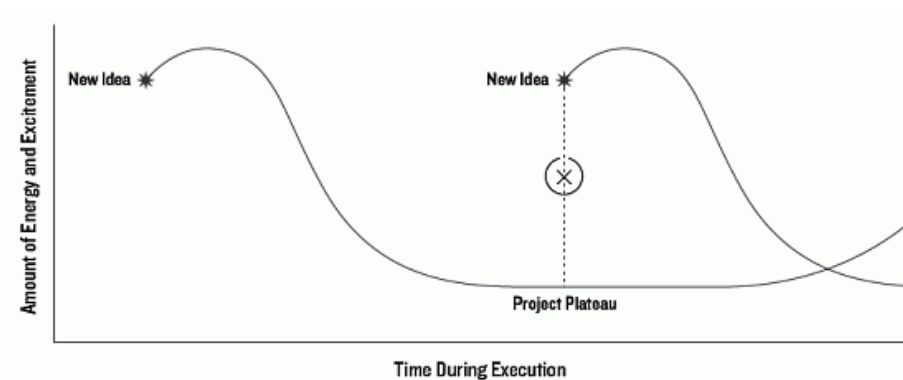
Everyone has their own approach to generating ideas. There's no "best way" to be creative. But when it comes to the process of executing ideas, we all face one challenge in particular: sticking with it. Most ideas are abandoned at what I've come to call the "project plateau": the point when creative excitement wanes and the pain of deadlines and project management becomes burdensome. To escape this pain, we generate a new idea (and abandon the one we were working on). This process can easily repeat itself ad infinitum, without us ever finishing anything meaningful.

Show your ideas some respect, and spend some energy improving *how* you execute. If not for you, do it for everyone else who will benefit from your ideas once they actually see the light. ❧

How To Make Innovative Ideas Happen

BY ROBERT HARTLAND ❧

In one of his recent presentations, Frans Johansson explained why groundbreaking innovators generate and execute far more ideas than their counterparts. After watching his presentation The Secret Truth About Executing Great Ideas[100], my thoughts began to surface about how meaningful the presentation was — regardless of a person's industry, culture, field or discipline. Anyone can come up with an amazing idea but how you execute the idea will determine your success.

Ideation: Idea Conception

Coming up with an innovative idea will require some methods of generating ideas from brainstorming to mind mapping that can help conjure up useful ideas. During this process one must make sure to keep focused on a goal. If you have no goal, how will you know when you have reached the finish line and are ready for refinement? Start out with a few thoughts or themes and see what you can come up with.

Don't get stuck on trying to come up with different variations of the same idea as you will want to develop ideas further later. While there is no exact path in

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100. http://the99percent.com/videos/6806/frans-johansson-the-secret-truth-about-executing-great-ideas

ideation or other creativity techniques from start to finish, creating an idea you are happy with and feel has innovative potential is the key. Believing in your ideas innovative ability will give the confidence you will need later on during pitch time.

Is this new disposable cup holder an improvement or an innovation?

Many people have tried to innovate, but because something similar had already existed, it's merely an improvement. When designing within familiar bounds, you can still create something amazing but your audience will not likely be astonished at the sight of it. It is easy to see the particular innovative idea as something that was so simple to come up with but if that's the case, then why didn't you do it? The trick is to come up with them *before*. That's the challenge. Once you find that special seed of an innovative idea, try to avoid key mistakes that will stop your idea from ever seeing the light of day.

As interesting as some ideas may be, that is not always enough for consumers. Getting the message out that your new idea is imperative will gain more consumer atten-

tion, especially in more difficult economic times. Always having a short and clear value proposition with an inescapable feeling of necessity can help gain capital, exposure and consumers. Do not wait until everything is "perfect" as they may never be and this will only further delay your ideas release. Act, do not sit idle!

Nurture New Ideas

Think of your typical cup holder from a fast food restaurant or coffee house made of cardboard. They are rigid with no handle and have been cause of drink spills and panic attacks for years. Recently a new cup holder has come about that is more mobile and has a handle (*see image above*). These changes have made it easier to transport drinks and prevent spills. This idea in itself is only an improvement on what was there previously.

To truly be innovative, you should take opposing thoughts and combine them, which increases the innovative potential of your idea (*see image below*). Think of the invention of the Burqini[101] that combines the idea of a burqa that Muslim women wear and the flexibility of a swimsuit at the beach. Innovative ideas can sometimes be explosive but many potential barriers will arise and just having an innovative idea is not always enough.

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101. http://www.ahiida.com/
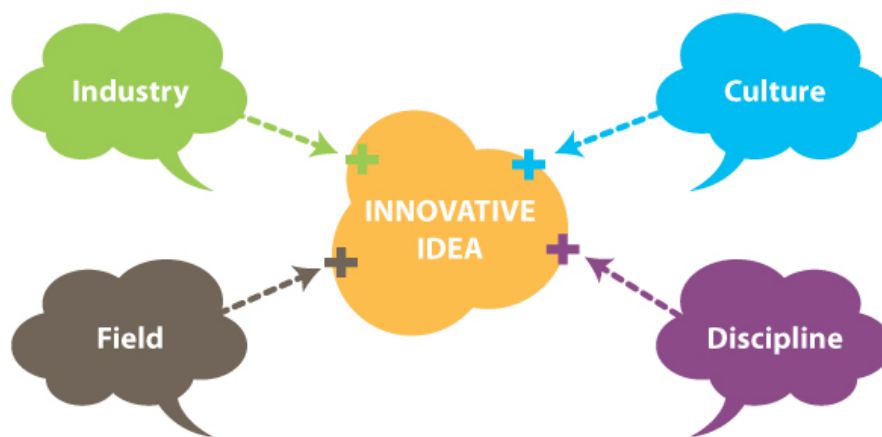
Groundbreaking and innovative ideas come from combining ideas from different industries, cultures, fields, and disciplines.

In order to take an innovative idea from the embryo of a concept to market, you need to have the determination to push through failure. The odds are against you no matter the idea and statistics say[102] you are going to fail a few times on your road to success. Knowing this, you have to hedge your bets more effectively so you can adjust your path and continue forward.

Don't be intimidated by the perceived brilliance of innovative designs, because you are typically seeing the last iteration that has changed compared to its original concept. This happens with adjustment through failure. As Johansson mentioned, Picasso had made around 20,000 (as high as 50,000) works of art in his lifetime and Einstein published 240 papers with a short number of successful creations. Innovative success happens in volume (*see image on the next page*).

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102. http://faculty.msb.edu/homak/homahelpsite/webhelp/HomaHelp.htm#New_Product_Failure_Rates.htm
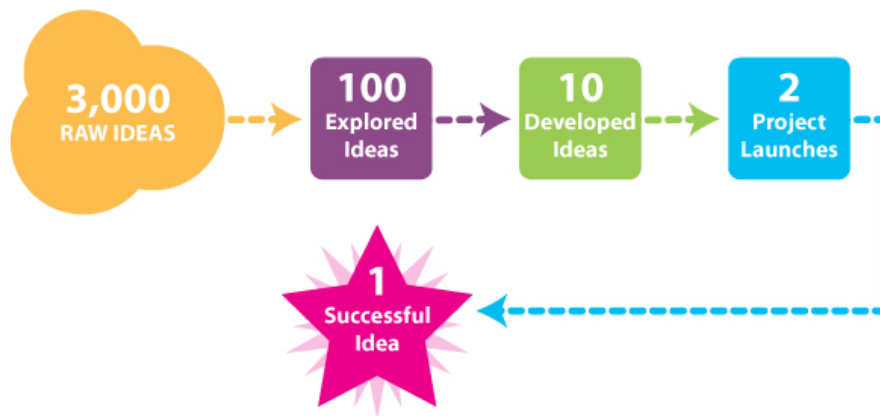
Stevens, G.A. and Burley, J., "3,000 Raw Ideas = 1 Commercial Success!"

How To Pick A Successful Idea

Don't put everything behind your first idea! You wouldn't go to the racetrack and put your life savings on 1/3000 odds, would you? Even though we are taught that all innovations come from a visionary who predicted a need for the future, this is usually not the case. Naturally, most inventions come from necessity and others from creative spark. When executing a creative idea with the resources you have available, you will have to make adjustments along the way that may not have been accounted for originally. Johansson suggests that you take the smallest executable step (smallest bet) so you don't risk everything on your original idea.

Once you define the smallest step, you know your scope of risk. This is very important because you can then take baby steps to overcome challenges and utilize resources more efficiently on your road to success (*see image below*). While strategy is paramount, one shouldn't get lost in planning and take too long to execute. Stay moti-

vated to move forward, because forward motion even through failure is the key to success.
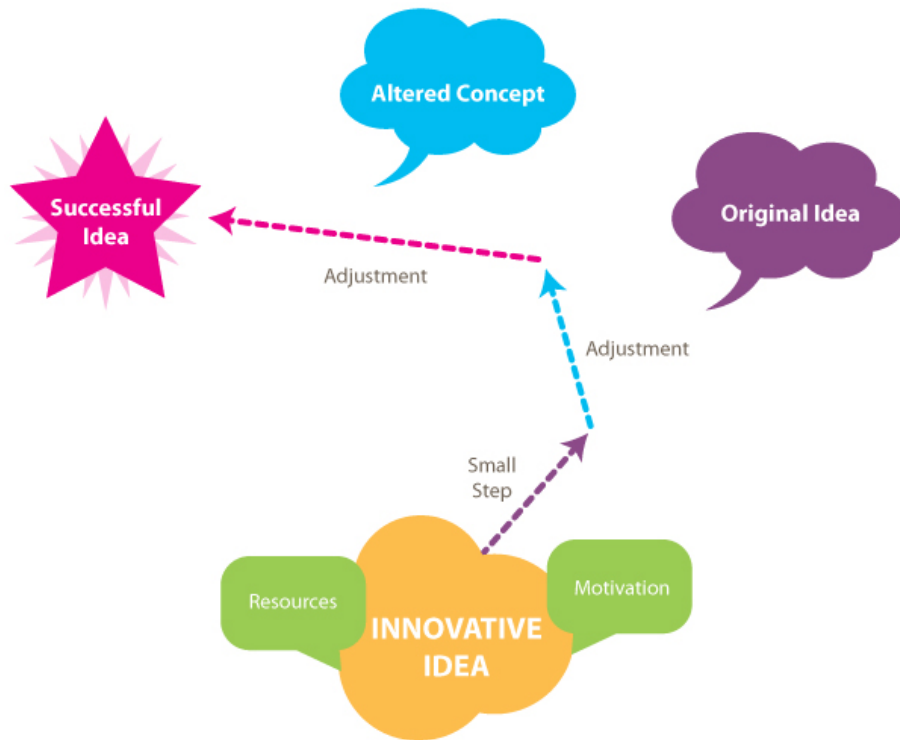
"Nearly every major breakthrough innovation has been preceded by a string of failed or misguided executions." — Frans Johansson.

When implementing strategy, whether it is used to free up resources or define a path to move forward, do not plan on coming up with the ultimate plan that will carry your idea to the finish line. Coming up with a base and enabling yourself to act will help to get things done and eventually discover the final solution that goes to market. You will need to bring yourself to an idea intersection where you can pick and choose the best ideas. This intersection can be used to generate extraordinary, electrifying and trendsetting ideas.

Exploring Innovation Deeper

THE DEVOTION OF PABLO PICASSO

Pablo Ruiz Picasso[103] was a Spanish artist that had a unique talent in painting by combining different techniques, theories and ideas making him one of the most well-known figures in 20th century art. Picasso had always shown a passion for art from a very young age and was determined to express his passion to the world. Overcoming high and low barriers, he achieved much success and fortune in his life. As Pablo Ruiz Picasso said, "action is the foundational key to all success." Continuing to move forward by taking action and not sitting idle will create momentum for success.

Early in his life, Pablo Picasso slept during the day, worked at night and persevered through poverty, cold and desperation. He was known to have burned much of his early work just to keep warm at night. Picasso motivated himself through passion to push forward and eventually made luxurious connections. Constantly updating his style from the Blue Period, to the Rose Period, to the African-influenced Period, to Cubism, to Realism and Sur-

103. http://en.wikipedia.org/wiki/Pablo_Picasso

realism, he was a pioneer with a hand in every art movement of the 20th century.

Picasso was extraordinarily abundant throughout his long lifetime. A skillful self-promoter, he used politics, whimsicality, and harassment as a selling tool. The total number of artworks he produced has been estimated[104] at 50,000, comprising 1,885 paintings; 1,228 sculptures; 2,880 ceramics, roughly 12,000 drawings, many thousands of prints, and numerous tapestries and rugs. From all of these works, only a few dozen have been regarded as a great success, leaving thousands in museums for viewing after his death and even more collecting dust. Picasso dedicated his life to art and was very influential with his portrayal of Cubism.

FRANK EPPERSON'S JUICE ON A STICK

Frank Epperson[105] was an average American who at a young age discovered a "frozen drink on a stick" that would later become an innovative idea. In his life he dabbled in real estate before discovering how to take his idea to market.

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104. http://picasso.shsu.edu/
105. http://en.wikipedia.org/wiki/Frank_Epperson

At the age of 11 Frank Epperson invented the "Epsicle" that is now known as the "Popsicle". He was mixing powdered soda with water to make soda pop and accidentally left the mixing bucket outside on an unusually cold night. During the night the mixture froze solid, with the wooden stirring stick standing straight up. There was one huge problem: you can't start an Epsicle production line on your back porch because the weather didn't allow for such a thing. Epperson overcame this hurdle by gaining access to a commercial freezer, stamped his name on the sticks and wanted to sell his idea.

Unfortunately for Epperson, ice-cream makers were not interested and he did not share his idea again until a fireman's ball years later. He pushed through rejection and failure without burying all of his resources until he had achieved a solid idea. While he discovered this wonderful treat early on in life, it took him 16 years to introduce the idea and 7 years more to sell his Popsicle patent[106]. The popsicle can be credited for the entrance of tasty frozen deserts into the mainstream and happy children's faces around the world. Today hundreds of millions[107] of Popsicles are eaten in the United States each year, and there are more than thirty flavors available.

106. http://smashed.by/frozen-confectionary
107. http://web.mit.edu/Invent/iow/epperson.html
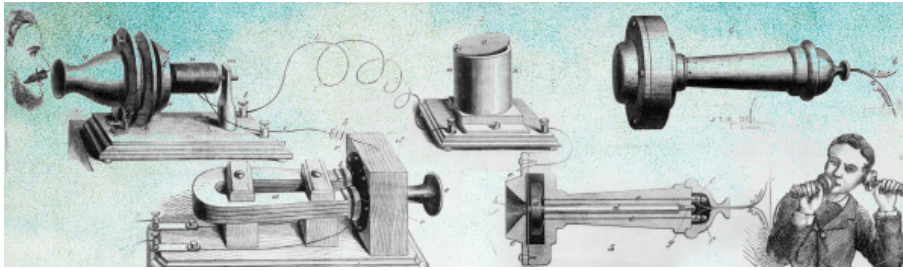
ALEXANDER GRAHAM BELL'S MODERN COMMUNICATION

Alexander Graham Bell[108] was a scientist from Scotland (originally) that had always had a natural curiosity for the world. This resulted in experimentation with inventing at a young age, most notably a simple dehusking machine at age 12.

Due to the gradual deafness of his mother starting at a young age, he was led to study acoustics which eventually led to the invention of the telephone. Bell's telephone grew out of improvements he made to the telegraph. He had invented the "harmonic telegraph" which could send more than one message at a time over a single telegraph wire. His path to success was not as clear as one might think and is surrounded by past failures and controversy.

Bell's first serious work with sound transmission used tuning forks to explore resonance. Unfortunately, this groundbreaking undertaking had already been completed worlds away in Germany. A short change in path led Bell to transmit sound through electrical means. He experimented first by trying to transmit musical notes and articulate speech.

108. http://en.wikipedia.org/wiki/Alexander_Graham_Bell

Alexander Graham Bell had not set any clear destination and became overwhelmed with his experiments. After many sleepless nights he created a harmonic telegraph[109] which became the first stepping stone to the creation of the telephone. After entertaining other possibilities such as the phonautograph[110] and sending multiple telegraph messages on a single line, Bell refined the idea of acoustic telegraphy[111].

By recognizing progress and changing his path, Bell (with the help of Thomas Watson) was able to invent the sound-powered telephone[112]. By starting with the idea of transmitting a voice through electricity, Alexander Graham Bell was able to, through a series of refinements, invent technology that is used around the world even today. Bell continued to test out new ideas involving kites, airplanes, tetrahedral structures, sheep-breeding, artificial respiration, desalinization and water distillation, and hydrofoils.

109. http://memory.loc.gov/ammem/bellhtml/belltelph.html
110. http://en.wikipedia.org/wiki/Phonautograph
111. http://en.wikipedia.org/wiki/Acoustic_telegraphy
112. http://en.wikipedia.org/wiki/Sound-powered_telephone

JACK DORSEY'S MICRO COMMUNICATION

Jack Dorsey[113] is an American software architect that had an interest in making "instant messenger" updates available for friends to see. This was a refined concept that eventually grew into what we now know as Twitter. Three guiding principles of this innovative idea are simplicity, constraint and craftsmanship.

Jack had an early fascination with cities and how they work, so he would always carry maps around with him. His attraction with mass-transit and how cities function led him to taking advantage of public transit databases in Manhattan. He built off of his original idea that gave meaning to his overall concept. His idea make clear though working on dispatch software, programming real-time messaging systems for couriers, taxis, and emergency vehicles.

Jack Dorsey's experience helped him see his idea in a completely new perspective. Taking his seedling of an idea that would update friends of his status, Dorsey completed several field tests before recognizing that the technology available didn't support his innovative idea. There are times when putting off a project is irrefutable. Jack Dorsey originally came up with his idea in the year 2000

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113. http://en.wikipedia.org/wiki/Jack_Dorsey

but wasn't able to execute effectively until 8 years later. Jack was effective in not letting his idea sit for too long but instead taking action when technology would let it thrive.

Conclusion

Making ideas happen isn't easy and requires patience, determination and hard work. The most important part of it is not just coming up with a promising concept, but rather rethinking it over and over again, implementing it and then putting it to practice.

Most inventions come from necessity, so pay attention to small problems in your environment and find simple solutions to these problems. Do not sit idle on the idea — act instead. Take opposing thoughts and resolve them in your innovative designs. And keep innovating all the time, one step at a time. The time will pass, and if you have some luck, you will see your idea growing, flourishing and maybe even turning into a real success. *...So what are you waiting for?*

Further Resources

Here are further articles and related resources:

- 99 Excuses For NOT Making Ideas Happen[114]
  If you're not doing something, what does it matter why?

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114. http://the99percent.com/tips/6842/99-excuses-for-not-making-ideas-happen

See what their readers feel are the most common excuses for not making ideas happen.

- Executing Ideas Often is Difficult for Leaders[115]
Strategy is too often just a bad joke (with allusions to Dilbert's pointy-haired boss) among the working-level people who actually produce the products, provide the service and generate the profit.

- How Do You Keep, Develop and Execute Ideas?[116]
There are so-called serial entrepreneurs who are fond of jumping from one great execution of an idea to another. And more often than not, they gain much experience–and money–in the process.

- Ideas Are Not Innovation[117]
Continuous innovation is critical to most businesses, and yours is no exception. Innovation must be woven into the very fabric of your culture.

- The 3 Most Common Mistakes When Growing an Idea into a Business[118]
Sometimes this energy and excitement can be blinding. Some people are so tremendously passionate, yet lack the ability to take ownership and really get things done. ꙮ

115. http://www.bizjournals.com/dayton/stories/2000/08/28/smallb3.html
116. http://www.devlounge.net/strategy/how-do-you-keep-develop-and-execute-ideas
117. http://www.rightnow.com/blog/executive-leadership/ideas-are-not-innovation
118. http://www.youngentrepreneur.com/blog/the-3-most-common-mistakes-when-growing-an-idea-into-a-business/

About The Authors

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Chauncey Wilson is a User Experience Architect at Autodesk, Inc.[119], and Adjunct Lecturer in the Human Factors and Information Design Program at Bentley University. Chauncey has spent over 30 years as a usability practitioner, development manager, lab director, usability manager, and mentor. He recently, completed a book, *Brainstorming and Beyond*[120], about ideation methods for UX practitioners.

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Dan Mayer's interest in graphic design began when he was five years old and visited a printing press on a 1979 episode of *Sesame Street*. Originally from the US, he recently spent five years in Prague teaching classes in design theory and history at Prague College and providing art direction for Dept. of Design. Dan currently freelances and splits his time between Prague and Berlin. His work and more examples of his writing can be found at www.danmayer.com[121]. Twitter: @m0ckduck[122].

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119. http://dux.typepad.com/dux/chauncey-wilson/
120. http://www.amazon.com/Brainstorming-Beyond-User-Centered-Design-Method/dp/0124071570/
121. http://www.danmayer.com
122. http://www.twitter.com/m0ckduck

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Jesse Friedman is a veteran developer turned experience craftsman. He prides himself as being an advocate for users and their experience. Currently employed by Automattic[123], Jesse works with products that impact millions of websites and users everyday. In 2012 he wrote the *Web Designers Guide to WordPress*[124] and this year he released two new books *WordPress in a Weekend*, and *WordPress Security*. With years of experience as a speaker and a Professor, he delivers impactful and educational talks. Jesse co-organizes local meetups, and is very active in the community. He works closely with his students and others to share knowledge and bring forth a better future for Internet. Twitter: @professor[125].

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123. http://automattic.com/
124. http://jes.se.com/library/web-designers-guide-to-wordpress#primary
125. http://www.twitter.com/professor
126. https://twitter.com/laurabusche
127. http://www.leanbranding.com/

at leanbranding.com/blog[128]. For consulting, workshops or other types of partnerships contact her at laura@laurabusche.com.

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128. http://leanbranding.com/blog
129. http://www.strategist.net
130. http://www.strategist.net/book/index.htm
131. http://www.twitter.com/lycerejo

through his portfolio website Aether Design[132]. Twitter: @roberthartland[133].

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Scott is the Founder of Behance, the leading online platform to showcase and discover creative work, and Adobe's Vice President of Products/Community. Millions of people use Behance to display and find talent every month. Behance also runs 99U, a think tank and annual conference for creative leaders focused on the execution of ideas. Scott is the author of the international bestselling book *Making Ideas Happen* (Portfolio, Penguin Books). In 2010, Scott was included in Fast Company's list of "100 Most Creative People in Business." He also serves as an advisor and investor in several early-stage companies including Pinterest, Uber, and Warby Parker. He serves on Cornell University's Entrepreneurship Advisory Council and the Board of Trustees for the Smithsonian Cooper-Hewitt National Design Museum. Scott attended Cornell University as an undergraduate and received his MBA from Harvard Business School. Website: http://scottbelsky.com[134]. Twitter: @scottbelsky[135].

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132. http://www.mythofaether.com/
133. http://www.twitter.com/roberthartland
134. http://scottbelsky.com
135. http://www.twitter.com/scottbelsky

About Smashing Magazine

Smashing Magazine[136] is an online magazine dedicated to Web designers and developers worldwide. Its rigorous quality control and thorough editorial work has gathered a devoted community exceeding half a million subscribers, followers and fans. Each and every published article is carefully prepared, edited, reviewed and curated according to the high quality standards set in Smashing Magazine's own publishing policy[137].

Smashing Magazine publishes articles on a daily basis with topics ranging from business, visual design, typography, front-end as well as back-end development, all the way to usability and user experience design. The magazine is—and always has been—a professional and independent online publication neither controlled nor influenced by any third parties, delivering content in the best interest of its readers. These guidelines are continually revised and updated to assure that the quality of the published content is never compromised. Since its emergence back in 2006 Smashing Magazine has proven to be a trustworthy online source.

136. http://www.smashingmagazine.com
137. http://www.smashingmagazine.com/publishing-policy/