Human-computer interaction.

HCI (human-computer interaction) is the study of how people interact with computers and to what extent computers are or are not developed for successful interaction with human beings. A significant number of major corporations and academic institutions now study HCI.

Elements in a graphical system.

The main pieces of a GUI are a
pointer,
icons,
windows,
menus,
scroll bars, and
an intuitive input device.

UI Vs UX.

UX (user experience) and UI (user interface) are two interdependent terms. While UI generally deals with the interaction between users and computer systems, software and applications, UX deals more generally with a user's overall experience with a brand, product or service.

Typography.

Typography, the design, or selection, of letter forms to be organized into words and sentences to be disposed in blocks of type as printing upon a page.

Categorize the different elements of typography.

- Fonts and Typefaces
- Consistency
- White space
- Alignment
- Color

The Laws of digital interface design.

7 laws of user interface design

Law of clarity

People avoid and sometimes ignore things they can not perceive — that's basic attribute. Avoid coming up with interface parts that create individuals surprise what they are doing as a result of nobody can trouble to search for.

Law of most popular action

Users ought to never surprise what to try to next — the popular action ought to be obvious.

Law of context

Keep things handy for users — if one thing may be amended, modified or otherwise controlled, place those controls right next to that.

Law of defaults

Defaults are powerful

- Most people have a default background and ringtone on their phones.
- Most people (including you) ne'er modification manufacturing plant settings on their TV sets.
- Most people can never modify the default refrigerator temperature.
- We don't notice defaults, however, they rule our world. thus make certain all default values are as helpful and sensible as potential — it's safe to assume some individuals can never modification them.

Law of guided action

There is an enormous distinction between expecting users to try to one thing on their own and asking them specifically to try to it.

Law of feedback

This is easy logic — the additional users feel your interface is human activity Associate in Nursing action, the additional assured they're going to feel.

Law of easing

Compare the shape on the left to the one on the proper. Each has an identical variety of fields, however the proper is way easier to manage.

VIMM model.

One thing UI designers are tired of hearing (but never, ever forget) is this – a good UI (User Interface) doesn't always mean a good UX (User Experience). While people tell this to designers often they do not usually follow it up with an effective solution. At the most, what they share is more of a personal suggestion than a fool-proof solution. Worry not! There exists the best checklist that is guaranteed to help every UI UX designer to design simple & easy-to-use products. It's the VIMM Model.

There are a number of UI design principles that help you to make not only a good but also an effective UI. But keeping all these principles in mind while creating a design as lengthy as UI can be difficult and result in disaster. If your UI design, no matter how good it looks, is making both your user and your machine think or work too much, you have failed at creating a good UX. The VIMM model is an easy and effective way of executing these principles. VIMM stands for Visual, Intellectual, Memory, and Motor. Let's explore it further.

1. Visual Load

Visual load is usually caused by too much content on a page (copy or image), messy page layout, bad alignment, use of clashing colors, and too many unnecessary CTA (call to action) buttons. All of these make it hard for users to actually concentrate on one useful thing or find what they are looking for. How do you avoid it? By

- o Creating a well designed grid for alignments & formats,
- o Getting rid of all the unwanted elements,
- o Consciously choosing colors.

2. Intellectual Load

As mentioned earlier, if your design makes the user think too much, it's not a good design. Intellectual load can occur due to confusing navigation titles, overly complex processes, and unclear instruction due to poor copywriting. Your design should not leave the user to figure things out. To reduce your design Intellectual load, make sure you

- o Give them previews,
- o Avoid using jargons,
- o Provide constant and clear navigational feedback.

3. Memory Load

Memory load can be created in your designs by usernames and passwords, keeping important functions hidden behind bars and buttons, among other things. This affects your design to load slowly and nobody likes that. As a designer you can design elements to avoid this. Just make sure to:

- o Provide default save options,
- o Keep your options visible.

4. Motor Load

Motor Load refers to asking your user to take too many physical efforts to accomplish something. It can be anything from excessive typing or clicking, hardware switches, excessive scrolling, displaying hard to hit target buttons, to unnecessarily large distance between two elements. You can avoid it by

- o Simplifying your task flows as much as possible,
- o Designing short distances and large targets,
- o Allowing the common keyboard to function,
- o Making the best of available input devices.

The VIMM model improves your design's usability and makes way for a good-looking UI that not only looks better but also performs better. So when in doubt, try to go the VIMM route.

Typography design.

What is Typography?

Typography refers to the appearance and style of text published online or in print.
This includes carefully selecting elements such as typefaces, fonts, text size, as well as line, , letter, and word spacing to generate a desired message or reaction from the reader.
Typography plays a key role in improving the UX and UI of websites, products, and services.

why is it important?

Build brand recognition by subliminally encouraging your users to associate the typeface featured on your site with your brand
Influence decision making by observing how users digest and perceive the information conveyed by the text, and
Hold the attention of the readers by being impactful and memorable.

Principles of Typography

Widows -- single, incomplete line at top of a page or column
Orphans -- same thing at the bottom of page
Leading -- vertical space b/w lines of type
Kerning --reduction of horizontal space between characters for a better fit
Tracking -- uniform reduction of space between all characters in a line

Elements of Typography

Fonts and Typefaces

Fonts refer to the weights, widths, and styles that constitute a typeface, and a typeface is a family of related fonts. The three basic kinds of typeface are serif, sans-serif, and decorative.

Consistency

Try to select a typeface or hierarchy of typefaces and stick to it consistently throughout your designs. Switching fonts and typefaces between web pages for example can be messy and confusing for users as they navigate through your website.

White space

Also known as 'negative space,' white space is the space around text or graphics. It tends to go unnoticed by the user, but proper use of white space ensures the interface is uncluttered.

Alignment

Creating effective typography is not that easy and it includes many processes. For example, alignment is an action of placing and justifying text. During the stage, designers aim at transforming randomly placed pieces of text into one unified composition.

Color

The color of the typeface should have a correct contrast with the background. Each character, word, or paragraph must be able to be read immediately and without effort, using the color of the font versus the color of the background.

Aesthetics as per laws of Design principles.

What is Aesthetics?

Aesthetics is a core design principle that defines a design's pleasing qualities. In visual terms, aesthetics includes factors such as balance, color, movement, pattern, scale, shape and visual weight. Designers use aesthetics to complement their designs' usability, and so enhance functionality with attractive layouts.

Aesthetics is an age-old principle that revolves around the nature of beauty and the fact that people prefer pretty things. It's central to the fields of architecture, graphic design and more. As a vital ingredient in user experience (UX) design and interaction design, aesthetics impacts an interface's UX in several ways. Humans are hard-wired for visual input, and users' first impressions typically form in 50 milliseconds – as their gut reactions guide them to either continue using your design/product or abandon it.

- Create an attractiveness bias
- Make users more tolerant of usability issues
- Visual appeal exists in objectivity and subjectivity
- Let form follow function
- Use timeless rules/principles such as the golden ratio, rule of thirds and Gestalt principles to optimize your choice and use of elements
- Remember the context

Aesthetics, Principles of Design and Usability

One of the most interesting Design principles is of course Aesthetics. Aesthetic is defined by Merriam-Webster as "a branch of philosophy dealing with the nature of beauty, art, and taste and with the creation and appreciation of beauty". It's a principle that walks hand in hand with the Aesthetic-Usability Effect, which states "users often perceive aesthetically pleasing design as design that's more usable". During my years as a professional Designer, my goal has always been to showcase the value of the Design Discipline (and design professionals), as a solution provider, a strategic thinker and a catalyst that unites the efforts, and at times, disparate points of view of different teams and entities. This union/convergence, should hopefully deliver a product/solution that makes sense for Users and for the Organization itself. It has been a path focused on educating teams and other stakeholders of this concept and statement value (and of the Design Thinking process in itself), since the typical perspective towards Design and Designers, has always been — making products visually appealing (and managing the subjective ideas of what constitutes something beautiful or not).

Aesthetics and Product Success

One of the most consistent challenges in my career, when it comes to the discipline of Visual Design (and Aesthetics), has always been how to reconcile the notion that "beauty is subjective", "good design is subjective", with the delivery of solutions that are relevant, engaging while simultaneously educating teams of this process and how its outcome is achieved. Aesthetics, much like any aspect of the Design Practice, is something that can be taught, and that can be exercised. It's important that teams embark on this journey, and understand how visual concepts are devised, achieved, delivered, and what goals they are trying to satiate. The Visual Design discipline in particular, does not operate on the level or with the intent of showcasing a visual artist's work or his sole perspective on problem solving.

Visual Design is most effective as an integration of the laboring of the Design Thinking process. It aims to create a visual language that successfully marries branding aspects, with usability factors, accessibility concerns, while also maintaining the desirability/findable and credible aspects that sustain brand longevity. These are all layers that the Visual Design discipline has to juggle, and that Visual Designers have to consider, while simultaneously not being oblivious to such factors as cultural, ecological, political, legal elements, all of which are equally impactful. The question still remains though — what does constitute a successful Visual Design exercise. The answer in itself is stated on the previous sentences — the KPIs that are measured, should focus on the usability factors (where for instance memorability plays a very important role), but also desirability and inclusiveness of the product that is built, all the while continuing to create a brand experience that is indelible and consistent. There are Visual languages that are so iconic that they become a paradigm (and even to some extent, a standard) and extend their reach beyond a single brand. For instance, the concept of Material Design, which hails from the Google Design Group.

That ecosystem, with all its virtuosity and capabilities, also raises a question that seemingly haunts the world of Design and Designers in general. If we all abide to a certain trend, paradigm, structure, aren't we all just delivering the same product experience? The answer, from my experience and point of view is no. "Material Design", much like other trends and other Graphical User Interfaces (GUI), should be used when and if applicable to the problem being solved.

The goal for Design Thinking engagements, is to devise solutions that are aligned to the experience that is being created, to aid users in their journey, and hopefully generate repetitive use and positive brand awareness from the consumers. This stickiness is only possible when a series of factors coalesce, but from a Visual Design (and Aesthetic) perspective is concerned, it's important to remember that trends, and UI paradigms are not the goal of the experience. If successful branding is all about effective storytelling, it's important that the Visual and Aesthetic principles of Design, marry that experience in a manner that is relevant to the market, business, user, innovation factors, that ultimately power these products for lengthy timelines.

The Evolution of user interfaces.

The evolution of UI design can be broken down into four periods:
- the age of tools,
- the age of the machine,
- the age of software, and
- the age of the self.

The Age of Tools

Using primitive tools, early humans began to communicate by drawing representations of animals and nature on stone surfaces. Hieroglyphs, which were highly symbolic, were one of the first methods used to communicate. This symbolism would later develop into art, writing, documentation, and story-telling.

Over time, the tools became more sophisticated, resulting in some (e.g., pens) still being in wide use today. We have come full circle and are once more using simple symbols and iconography, such as emojis, to signal emotions and communicate subtleties that go beyond words.

The Age of Machines

The industrial revolution emphasized productivity. During "the age of the machine," we built objects at scale to help our lives become easier. It was a time when the hardware itself was still the main "user interface."

One example of this is the invention of the typewriter in 1868 by Christopher Latham Sholes. We began tapping physical keys to create words, still using our hands, but with the help of the typewriter as a replacement for the pen. It saved time and helped create a consistent and practical format that could be adopted quickly.

Machines were being mass-produced and the power shifted to them. The hardware as interface had arrived; the drawback, however, was that it was necessary to learn how to type before it could be used.

The Age of Software

Software needed a "user interface," and searching for a model that would be easy for users to adopt, UI designers turned to people's behavior and earlier hardware designs for inspiration.

People already had a mental model of a typewriter's keyboard; they already knew how to type, so the natural progression was to begin interacting with text on digital screens the same way.

This also applies to mobile on-screen keypads that look like mini versions of the same keyboards and typewriters. With the movement toward touch, an entirely new way of interacting with our environment began to be defined.

UI design's evolution has been influenced by common analogies, preceding hardware, and intuition (familiarity and mental models). Best practices for lowering the barriers to adoption (and good UI design in general) include a desire to align with people's mental models, keep an open mind, and maintain a connection to the ambient world.

The Age of the self.

Material design depicts the "surfaces and edges of the material provide visual cues that are grounded in reality. The use of familiar tactile attributes helps users quickly understand affordances. The fundamentals of light, surface, and movement are key to conveying how objects move, interact, and exist in space and in relation to each other.

Touch Is Human-Centric

Touching screens to interact with a user interface works because it's intuitive, i.e., when people see it, they know exactly what to do. Humans are born to explore everything with their fingers; it's innate and a reminder of where it all began.

Moving Beyond Touch – VUIs

Voice user interfaces are helping to improve all kinds of user experiences. Voice can be passive or interactive and is a powerful way to interact with technology, one of its benefits being that it is hands-free.

The guidelines for proper type selection during the user design.

User Interface Design Guidelines

. The 10 rules of thumb further iterate upon Shneiderman's eight golden rules 4 years after Shneiderman's initial publication.

- Visibility of system status. Users should always be informed of system operations with easy to understand and highly visible status displayed on the screen within a reasonable amount of time.
- Match between system and the real world. Designers should endeavor to mirror the language and concepts users would find in the real world based on who their target users are. Presenting information in logical order and piggybacking on user's expectations derived from their real-world experiences will reduce cognitive strain and make systems easier to use.
- User control and freedom. Offer users a digital space where backward steps are possible, including undoing and redoing previous actions.
- Consistency and standards. Interface designers should ensure that both the graphic elements and terminology are maintained across similar platforms. For example, an icon that represents one category or concept should not represent a different concept when used on a different screen.
- Error prevention. Whenever possible, design systems so that potential errors are kept to a minimum. Users do not like being called upon to detect and remedy problems, which may on occasion be beyond their level of expertise. Eliminating or flagging actions that may result in errors are two possible means of achieving error prevention.
- Recognition rather than recall. Minimize cognitive load by maintaining task-relevant information within the display while users explore the interface. Human attention is limited and we are only capable of maintaining around five items in our short-term memory at one time. Due to the limitations of short-term memory, designers should ensure users can simply employ recognition instead of recalling information across parts of the dialogue. Recognizing something is always easier than recall because recognition involves perceiving cues that help us reach into our vast memory and allowing relevant information to surface. For example, we often find the format of multiple choice questions easier than short answer questions on a test because it only requires us to recognize the answer rather than recall it from our memory.
- Flexibility and efficiency of use. With increased use comes the demand for less interactions that allow faster navigation. This can be achieved by using abbreviations, function keys, hidden commands and macro facilities. Users should be able to customize or tailor the interface to suit their needs so that frequent actions can be achieved through more convenient means.
- Aesthetic and minimalist design. Keep clutter to a minimum. All unnecessary information competes for the user's limited attentional resources, which could inhibit user's memory retrieval of relevant information. Therefore, the display must be reduced to only the necessary components

for the current tasks, whilst providing clearly visible and unambiguous means of navigating to other content.

- Help users recognize, diagnose and recover from errors. Designers should assume users are unable to understand technical terminology, therefore, error messages should almost always be expressed in plain language to ensure nothing gets lost in translation.
- Help and documentation. Ideally, we want users to navigate the system without having to resort to documentation. However, depending on the type of solution, documentation may be necessary. When users require help, ensure it is easily located, specific to the task at hand and worded in a way that will guide them through the necessary steps towards a solution to the issue they are facing.