

Chapter 1 : How Designers Think (ebook) by Bryan Lawson |

How Designers Think is based on Bryan Lawson's many observations of designers at work, interviews with designers and their clients and collaborators. This extended work is the culmination of forty years' research and shows the belief that we all can, and do, design, and that we can learn to design better.

August 10, Most people do not really think about design and designers, let alone think of themselves as designers. But what, if anything, can regular people – teachers, students, business people of all types – learn from designers and from thinking like a designer? And what of more specialized professions? Can medical doctors, scientists, researchers, and engineers, and other specialists in technical fields benefit in anyway by learning how a graphic designer or interaction designer thinks? I believe there is. Below are 10 things plus a bonus tip that I have learned over the years from designers, things that designers do or know that the rest of us can benefit from. When I speak around the world I often put up a slide that asks people to make as many sentences as they can beginning with the word "Designers". The sentences they generate range from "Designers wear black" to "Designers use creativity and analysis to solve problems" to "Designers make things beautiful," and so on. Click on the "Think like a designer" slide to see the 11 tips in slide format on Slideshare. These ten are broad and even a bit philosophical. Regardless of your profession, I hope there is an item or two that you can apply to your own work. Constraints and limitations are wonderful allies and lead to enhanced creativity and ingenious solutions that without constraints never would have been discovered or created. In the words of T. Eliot, "Given total freedom the work is likely to sprawl. Your problem is what it is. How can you solve it given the resources and time that you have? Any fool can be complicated and add more, it takes discipline of mind and strength of will to make the hard choices about what to include and what to exclude. The genius is often in what you omit or leave on the editing room floor. Designers understand the need to take risks, especially during early explorations of the problem. They are not afraid to break with convention. Good designers are open minded and comfortable with ambiguity early on in the process, this is how discoveries are made. Look at the problem from their point of view -- put yourself in their shoes. This is not easy, it takes great amounts of empathy. Get in touch with your empathetic side. Empathy – an undervalued "soft skill," can be a great differentiator and is key for truly understanding a problem. This is related to 4 above: Put yourself in their shoes. How do people interact with your solution? Remember that much of design has an emotional component, sometimes this is even the largest component though users may be unaware of this. Do not neglect the emotional aspect of your solutions. This is related to 5 above. Practice illustrating the significance of solutions both verbally and visually. Start with the general, zoom in to the detail, pull out again to remind us of the theme or key concept, then zoom back in to illuminate more of the detail. Design – even graphic design – is not about beautification. Design is not just about aesthetics, though aesthetics are important. More than anything, design is about solving problems or making the current situation a little better than before. Design is not art, though there is art in design. Tools are important and necessary, but they come and go as better tools come along. Obsess instead about ideas. Though most tools are ephemeral, some of your best tools are a simple pencil and sketch pad. These are often the most useful – especially in the early stages of thinking – because they are the most direct. Good advice is to go analog in the beginning with the simplest tools possible. Design is about choices and intentions, it is not accidental. Design is about process. The end user will usually not notice "the design of it. Good designers are skilled at noticing and observing. They are able to see both the big picture and the details of the world around them. Humans are natural pattern seekers; be mindful of this skill in yourself and in others. Design is a "whole brain" process. You are creative, practical, rational, analytic, empathetic, and passionate. Yet, unlike other kinds of laws, it may be acceptable to break them at times so long as you know why. Basic graphic design principles and rules are important and useful to know, yet most professionals today have a hole in their education when it comes to the fundamentals of graphic design. I try to do this a little bit with the book Presentation Zen Design to raise the design mindfulness and vocabulary of professionals who do not make a living in design per se, but who have a desire to get better. This is not an exhaustive list in fact, I started with

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about 25 items ; there are many other things designers can teach us and not only graphic designers as well. What is missing from this list? What would you add? Love to hear your ideas. Link Posted at

Chapter 2 : 5 Ways to Design Clothes - wikiHow

How Designers Think is based on Bryan Lawson's many observations of designers at work, interviews with designers and their clients and collaborators.

In lieu of an abstract, here is a brief excerpt of the content: Dene Grigar Design Thinking: Understanding How Designers Think and Work, a brilliant little book that contains a large amount of information. Little is not meant to be a pejorative comment about the quality of the book but rather is descriptive of its actual size: But the information Cross manages to pack into that small space speaks to the very skills he discusses about great design. Extremely well organized and compellingly written and argued, Design Thinking makes for good reading and will be useful for teaching, particularly those "interested. The book is divided into eight chapters, each with a subsection; all are noted and numbered in the Table of Contents, making them easy to find. Cross, an expert in design methodology and epistemology, is interested in "reveal[ing] and articulat[ing] the apparently mysterious. To that end Cross employs interview-and experiment-based research methods as well as an interdisciplinary approach to design to arrive at his findings. Chapter 1, "Design Ability," by far the lengthiest chapter of the book, lays out underlying principles about design thinking and details the methods by which he approaches his research in this area. While artists may not be surprised that design is described as an "exploratory process" p. Of interest to artists is the idea that research into design thinking has resulted in the "growth of respect for the inherent, natural intelligence that is manifested in design ability" that is grounded in "technical rationality" p. The next two chapters follow through on the interview-based research approach promised in the first chapter. Chapter 4 provides an analysis of the design thinking found in Chapters 2 and 3, looking at the common features shared by the two men. Chapter 5, "Designing to Use," introduces experiment-based research methods, looking specifically at "design thinking in action" p. This method asks subjects to work through a design and provide a "verbal account. Here Cross follows Victor Scheinman as the engineer designs a device that will allow a backpack to be carried on a mountain bike. Chapter 6, "Designing Together," continues with this method, this time with a team of three as they take on the same design problem as Scheinman was given. Chapter 7 follows the organizational strategy introduced previously by comparing the design thinking utilized by the designers featured in Chapters 5 and 6. You are not currently authenticated. View freely available titles:

Chapter 3 : Design Thinking – What is That?

Many designers dabble in other fields, but most designers tend not to be as versatile as some writers on design methodology think. For example, architects need to understand the structural properties and jointing problems associated with timber.

Not sure what the hype is May 15, Ryan Paul rated it really liked it Well written, analytical look at design thinking. Jan 18, John rated it liked it Nigel Cross is the first name in design thinking in the design academic literature. This book retains a scholarly tone that does not stray from that work, and in fact feels like an extended remix of "Expertise in Design: The main insights of this book are entirely sound: For the most part, the points are hard earned from a combination of case studies, interviews, and literature reviews. Not all of the points are quite as solid: However, the key findings are well reinforced. If you already know enough about Prof. Cross to want to read this based on his prior work, you probably already know the basics of what it contains. Nonetheless, it retains interest and is a quick read, and has many pull quotes ready for design research academic writing. Nigel Cross use lot of difficulty terms from design, architectural and scientific term. Fortunately, Design thinking book change the style of story telling from very hard theory in chapter 1 to become design process story at chapter 2 to the end. How Chapter 1 of this book is very hard to understand. How the designer approach and understanding the problem widely is the key of great solutions. This book is fit for product designer, industrial designer and architect. So the first chapter just flew right over my head. But started to correlate as design thinking was explained in conjunction with designers and fields that I enjoy Think Gordon Murray, F1, Racing etc. But again felt it drift as the author started to make comparison between designers working in isolation vs designers working in a team. It was a bit generic and could be applied to any field , let alone design. In hindsight , what would I have not given to hav Am a complete novice on this topic. In hindsight , what would I have not given to have speak aloud sessions from my old team at work. Would have been able to relate and understand more

Chapter 4 : How designers think : the design process demystified in SearchWorks catalog

The text first discusses the fundamentals of the concept of designer, designing, and design. The second part deals with design problems, including its components, model, and solutions. The last part covers the cognitive aspect of designing; the coverage of this part includes the philosophes, strategies, and tactics of design.

I have this image of Allen Samuels permanently emblazoned on my brain. This goes back to college. With his usual amazing energy and unrestrained passion, this deeply passionate design professor is explaining to us why the process of design that we are learning is so important. Any profession, he suggests with conviction, medicine, law, choreography or politics can benefit by employing design thinking and achieve better results. Although we all heard and believed then what he was saying, it has taken a great while for the potential of his words to find purchase in a business environment willing to accept his hypothesis. A protocol for solving problems and discovering new opportunities. Techniques and tools differ and their effectiveness are arguable but the core of the process stays the same. That it is a most powerful tool and when used effectively, can be the foundation for driving a brand or business forward. Basically Design thinking consists of four key elements. Define the problem Sounds simple but doing it right is perhaps the most important of all the four stages. Another way to say it is defining the right problem to solve. Design thinking requires a team or business to always question the brief, the problem to be solved. To participate in defining the opportunity and to revise the opportunity before embarking on its creation and execution. Participation usually involves immersion and the intense cross examination of the filters that have been employed in defining a problem. In design thinking observation takes center stage. Observation can discern what people really do as opposed to what you are told that they do. Getting out of the cube and involving oneself in the process, product, shopping experience or operating theater is fundamental. Design thinking in problem definition also requires cross functional insight into each problem by varied perspectives as well as constant and relentless questioning, like that of a small child, Why? Until finally the simple answers are behind you and the true issues are revealed. Finally, defining the problem via design thinking requires the suspension of judgment in defining the problem statement. What we say can be very different to what we mean. The right words are important. The goal of the definition stage is to target the right problem to solve, and then to frame the problem in a way that invites creative solutions. Question; How many designers will it take to screw in a light bulb? Answer; Why a light bulb? Create and consider many options Even the most talented teams and businesses sometimes fall into the trap of solving a problem the same way every time. Especially when successful results are produced and time is short. Design thinking requires that no matter how obvious the solution may seem, many solutions be created for consideration. And created in a way that allows them to be judged equally as possible answers. Looking at a problem from more than one perspective always yields richer results. Many times we are not aware of the filters we may be burdened with when we create answers to problems. In this stage opportunities appear. The trick is to recognize them as opportunities. Multiple perspectives and teamwork are crucial. Design thinking suggests that better answers happen when 5 people work on a problem for a day, than one person for five days. Designers have an advantage in the use of 2D and 3dimensional tools to demonstrate solutions and new ideas – tools which are almost always far more effective to demonstrate what is meant, than words. Refine selected directions A handful of promising results need to be embrace and nurtured. Given a chance to grow protected from the evil idea-killers of previous experience. Even the strongest of new ideas can be fragile in their infancy. Design thinking allows their potential to be realized by creating an environment conducive to growth and experimentation, and the making of mistakes in order to achieve out of the ordinary results. At this stage many times options will need to be combined and smaller ideas integrated into the selected schemes that make it through. Which brings us to stage 3. Pick the winner, execute At this point enough road has been traveled to insure success. The byproduct of the process is often other unique ideas and strategies that are tangential to the initial objective as defined. Prototypes of solutions are created in earnest, and testing becomes more critical and intense. At the end of stage 4 the problem is solved or the opportunity is fully uncovered. While of late, there has been quite a lot of discussion regarding what Design thinking is and

how businesses can leverage it, as suggested in the introduction to this piece this is not a new or unproven idea. Design thinking is, then, always linked to an improved future. There are no judgments in design thinking. This eliminates the fear of failure and encourages maximum input and participation. Wild ideas are welcome, since these often lead to the most creative solutions. Simon goes on to describe a seven step process: Whether the protocol is outlined in a seven, four or even three stage process, see “shape” build, it all comes from the same place a proven method that always delivers. The end result of this simple yet highly effective protocol can be a better mousetrap, symphony, or dry cleaning service. Implied in design thinking is an objective view and a warm embrace of risk and new ideas. That said, the outline above is a structure and while it may seem counter intuitive, structure can be one of the key elements to enhancing creativity in problem solving. Design legend Charles Eames once famously said: This is very true; sometimes you need to draw the box in order to know what to break out of. After that, the manner in which options are considered, ideas are refined and selections are executed are the key. Design thinking describes a repeatable process employing unique and creative techniques which yield guaranteed results “usually results that exceed initial expectations. Extraordinary results that leapfrog the expected. This is why it is such an attractive, dynamic and important methodology for businesses to embrace today.

Chapter 5 : Presentation Zen: 10 Tips on how to think like a designer

Firstly, good designers don't tend to think about consumers; they think about people and what they want and need. It's a subtle point, but thinking about people as consumers immediately.

I think if one can think of good concepts, then he can draw too.. This question is absurd. Tags more tags Book Review: In this book, the author tries to summarize his various researches and experiment works with design and designers - both professionals and students. He uses various examples for the various topics he covered. Suitable quotes have been given in every chapter to just communicate the essence in a simple way. This book has been organized into 3 parts: The whole book is written in a form of discussion and not essentially drawing conclusions about anything. This book provides a deep insight on a complex subject like design. This book can prove helpful for anyone who is aspiring to become a successful designer. The immense research which has been done by the author about various fields relating to design directly or indirectly is of great value. With a unique viewpoint, the author follows a very scientific approach towards explaining various aspects of design. In the second part of the book the author talks about various design constraints existing and how the growing gap between designer, client and user affect the end product. He also talks about the importance of finding problems and solving them as well with equal emphasis. He also describes designers as the creators of future and the responsibility that they have. Unlike scientists who describe how the world is, designers suggest how it might be. From his discussions, we will come to realize that it is common for designers to carry some set of guiding principles with them through their working lives. This intellectual baggage is most frequently gathered during that career, with each project contributing to it in some way. This book has a potential to be used for reference to understand the most fundamental concepts of design which lacks among so many designers. This process is so precious and central to design and he covers it in a very simple way step by step. This book will take over you as you read it because of the way it is structured. Every topic covered in the book is based on discussions, questions and arguments and illustrations which will compel anyone reading it to think about it over and over again. The best thing about this book is that each discussion is presented logically, more like a case study rather than an opinion or a speculation which is very often seen in the field of design. The approach of the author is indeed very honest. The number of designers and architects interviewed makes this book a true analysis of design.

Chapter 6 : Design Thinking: Understanding How Designers Think and Work by Nigel Cross

Designers now in the middle of their careers are the first generation to have come of age with the challenge of imagining landscapes that might achieve long-term sustainability, resilience, and adaptability in the face of warming temperatures, rising oceans, and changing weather patterns.

Understanding these five stages of Design Thinking will empower anyone to apply the Design Thinking methods in order to solve complex problems that occur around us – in our companies, in our countries, and even on the scale of our planet. The five stages of Design Thinking, according to d. Empathise , Define the problem , Ideate, Prototype, and Test. This involves consulting experts to find out more about the area of concern through observing, engaging and empathizing with people to understand their experiences and motivations, as well as immersing yourself in the physical environment so you can gain a deeper personal understanding of the issues involved. Empathy is crucial to a human-centered design process such as Design Thinking, and empathy allows design thinkers to set aside their own assumptions about the world in order to gain insight into users and their needs. Depending on time constraints, a substantial amount of information is gathered at this stage to use during the next stage and to develop the best possible understanding of the users, their needs, and the problems that underlie the development of that particular product. This is where you will analyse your observations and synthesise them in order to define the core problems that you and your team have identified up to this point. You should seek to define the problem as a problem statement in a human-centred manner. In the Define stage you will start to progress to the third stage, Ideate, by asking questions which can help you look for ideas for solutions by asking: Brainstorm and Worst Possible Idea sessions are typically used to stimulate free thinking and to expand the problem space. It is important to get as many ideas or problem solutions as possible at the beginning of the Ideation phase. You should pick some other Ideation techniques by the end of the Ideation phase to help you investigate and test your ideas so you can find the best way to either solve a problem or provide the elements required to circumvent it. Prototypes may be shared and tested within the team itself, in other departments, or on a small group of people outside the design team. This is an experimental phase, and the aim is to identify the best possible solution for each of the problems identified during the first three stages. By the end of this stage, the design team will have a better idea of the constraints inherent to the product and the problems that are present, and have a clearer view of how real users would behave, think, and feel when interacting with the end product. This is the final stage of the 5 stage-model, but in an iterative process, the results generated during the testing phase are often used to redefine one or more problems and inform the understanding of the users, the conditions of use, how people think, behave, and feel, and to empathise. Even during this phase, alterations and refinements are made in order to rule out problem solutions and derive as deep an understanding of the product and its users as possible. The Non-Linear Nature of Design Thinking We may have outlined a direct and linear Design Thinking process in which one stage seemingly leads to the next with a logical conclusion at user testing. However, in practice, the process is carried out in a more flexible and non-linear fashion. For example, different groups within the design team may conduct more than one stage concurrently, or the designers may collect information and prototype during the entire project so as to enable them to bring their ideas to life and visualise the problem solutions. Also, results from the testing phase may reveal some insights about users, which in turn may lead to another brainstorming session Ideate or the development of new prototypes Prototype. As such, the stages should be understood as different modes that contribute to a project, rather than sequential steps. Every project will involve activities specific to the product under development, but the central idea behind each stage remains the same. Design Thinking should not be seen as a concrete and inflexible approach to design; the component stages identified in the illustration above serve as a guide to the activities that you would typically carry out. In order to gain the purest and most informative insights for your particular project, these stages might be switched, conducted concurrently and repeated several times in order to expand the solution space, and zero in on the best possible solutions. As you will note from the illustration above, one of the main benefits of the five-stage model is the way in which knowledge acquired at the later

stages can feedback to earlier stages. Information is continually used both to inform the understanding of the problem and solution spaces, and to redefine the problem s. This creates a perpetual loop, in which the designers continue to gain new insights, develop new ways of viewing the product and its possible uses, and develop a far more profound understanding of the users and the problems they face. The Take Away In essence, the Design Thinking process is iterative, flexible and focused on collaboration between designers and users, with an emphasis on bringing ideas to life based on how real users think, feel and behave. Design Thinking tackles complex problems by: Understanding the human needs involved. Re-framing and defining the problem in human-centric ways. Creating many ideas in ideation sessions. Adopting a hands-on approach in prototyping.

Chapter 7 : How Designers Think by Bryan Lawson

Design thinking is the core creative process for any designer; this book explores and explains this apparently mysterious "design ability." Focusing on what designers do when they design, Design Thinking is structured around a series of in-depth case studies of outstanding and expert designers at work, interwoven with overviews and analyses.

The process is iterative, intermediate "solutions" are potential starting points of alternative paths, allowing for redefinition of the initial problem, in a process of co-evolution of problem and solution. New solution ideas can lead to a deeper or alternative understanding of the problematic context, which in turn triggers more solution ideas. Use of analogy[edit] Ill-defined problems often contain higher-order and obscure relationships. Design thinking can address these through the use of analogies. An understanding of the expected results, or lack of domain-related knowledge for the task, may be developed by correlating different internal representations, such as images, to develop an understanding of the obscure or ill-defined elements of the situation. The languages of design[edit] The design process involves several complex cognitive mechanisms, as the task often has elements in multiple cognitive domains – visual, mathematical, auditory or tactile – requiring the use of multiple "languages". Conventionally, designers communicate mostly in visual or object languages. The way designers work is through understanding this way of coding design requirements in order to produce physical products. The ambiguity rule, in which design thinkers must preserve ambiguity by experimenting at the limits of their knowledge and ability, enabling the freedom to see things differently. The re-design rule, where all design is re-design; this comes as a result of changing technology and social circumstances but previously solved, unchanged human needs. As an approach, design thinking taps into innate human capacities that are overlooked by more conventional problem-solving practices. Therefore, design thinking can feel chaotic, but over the life of a project, participants come to see that the process makes sense and achieves results, even though its form differs from the linear, milestone-based processes that organizations typically undertake. Within these seven steps, problems can be framed, the right questions can be asked, more ideas can be created, and the best answers can be chosen. Meinel and Leifer state: This understanding can be documented in a brief which includes constraints that gives the project team a framework from which to begin, benchmarks by which they can measure progress, and a set of objectives to be realized – such as price point, available technology, and market segment. Empathic design transcends physical ergonomics to include understanding the psychological and emotional needs of people - the way they do things, why and how they think and feel about the world, and what is meaningful to them. Divergent and convergent thinking[edit] Ideation is idea generation. Mentally it represents a process of "going wide" in terms of concepts and outcomes. To achieve divergent thinking, it is important to have a diverse group of people involved in the process. Multidisciplinary people – architects who have studied psychology, artists with MBAs, or engineers with marketing experience – often demonstrate this quality. Good ideas naturally rise to the top, whereas the bad ones drop off early on. Every member of the team needs to possess a depth of skill that allows him or her to make tangible contributions to the outcome, and to be empathic for people and for disciplines beyond their own. It tends to be expressed as openness, curiosity, optimism, a tendency toward learning through doing, and experimentation. After collecting lots of ideas, a team goes through a process of synthesis in which it has to translate ideas into insights that can lead to solutions or opportunities for change. This approach helps multiply options to create choices and different insights about human behavior and define in which direction the process should go on. These might be either visions of new product offerings, or choices among various ways of creating interactive experience. Although this tendency may be more efficient in the short run, it tends to make an organization conservative and inflexible in the long run. The most notable themes fall into three general traits: Courage is also fundamental because innovative ideas are characterized by a high risk of failure. Conviction is the mindset which permits people to pursue a process or an idea even if there are constraints or obstacles. Implementation and prototyping[edit] The third space of the design thinking process is implementation, when the best ideas generated during ideation are turned into something concrete. A prototype helps to gather feedback and

improve the idea. Prototypes speed up the process of innovation because they allow one to understand strengths and weaknesses of new solutions. Prototyping is particularly important for products and services destined for the developing world, where the lack of infrastructure, retail chains, communication networks, literacy, and other essential pieces of the system often make it difficult to design new products and services. In business[edit] Historically, designers tended to be involved only in the later parts of the process of new product development , focusing their attention on the aesthetics and functionality of products. Many businesses and other organisations now realise the utility of embedding design as a productive asset throughout organisational policies and practices, and design thinking has been used to help many different types of business and social organisations to be more constructive and innovative. This development sparked related research studies in both education and design. A notable early course of this type was introduced at Stanford University in , the Hasso Plattner Institute of Design , known as the d. History[edit] Developing creativity techniques in the s and new design methods in the s led to the idea of design thinking as a particular approach to creatively solving problems. Among the first authors to write about design thinking were John E. Arnold in "Creative Engineering" and L. Bruce Archer in "Systematic Method for Designers" In "Creative Engineering" he distinguishes four areas of design thinking. Product developers should seek opportunities in all four areas of design thinking. It is rather interesting to look over the developmental history of any product or family of products and try to classify the changes into one of the four areas. Your group, too, might have gotten into a rut and is inadvertently doing all of your design thinking in one area and is missing good bets in other areas. Archer was also developing the relationship of design thinking with management: Kelley , who founded the design consultancy IDEO in Harold van Doren published Industrial Design â€” A Practical Guide to Product Design and Development, which includes discussions of design methods and practices, in Arnold began teaching about creativity at MIT in and began teaching at Stanford in Gordon [46] and Alex Faickney Osborn Bruce Archer industrial design , [33] and John Chris Jones product and systems design. Bruce Archer argues that design is "not merely a craft-based skill but should be considered a knowledge-based discipline in its own right, with rigorous methodology and research principles incorporated into the design process". Simon , notable for his research in artificial intelligence and cognitive sciences, proposes a "science of design" that would be "a body of intellectually tough, analytic, partly formalizable, partly empirical, teachable doctrine about the design process. Horst Rittel and Melvin Webber publish "Dilemmas in a General Theory of Planning" showing that design and planning problems are wicked problems as opposed to "tame", single disciplinary, problems of science. Bruce Archer extends inquiry into designerly ways of knowing, claiming: Several books on engineering design methods are published, by Hubka , [54] Pahl and Beitz , [55] French , [56] Cross , [57] and Pugh The s also sees the rise of human-centered design and the rise of design-centered business management. They are one of the first design companies to showcase their design process, which draws heavily on the Stanford University curriculum. Books about how to create a more design-focused workplace where innovation can thrive are written for the business sector by Richard Florida , [62] Daniel Pink , [63] Roger Martin , [64] Malcolm Gladwell , [65] Tim Brown , [66] Thomas Lockwood , [67] Vijay Kumar , [68] Larry Keeley , [69] and Kim Erwin

Chapter 8 : 5 Stages in the Design Thinking Process | Interaction Design Foundation

In this fourth edition, Bryan Lawson continues his discussion, trying to understand how designers think. He does this by mapping out the issues concerned with the design process, with design problems and solutions and design thinking.

Chapter 9 : Design thinking - Wikipedia

Design thinking refers to the cognitive, strategic and practical processes by which design concepts (proposals for new products, buidlings, machines, etc.) are developed by designers and/or design teams.