User Interface Design
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Lecture - 10
High Fidelity Design

Hello students. Welcome to the online NPTEL course, User Interface Design. In the previous class we have discussed the process of creating low fidelity prototype. We have also discussed with the tools with which we can create low fidelity prototype. It can be paper prototype, just quick sketches or it can be through the software like Balsamiq.

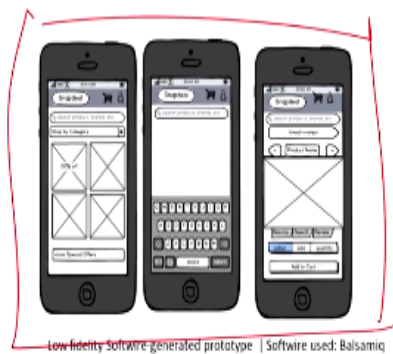**(Refer Slide Time: 00:50)**
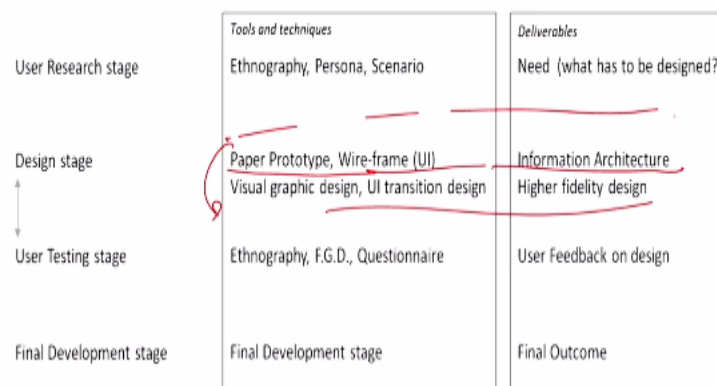
So these are the process of user interface design, the broader process and we have discussed how to create paper prototype which is wire-frame and information architecture and now we will discuss the next stage which is the high fidelity prototype design. So within these 2 stages while we are creating information architecture and low fidelity prototype the testing has to go on.

So after creating low fidelity prototype we have to conduct user testing after creating this low fidelity prototype so that to validate our design ideas and there we can create the multivariate design options and then after creating the high fidelity prototype then again we have to go for the user testing for validation. So again we are creating multivariate options in high fidelity prototype so that our design, final design idea should be validated before launching.

Now after that we will discuss the validation process, the ethnographic survey and user feedback. So after discussing low fidelity prototype as well as high fidelity prototype we will together discuss what is the process of user testing.
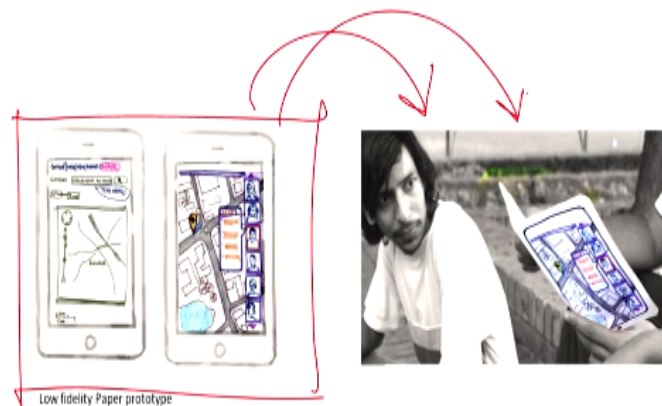
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- Low fidelity Prototype (Wireframes) based on Information Architecture

Low fidelity Software generated prototype | Software used: Balsamiq

Now this is what a low fidelity prototype might look like when we create this through Balsamiq.

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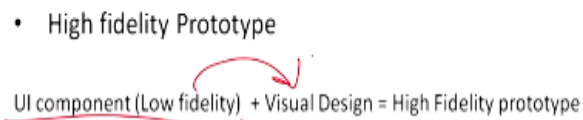- Low fidelity Prototype and user testing

Low fidelity Paper prototype

And this is what the low fidelity prototype will look like if we just sketch. After that we have to go for user testing. Again after creating high fidelity prototype the same process of user testing will go on but that will be more refined version of design. So we will already know the UI will

be more or less fixed and the information architecture and the page is layout will be fixed and only the color and the visual communication design part will be added in the high fidelity prototype.

So actually high fidelity prototype is the UI component or whatever we have created in the low fidelity prototype the position of the button, how the button will look like and how the layers and hierarchy of the design will be. All these variations are within the UI component or the user interface design component. So after fixing the user interface, I will not use the term exactly fixing because it is a iterative model so always it can go back and forth. But more or less this will be finalized.

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- High fidelity Prototype

UI component (Low fidelity) + Visual Design = High Fidelity prototype

After that there is a visual design or the visual communication design part and we add the color, the style of design and the design language what kind of visual vocabulary it will have. That will be added on top of this low fidelity design which is wire-frame or sketchy prototypes or paper prototypes and then we create the high fidelity prototype.

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- High fidelity Prototype

UI component (Low fidelity) + Visual Design = High Fidelity prototype
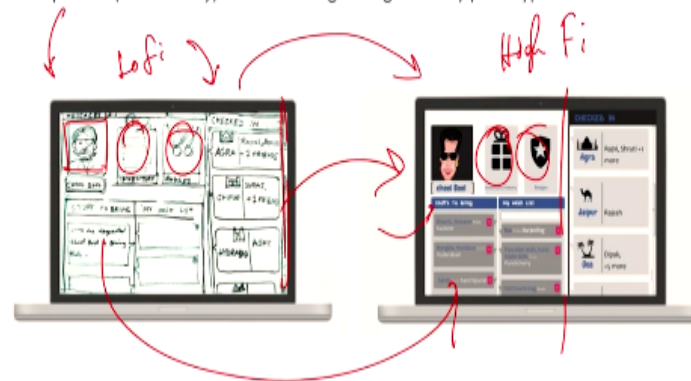
So if we look at, low fidelity prototype will look like something like this which is sketchy but position of this the logos, icons, tabs, scrollbars everything will be more or less fixed and then adding the color, style of design, and that creates the high fidelity prototype. So this is low fidelity prototype and this is high fidelity prototype. So everything you can see, the position of this button everything is same.

Because that has been tested with the users and that has been validated. After finalizing this low fidelity prototype then it will be translated into the high fidelity prototype. So design of logos, icons can be different. The selection of typefaces will be there in this process of high fidelity prototype. Selection of color, selection of button style, whether the button will be sharp, will have a sharp edge or will be chamfered. So these decisions come within the high fidelity prototype design.

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- High fidelity Prototype

Thematic variations

Source: medium.com
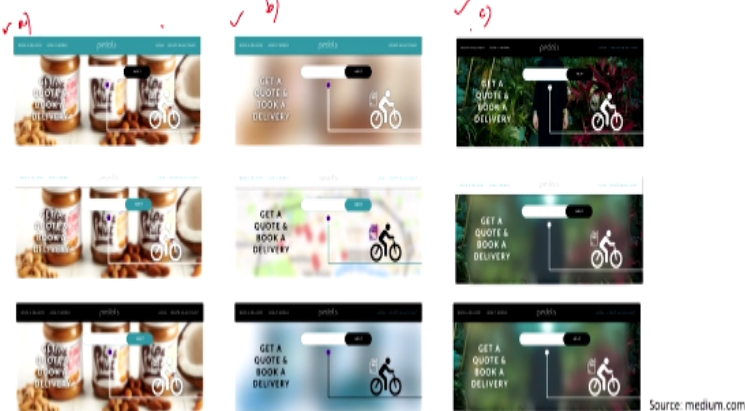
So there can be thematic variation. Now within the high fidelity prototype also we will create multivariate options so that we again go back to the user and user will select what kind of visual style will go with the mood and there can be many other parameters to select a particular visual style. And after creating the same UI the UI is fixed, the user interface is fixed and then it might the visual language can differ. There can be visual differences.

So if you see these 3 options, so everywhere the UI is same. So if you look at the wire-frame, this is same but this has different thematic design style. So there can be thematic variation. So these style option a, option c, and option c does not match. They have a very different color combination, different style and they give a different feelings. So there can be thematic variation. Now within the same color range, so color is fixed. So these are the color palette.

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Fixing the color palette, even the style of design, there can be multiple options. So this is also multivariate design options where there are look 1, look 2, look 3 and look 4. So they are thematically same. Even the color palette is same. The font is same. But they are different options. So the previous option is much broader. They have much broader differences and this has minute differences.

So if you recall the process of double diamond method right now we are diverging. We already have a design solution. Already more or less finalized the design solution, what we are designing, what is the UI, what is the information architecture and what is the task flow, everything is decided and the low fidelity prototype is decided. But still we are diverging. So right now, we are in the second diamond of the double diamond method where we are finding the correct solution.

So what is the problem that has been identified over here, the need statement is generated. Right now we are diverging again to identify what is the right answer. So we have diverged when there is a process of UI fixing. So we have created multivariate options. Then again we converged because we have done the testing with the users. So there is a convergence process is there and we are again diverging with the design.

So because this has 2 layers of design, one is UI component, another is visual design component, within UI so there will be convergence, divergence and within also there is a convergence

divergence. So this is not exactly like one diamond diverging and then again converging. So because this is 2 process, so one is UI component. So then again we create multivariate options and do the testing.

Multivariate option is a divergence and testing is validating, selection through user testing is convergence. Again we are creating multivariate options so we are converging again within the visual communication design component and then after testing we are diverging again within the visual communication design part while creating multivariate options and we will converge again while doing the user testing and the selection of different options.

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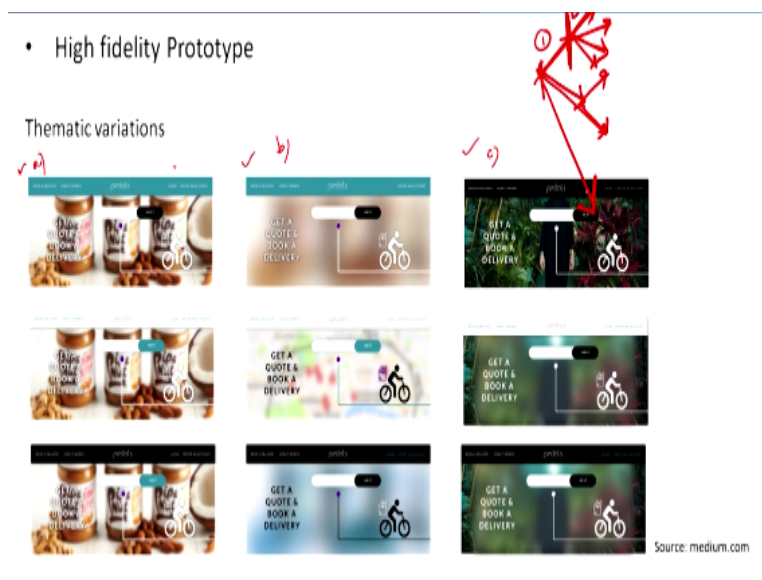
So if we look at this hierarchy, so this hierarchy is in the first hierarchy, so this is the first level of divergence where they are thematically different. The next option which is this, this is the second layer of divergence when we have selected a particular thing and then we are diverging again, within a same color palette we are again diverging. So within the different theme also we can create multiple options and this is up to us.

So we can select a particular theme and then diverge to create different design alternative within a particular thing or we can play with the different theme. So we can select different things and create different options. So the example is this and the example is this where thematically they

are different. Now after fixing the theme again we can create a different options if we change the colors and other options.

Now this is the process within visual communication design part where we are discussing after low fidelity. So this is the high fidelity design process. Now I am not talking about the user testing. After this high fidelity design process then again the user testing is there and then there can be minor iterations or there can be complete change with the design.

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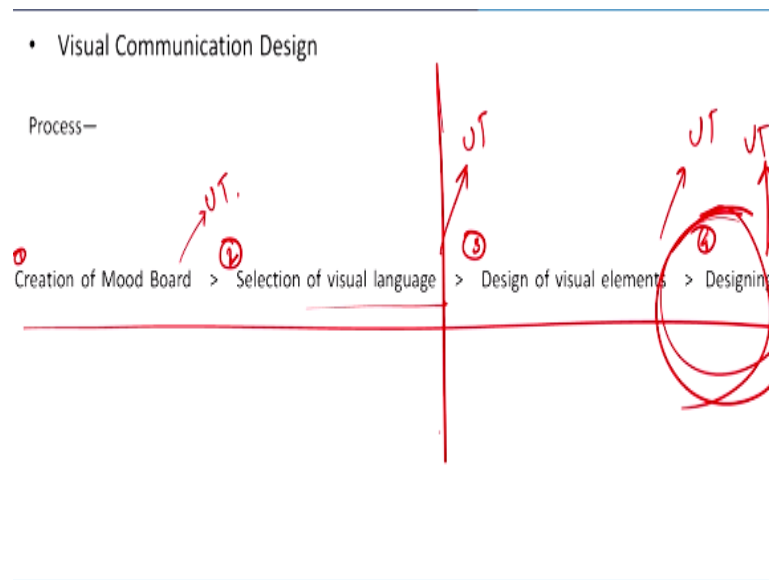
So first is creation of mood board. So I will discuss what mood board is and which is a broader visual theme. And then second is selection of visual language. We are narrowing down to a particular visual theme and then third is design of visual elements. So difference UI elements like how the search button will look like, what will be the icon style, whether there will be drop shadows or not. Whether there will be beveled edge in the button or not.

How the scroll bar will look like. All these elements we will design based on a particular selected visual language and then designing. Now within this process while selecting a mood board we can depending on the project timeframe of the project and depending on the budget of the project we can do user testing in each and every stage or we can do after few stages. So after creating a mood board again user testing can be done or it can be done after selection of visual style user testing can be done.

And after creating visual design element then user testing can be done and after final design then the user testing can be done. Now how frequently you want to do the user testing or you want to communicate with the users that depends on the budget of the project and the timeframe. But within this process at least one so which is after designing the complete thing it has to be done or it is better always to at least do it within after selection of visual language if that can be validated.

There are particular visual language then you start designing and after designing then you validate. So two user testing is good but one is also fine. And of course after each and every stage it has been done so it will be much more easy and it will validate it more.

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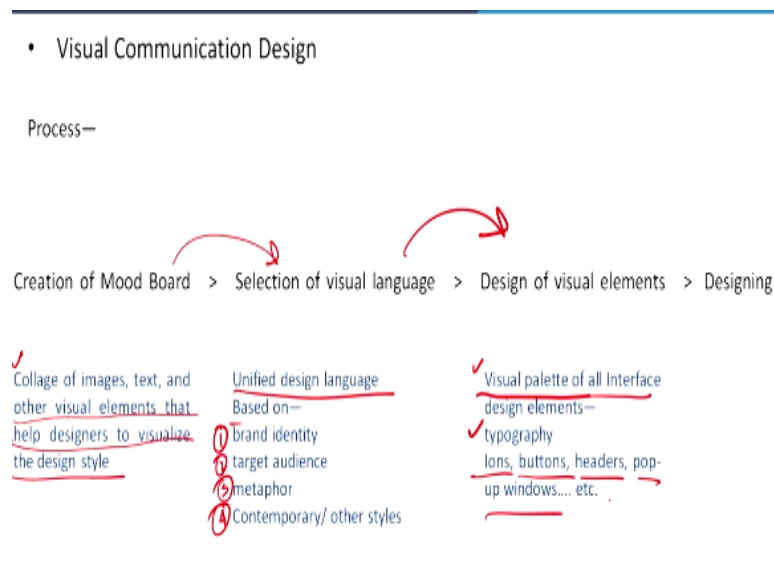
Now the mood board is, it is a collage of different image, text and other visual elements that help designers to visualize the design style. It is much more broad. There can be 2 different style of image together. There can be different kind of text. There can be Sans Serif, Serif or different variety of text can be there and other visual elements, pictures, realistic photographs, animated like info graphics everything which can capture the mood of this web application or website.

Everything can be there. If we select a particular color tone for example blue, every shades of blue even teal other colors, turquoise and every different colors can be there and which not

exactly pinpointing what exact color shade or the pattern shade of this particular color. Other different variations of the same range of color can be there. Different text which can capture the mood, it can be totally different typefaces but everything which captures that mood can be there.

And metaphorical elements for example realistic photographs which has a similar kind of mood can also be within that mood board. From there we can pick from a realistic image we can start picking up the color which can capture the style and mood of the design. So this is much more broad. So it is a collage of which gives the inspiration to the designers and we can deselect many thing. We can discard many thing from the mood board.

It is not mandatory to select every element which we are putting in the mood board so we deselect. And so mood board is actually we are diverging. So everything what can represent the stylistic features can be there within the mood board but lot of element from the mood board itself gets rejected when we fine tune it. So in the next process it is more fine tuned version which is the selection of a particular visual style.

So within the mood board there can be, mood board can be eclectic. Eclectic means when different styles are mixed together, different source of design inspirations are together but when we are selecting a visual language it should not be eclectic. It should speak a particular design language. It should have a one visual vocabulary. So this is unified design language one particular design language. Every element should go with the theme.

So there is a particular one theme from the mood board. It can be based on one which is brand identity. If the brand identity is already there and within the mood board we might have different colors of similar tone but what exactly which color tone represents the brand identity that can be selected if there is a established brand identity. And next can be target audience. Based on the target audience if the brand identity is not that important in that particular web design.

So the target audience their perception what kind of color they like that can be highlighted within the design. So based on what kind of color and it can come from the persona. When we build the persona we understand the user group and what is their liking, what kind of visual design they

will like, what is their behavior. So based on their behavior, based on their social cultural background we can select few colors which will represent and which can connect with them.

And all these points will be dependent on what kind of website or what kind of web app it is. If it is trying to portray the brand identity then brand identity becomes more important. If it is trying to connect with the users for the better function of this application, then user will be more important. Users behavior and liking will be more important as the selection of visual style. Then it can be a metaphorical.

So if it is something to do with rejuvenating people or if something to do with education then a particular metaphor can be more important and that might give the visual style. So that metaphor can create the visual palette. Or if it is like a cafe or restaurant so something which emphasize gluttony or something which emphasize the craving for food so that particular colors might be more important.

For example if I select a color tone of warmer colors yellow, orange which are more common in the food will be much more appetizing to look at. So rather than using colors like blue and turquoise and teal. And if we think about travel website then it might be the natural colors, green turquoise, teal, blue might be more interesting to go for in terms of travel website. So these metaphorically represents a particular work, a particular function.

So while we are designing a restaurant's website and while we are designing a travel website so this might be metaphorically different. So it can be many other ways to create ways to use metaphor as a selection element for visual style. Now another can be the contemporary visual style. Right now we will discuss the contemporary visual style after few classes. And we will see how visual style changes overtime.

So some style might be very old-fashioned, some style might be in and we are in the contemporary era. And if you want to connect with the old school of thought, old style of visual style or if you want to connect with the contemporary today's visual style so that might change

the visual palette and that might affect the selection of typography, selection of color, design of the buttons, logos and everything.

So what era you want to portray that will be dependent on the contemporary and other visual style. So these are the main parameter. There can be many other parameter based on what you want to select a particular visual style from the mood board. Now the next process will be designing of visual element. Now after we select a particular visual style, we know what kind of visual language it will speak, what type of theme it is.

Exactly pinpointing that we will start designing all the visual elements. Within the visual elements what will that be. So it will be a visual palette with all the visual element which has the interface design elements which will be the selection of a particular typography which will be there within the website or mobile application. So the typeface will not differ if we change the page we go to the next page, typeface should be similar.

Or same or exact typeface height everything will be finalized in this stage. Now it will have a icon, proper icon, buttons, headers, and pop-up windows etc., every elements, scrollbars, search button everything has to be designed first and we create a palette. Now next process will be we start designing, putting all these design element which we have created. You can create this in InDesign or Photoshop or Illustrator. Create those within a layer.

Now start taking those from within the layer where you have all this buttons. You start taking it from there in Illustrator or InDesign or Photoshop. You start using those the visual palette you have created and now you start putting those in the UI, the wire-frame which has been created in the previous low fidelity design process.

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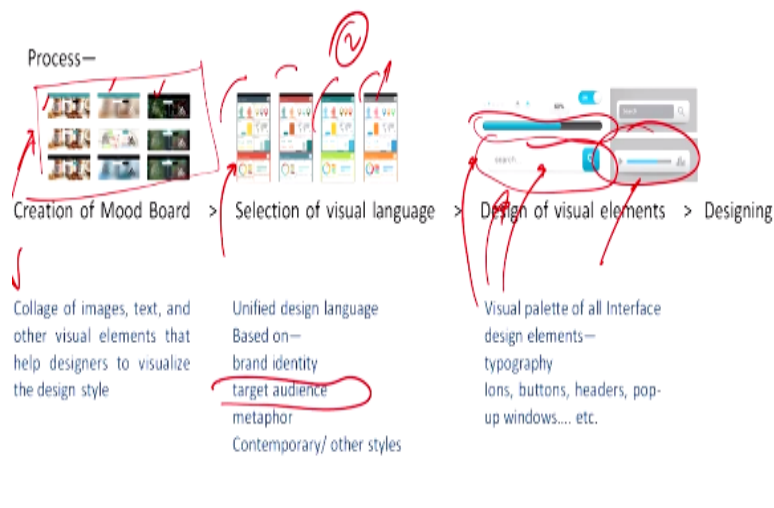
Now this is how the different stage might look like and from each and every stage you can create multivariate design options. So if we create multivariate design options just from the mood board. So this is the option which I was showing in the first where there is a thematic variation. So this is website designed for delivery. So there can be delivery of food, there can be delivery of books. So they have first option is a realistic photo of the delivery.

Next option it does not even show and the third option is a very abstract version. So all this options are there in the mood board, the collage which has been created. So from there it bifurcates and creates multiple different options. Now from the next style when we have selected a particular style and particular theme, particular color palette and particular typefaces from there also there can be multiple options we can create.

So it will look like this. And after finalizing the visual style, maybe the color palette and the theme then also we can go for different options like this. So we can play with different drop shadows and different style of icons. From here we can also deviate. So from where we are deviating that can be from each and every stage we can create multiple options. So if you are not sure about the color and the identity then we can deviate from the mood board.

And if you are deviating from the mood board and creating multivariate options so we should test it with the users. So what type of design works. If you are very sure about the brand identity

typefaces and color palette then we deviate from the next stage and go for the testing. So what type of color palette will look better and create multivariate options from here. And if you are again very sure about the selection of color and typefaces then we can deviate from the next stage which is finalizing the color.

Then we are creating multiple options. So that options, selection of color option we are not giving to the users. So they have a particular color. Or if you are deviating from the theme, from the mood board, then we are giving more options of selecting a theme to the users. So how much involvement you want from the users and how much voice of customer, the feedback from the users you want within your application that also differs.

So if you want more feedback from them, the higher percentage and more importance of the feedback from the users then you deviate from the mood board and ask the users what kind of theme you like. But if you want to have more control as a designer then you control all the design themes and colors, then you go for a testing only for the different color tones and buttons and then go for the user testing.

And that will be more of a functional testing whether the button looks like button or not. So you are not giving visual design options to the designer. You are not opening the options of selecting a visual design style by the user. But that is also fine. It depends on what kind of design it is. So all the time it is not mandatory to give the visual design options to be open for the selection by the users.

So it depends whether we are giving more importance to the target audience or more importance to the brand identity or metaphor or contemporary design language. If you are giving more importance to the brand identity metaphor or contemporary design language then the visual design option selection process should not be open by the user testing. It is not required.

And if you are giving target audience their social cultural behavior, their psychology higher importance then you should give the option of selection of a color theme or selection of the

identity of the design by the users. Then you have to do the user testing in the previous stage while you are selecting the color tone, typefaces and those design elements.
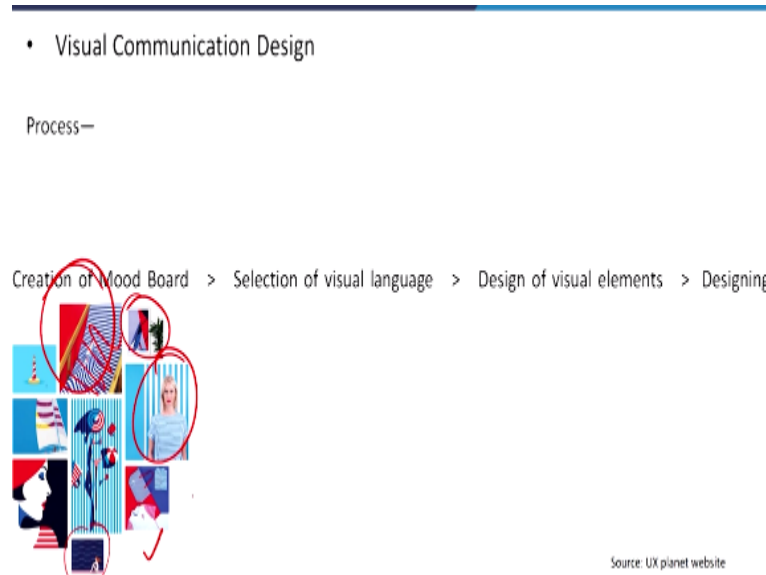
Now creation of mood board. Mood board might look like something like this. It can be much more broad. So here we can see designers are selecting a color which is blue and red. But there are different tones of blue, different shades of blue. There are realistic pictures. There are some graphic images. There can be more. So this is also realistic picture and with a drapery here and this is a realistic picture and so this is a mixture of realistic picture and the graphics.

And we are seeing lot of stripes and flat color. So that is fixed within the mind of a designer. There can be if it is more open, then there can be different gradient tones and other apart from stripes there can be checks, there can be other prints. There can be floral patterns. It can be much more broader or it can be even narrower. So here we are seeing different color variations but the color variations are there in realistic image as well as in the graphic image.

The next process is selection of visual language. So here it is not a mood board. This is here the visual language is fixed. So this is the next step from the mood board. Here everything it does not have a different stylistic feature. So it is not realistic photo. It is not amalgamated or mixed with the graphic images. So everything is computer generated image over here and it is further narrowed down.

Because here within the computer generated image, so you are seeing a particular color tone emphasis of orange and then orange with grey tone is there. It is not exactly one typefaces. But all these typefaces are speaking one particular language. So they are elongated. They had a bit of a retro look. Not very minimalist modern style. So it minimalist or contemporary or today's style. So it has a bit retro style and then even the icons has a particular style.

So it has a border from outside. So every icon has a border from outside and a flat color. So all these icons speech bubbles and typefaces has a particular one visual language. So they are not scattered as mood board. So the mood board option was given before. So mood board can be much more scattered. So if you see some mood boards through net you will understand what mood board is and what is the different between mood board and selecting one particular visual language.

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- Visual Communication Design

Process—

Creation of Mood Board > Selection of visual language > Design of visual elements > Designing
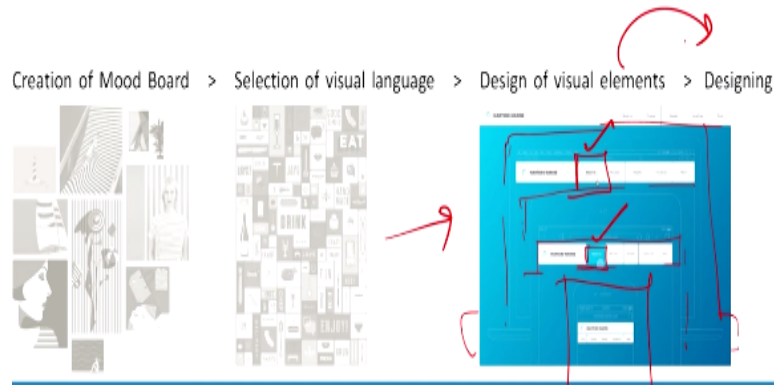
Now next process will be from here when you are finalized your design language, you start designing all the UI element. So here you can see the first option if you look at carefully the first option is for the laptop version. So the next option is for the iPad version and the next option is for the mobile version. So this is responsive. So you can say this is a responsive web design options and within that he is designing all the tabs.
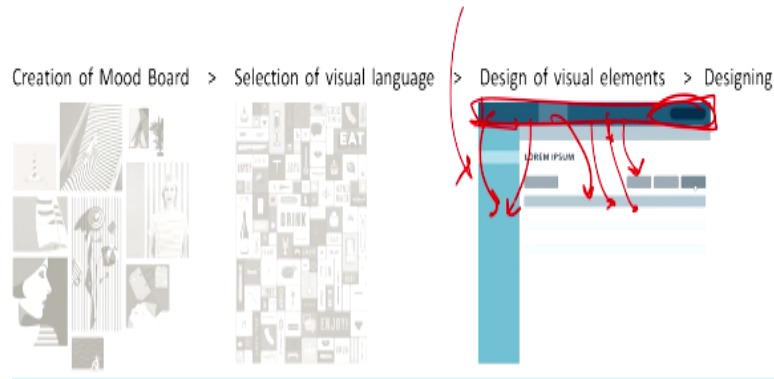
And when it will be clicked, how will it look like when there is a mouse hover. You are just hovering the mouse, how will it look like and when you are clicking, tapping how will it look like and all these buttons in different paradigm, different interface how will it look like everything will be designed in this stage and then you create a palette of design palette and then you start putting all these buttons, search buttons all other UI elements into the design.

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It also will have a, you have to select a particular theme color. So a theme based color might be this lighter tone or a lighter shade and different shades, variation of different shades, one variation of different tint which is closer to that and other variations from different value. It can be lighter, it can be darker. You have seen the search button is darker. And these are lighter of the same color and there can be one color variation which is slightly different to break the monotony.

But it should not be, but together it has a same visual color palette. So based on this we are creating a color palette as well as the palette for UI elements. And next process will be putting everything and creating the high fidelity design. Now visual language style indicators what we are discussing earlier that what will be the parameters to identify what should be the visual design.

So when after creating the mood board the next process when we are finalizing the visual language then what should be kept in mind. So we have talked about this.

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- Visual Communication Design

Source: medium.com

Visual design style indicators—

✓ Already established brand identity
✓ Contemporary visual style
✓ Target audience
  Metaphor

So one is already established band identity. Next is contemporary visual style. Next is the target audience and next is the metaphor. So everything might not be very important for a particular project. So what kind of project is, what is more important, whether already established brand value is more important or not. So when the brand is already there and now we are creating a web application or mobile application or website of that particular brand then brand will be very important.

Or now if there is a new website some startup launching then because they do not have that brand value already created within the mental model of the user group then brand will not be important because they are going for a new design as a startup. So then contemporary visual style might be important. Then target audience might be important if they want to connect with the particular part of particular user segment.

They might be important or a metaphor can be important. Metaphorically whether it is a travel website or educational website. A very formal or informal, so what kind of design they want to have, portray and that might be important. So if there is a already established brand then brand identity, the logo of the brand has to be highlighted through the design.
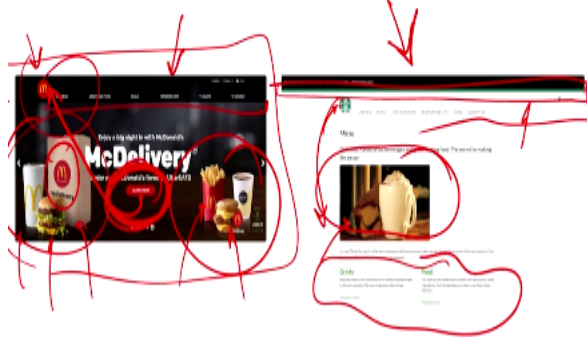
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- Visual Communication Design

Visual design style indicators—

Already established brand identity

So for example McDonald, McDonald is not a web application. McDonald is not a mobile application. It is a chain of a food. So they have a particular color of the logo. So it has a aim for McDonalds which is yellow and then on the red background. So McDonald's color is red and yellow. That has to be emphasized when we are creating a website for McDonald. So McDonald already because it already has a established identity of the logo so that will be emphasized within the website.

So if we look at this, and the designer can promote the food items which McDonald already have. So on a black darker background. So all this designs are actually acting as a background and the main product of the McDonald's are getting highlighted. And again we are seeing this colors of McDonald's in the product, in the logo and also the theme of this background which together if you look at this design, the yellow, red color is dominating and because of the neutral color palette of the background.

Now if you look at the Starbucks logo, in McDonald they have not added different colored button. Everything is white and only the logos are there and the product itself has McDonald's logo and brand identity that has been highlighted. Only here if you look at the learn more is the same red tone which is there in the logo. So that is only there when we are clicking on the next, that might be the important button they want people to click.

And other important button will be here which has a high contrast but still not a high contrast black and white as the value contrast but still it is more subdued. But here if you look at the Starbucks, Starbucks again is a which is not established as a website but that is a coffee brand. So when we think about Starbucks a coffee comes into our mind. So website should follow that particular color. So here we can see the Starbucks mermaid has that color green and white.

So here we see this green patch is added to highlight the Starbucks logo, Starbucks color of the logo and here we are seeing lot of green colors on white background which also replicates the identity of the logo. And a very neutral palette is added which is grey and black fonts and the image from the Starbucks which also has a green tone within. And the coffee color which is brown. That also is, Starbuck is not just the logo. Also coffee comes into mind.

So coffee's color which is brown is highlighted in the main photo. So it has a tone of brown and yellow which also mimics the color of the coffee.

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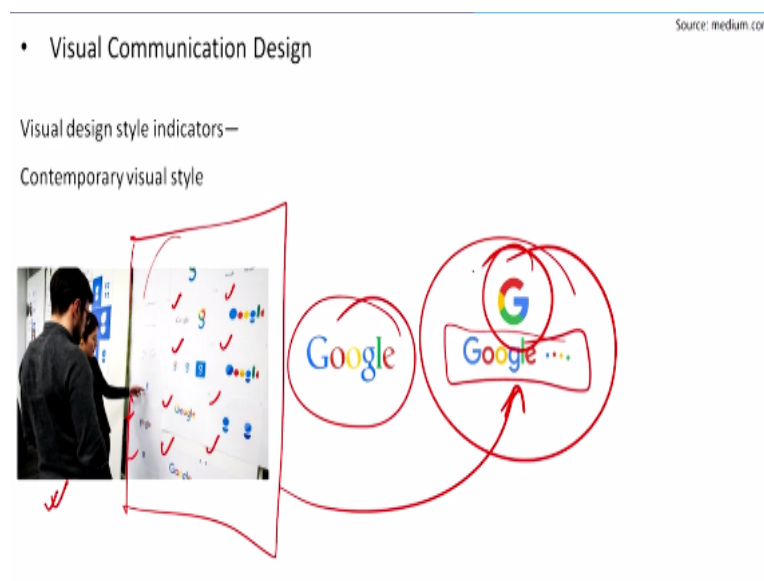
Now next is contemporary visual style. Particular brand might be very established. They might have a particular visual style but still sometimes it is required to change the website as well as the icon and different UI elements. So if you look at Google's different tools like different applications like Gmail and other options of a Google search button and Google drive, all this options got changed recently and they have gone for a change of the Google's logo as well.

They have not changed the color because if the color is changed then Google's identity will be totally changed but still the logo has been changed. So it is based on the contemporary visual language. So this is the earlier logo of Google. Now this is the new logo of Google. So Google also talked about the material design which Google started of visual design style which will be discussed when we discuss the contemporary design style.

So material design for Google and which also android applications use the similar kind of style and apple has a different style which is skeuomorphism which will be discussed. They have a different visual style. So moment Google is talking about the material design style which is minimalist, very modern and crisp their logo was not matching with the material design style. So they had to create their different logo. So this is one process.

This is a photograph of Google design team discussing their new logo. So they have also created multivariate options of design. So you can see this how they are discussing different design options. So you can see the different Google logo design for the new logo design of Google. So they were discussing this. They have created multiple different options for this multivariate design style. And then they have selected through their own process of selection.

So it might not be user testing. It might be discussion, focus group discussion among the experts. It might be other process. So that we are not going deep into that. But through creating multivariate options, they have selected a particular logo which we are seeing today and when the Google full logo is there and also Google's icon is there which is just G and then within that different colors are created. So this is much more minimal.

This has a pure geometric patterns than the previous one. So this has a more curvilinear, more design elements there and this is Sans Serif and this is Serif. So they have changed the visual style based on the contemporary visual language where minimalism is more emphasized through the visual design style of material design.

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- Visual Communication Design

Visual design style indicators—

Target audience

Now visual design style indicated can also be the target audience. So what kind of target audience they are and based on that the color of the website can be highlighted. So this option is a brand, this is Blush which is a brand for makeup. So the target audience is female target audience are their target audience. So the type of color which is feminine and can be attached with the mood of the female, that is highlighted over here.

So you can see the millennial pink which is tone of skin tone and then the pink is getting highlighted over here with some glitter of gold which gives a vive of makeup. So that has been created as a theme color. But if you look at the brand logo, so this is just on grey. So grey is not highlighted rather than the other color which is pink and gold has been highlighted over here. Even in the product, so the pink color is highlighted within the product.

And surely the color of this makeup also comes in different other colors but this colors goes with the theme. That is why they have photographed those particular makeups which has the same color tone which goes with the theme. Now we can also look at the other options which is Nike. Nike's logo is just a tick which just have a figure-ground relationship which is it can be white on black and can have a different color.

So the color is not important but the style of design should give us sporty look because that Nike design shoes which are very sporty, which is not formal. These are sports shoes. So the style of

design if we look at, so it has a very minimalist crisp style, the drop shadows and the angular logos, geometric patterns and the color which is coming and the typefaces are very sleek and contemporary which goes with the sporty look of the design and it also has a very black, white, grey color tone which gives a very neutral color palette and the design of the shoes are getting highlighted over here.

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Now it can also be metaphorical. For example if this is the website which talks about green and sustainability. Those are the theme. So a very lush green light bottle green, it is not exactly a bottle green but lighter version of bottle green which gives a very rejuvenating feeling. That is the theme color highlighted over here. Other background colors are white and very dark grey, not exactly black, which highlights the green, which is also there in their logo.

But also this photographs and others which goes with the theme of green magic which is the metaphorically they want to represent. Now here also we see website of a travel website where the photograph of the nature is getting highlighted over here and the theme color is blue which also a natural color and different shades of blue and grey, natural photographs are there. It is not graphic image is not highlighted. The natural photographs are more highlighted over this design.

So this logo if the travel logo if we look at so logo has if you look at here, logo has yellow and blue, both the colors are there. But they have selected blue over yellow to give a more natural

feelings. But yellow because of this logo they have used the yellow color in different part so that this acts as a accentuation color but the theme color is blue. So that gets highlighted over here.

So these are the process, these are the broader overview of why we have to think about the visual communication design and what is the broader process of visual communication design. Now onwards we will start discussing few topics like design principles, what you have to follow within the design process. So how the balance proportion and everything will be have to be achieved. Next what are the contemporary design styles that is very important to know.

And what are the different typefaces which goes with the contemporary design style that will be discussed. Now later on after we complete the high fidelity design process we will start discussing what is the process of user testing when we have already created the multivariate options.