Week - 02
Lecture - 04
Emotional Design

Hi friends. So, welcome back. And today, we are going to talk about Emotional Design, that it we would like to understand how can we put emotions into the design of the services or the products that we are creating for the end users, ok.

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So, the very first thing that we have to understand is a term which is known as emotional design which has become very very popular among the designers and among the UX researchers. So, emotional design what does it mean? It simply refers to creating of the

designs, creation of the designs that evoke emotions which result in positive user experiences.

Now, why we would like to have a design which invokes positive user experience? The idea is very simple, right. Unless and until your user, let it be a product, let it be a service experiences a positive emotion, the user will never come back for the services or for the products that you or your organization is providing, right. So, this is where the emotional design comes into the picture, where we want to insert the emotion into the design of a product or the services quite simple.

Now, as of now, what happens? So, commonly the common practice is among the designers, that while creating a product or a service they tend to focus more on the users need. That is mostly they tend to focus on the usability of the product, right and the functionalities of the product, while it is the basic thing that any user wants.

But this is something that if you remember the UX pyramid, then in the UX pyramid what happens, that at the very bottom level you have the functional diagram. Let me just quickly try to draw the UX diagram pyramid for you. If you do not recall, it is very simple.

So, for example, if you look at the UX pyramid, then what you have is at the bottom level you have a, what we call it as a functional element. Then, at the next level we have the reliable element, then at the next level we have the element of the usability, on the top we have the convenience, right. And then on the very top, you have something known as the enjoy ability or enjoyable component.

Now, what happens? When we, the designers design a product or the services primarily they tend to focus on these 3 bottom aspects of a product or of a service. So, which are mostly referring to the functionality, usability of a particular product which is good to have.

But nevertheless, if you go at the top of the this UX pyramid, the user experience pyramid, then you can see that there is something which refers to the enjoyability or the convenience

that the user is getting or having by using the product or the particular services that you or your organization is offering.

And for the same reason, let me just quickly erase it, I think. And for the same reason what happens, that what we would like what we would like to do is we need to put proper focus on the upper aspects of the pyramid as well which is the enjoyability and the convenience. So, basically, what they do?

They put the focus on the responses of the user when the user is using a product or after the user has already used the product. And of course, when we talk about such experiences of the user when the user is experiencing the product, these are naturally emotional. And hence, the term emotional design comes into the picture, right. So, what happens when the user is using the product?

So, basically what happens that many times user is not even aware of the thing, but there are lots of sophisticated thought process, thought processes are going on at the cognitive level through which the user is trying to process the functionalities, the experience, the usability and the enjoyability of the product. So, we really need to pay attention to that particular process as well, those particular cognitive experiences and cognitive processes as well.

And while doing so, what is our aim? Our aim is very very simple. What we want to do? We want to elicit strong emotions in the users, so that these emotions can create a type of bond with the product or with the services that we are offering, that your organization is offering. And in turn what happens?

It creates a sense of brand value it creates, a sense of loyalty, and hence your it allows, it enables your customers to take a particular action which may be as simple as that coming again and again to you for the use and of your product, of your of or of your services, right.

And this all these aspects are known as the emotional design. And please mind one particular thing, that when we are talking about the emotional design of a product, many times we may not only want to induce a positive user experience, but positive emotion. Not of course, the user experiences should always be positive.

But many times when we say that positive user experiences, it could be through the inducement of a positive emotion, but many times it could be through the inducement of a negative emotion as well. A very simple example, you want to create a movie, but then in the movie it is all about a horror movie. Now, when you are making your user watch a horror movie, of course, the type of the emotions that are going to be elicited among the users are going to be scary off, are going to be horror, right.

I mean the user cannot feel joyful about it. The user cannot feel happy about it, because the intended use is something quite different. You want to create a horror movie. But, while if you have been able to successfully create or elicit that particular emotion among your users, it means your product that is your movie or your service has been successful, right.

So, while creating a emotional design you have to keep this aspect into the mind that you want to induce a positive user experience which could be through a positive emotion or many times which could be through a negative emotion as well. And the end goal is that of course, it should be enjoyable. The user should be able to enjoy the product or the services that you are offering, right.

Now, how to do that? So, we will talk about 3 levels of design which was proposed by Don Norman, very famous researcher. Where, what he proposed that designers can aim to reach the users on 3 different cognitive levels. So, one cognitive level is known as the visceral cognitive level.

We will be talking more about it. Second level is known as the behavioral cognitive level. And the third level is known as the reflective cognitive level. So, we will be talking more about it that what exactly they are and how they are different. But whole idea is that we want to reach the users on these 3 different cognitive levels, so that users can develop positive associations with the product.

And as I said sometimes including negative emotions, and so, that they can feel associated with the product, they can feel associated with the services, and it allows them to use it again it allows them to enjoy it again, and hence guarantees the success of the product or the services that you are offering, perfect.

Source: Emotional Design: Why We Love (or Hate) Everyday Things by Don Norman
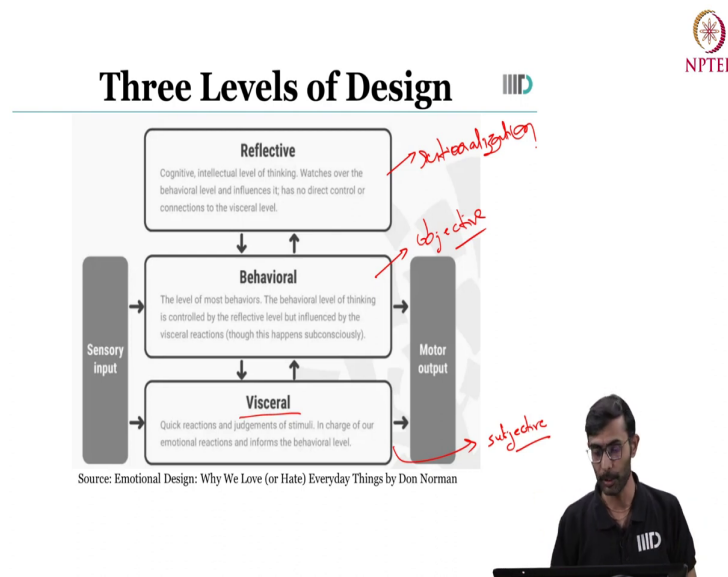
Now, what we want to do? We want to understand the 3 levels of design as proposed by Don Norman. So, if you can see this very beautiful diagram taken from the emotional design book, very famous book by the Don Norman himself. So, he talks about the cognitive levels or the cognitive processes of the users happening at 3 different levels, right. So, let us take it one by one.

So, the very first level is the visceral level. Now, the visceral level is what? Visceral level is all about the initial impression. So, it is all about the initial impression, it is all about the attractiveness that the users feel toward the product towards the services. It is all about the pre-consciousness. And it is all about the initial failings that the users are having while using a particular product or while using a particular services.

A very simple example. Think of when you bought your first iPhone maybe, right. So, iPhone could be a very good example, of a very good product. So, think about the instance when you bought your first iPhone and think about the experience that you had when you are looking at the iPhone, at the very first time, right.

So, maybe you are going through it and you are looking and you are saying, ok my goodness it is very slim, it is very responsive; the touch screen is very very responsive, well maybe not the touch screen is very responsive, but maybe you are looking at the appearance. So, please pay attention that the visceral cognitive level, it takes care of the initial impression only. So, that has nothing to do with the usability.

So, maybe you are not still exploring the touch screen, but maybe you are just looking at the design and you are looking, ok this is very very slim, it is very light weight, it looks so good, you know very very symmetric. And the box itself in which it arrives like it is you know white box; usually it is very nice box, very nice packing and everything.

So, so far you start feeling good, you start feeling the positive emotions about the product itself, even without having used the product, even without having used the services of the product which in this case is the iPhone, right. So, this is how what you are getting is the initial impression of the product. And the way you get the initial impression of the product is simply by having the very first connection, very first reactions in response to looking at the product or in response to using of the services.

So, these all happens at the very very motor level, right. And it is mostly very very subjective in this case because ones experience can be very very different from the someone else's experience. So, someone may like a very symmetric design pattern, but someone may not like the very symmetry design pattern.

So, this is all very very subjective. So, this is again another aspect that you may want to keep in mind, that this particular initial impression that the user is having while looking at the product or the service at the very first time is the very very subjective experience.

Nevertheless, it is a very important type of experience that you may want to provide to the user.

Initial impression, there is a saying like the first impression is the last impression in many cases. So, you want to create a very good impression, a very good first initial expression to the for your product or for the for your services to the user, and through whatever sensors, whatever sensory modalities that the users are perceiving it.

So, maybe there is something that the users are looking at it. So, you want to create a very nice design. So, that this is appealing to the user. Maybe there is something that the users are touching it. So, you want to create a very nice tactile perception. So, that the users are liking it. The initial impression itself is very very good.

Maybe you are creating a food and the you know the sensory perception that the users are going to use is through the smell and you want to create a smell that is very very good smell, right. So, these are the one, these are the ones that are creating the initial impression about the product about the services.

Now, please pay attention to this particular thing that this the experiences, that the users are having at the visceral level, they are completely free from any bias or any prejudice, right. And so, it is there are not many factors that are adding to this particular thing, and it is sort of you know very very controlled in are happening in a very very controlled fashion, one thing.

Other thing that while all these initial impressions or the processes that are happening at the visceral level while observing a particular product, are very very responsive, are very very reactive, are very very momentarily. So, it may be very quick responses. You are not waiting for so long, you saw an iPhone and immediately you felt something. That is it, right you know. So, within few seconds or within few milliseconds, microseconds, many times you felt something and that response is already there, right.

So, you can see that response. So, this is what the what is happening mostly at the visceral level. Now, let us go to the higher level which is the what Don Norman is proposing which is

the behavioral level. Now, the behavioral level is mostly, it has, most of the thing it has to do with the usability of the particular product. It has it takes care of the usability, the performance, or the effectiveness of the product or the services that you are offering, right.

So, as the name itself suggests behavioral cognitive process. What we mean by the behavioral design is that, once the user takes a particular product, let us again take the example of the iPhone only. The user first opens the box looks, makes the very first impression at the iPhone, likes the iPhone, but the next step is of course, the user may want to and will have to use the product, right it is all about the usability at the end.

So, the user would like to use the product. Now, the user started using the product. Maybe the user liked the touch screen response for example, as simple as that. Maybe the user liked the typing on the iPhone screen. Maybe the user like the noise of the tick tick tick which was coming when the user was typing on the iPhone, right. So, all these are what?

Constituting the experiences at the behavioral level when the user has already started using the product or when the user has already started experiencing the services that you are offering or that for example, your organization is offering, right. So, most of the time and many times what happens, that once the user has learned how to use the product, the next time when the user is user wants to use the product, mostly it will be because of the, it will be motivated because the user want to achieve certain objectives, user wants to achieve certain goals.

It may not only be motivated because the initial impression that the user had, right. So, imagine, you have the iPhone, when you saw the iPhone at the very first time you are impressed by the iPhone, the design, the slimness, the weight and so on so forth, right. But once you have learnt how to operate the phone, you may want to come back to using the usage of the iPhone because you want to achieve certain objectives, you want to make a phone call, you want to use the internet, you want to use the social media and so on so forth, right.

So, basically the functionalities are the ones which are deriving you, which are motivating you to come back to the usage of the product. It is not the initial impression anymore. Of course, the initial impression created an impression for you, it created an bond for you, it created a positive emotion for you, but now that is gone, right.

Next time, this is the usability, that is going to attract the user to come to the usage of the product or the services. So, this is what is, this is what is all is being captured at the behavioral level. Now, one thing that you may want to pay attention again here, that most of the things that are happening at the behavioral level, once the user has started using the products and the services, it may start coming as very very subconsciously.

So, user when if there is a good product, if there is a good service, then at the behavioral level what happens usually that the user is will not have to put a lot of effort consciously and things will be happening most of the time subconsciously and in a very pleasant manner. So, for example, you know how to drive a car, and in the beginning when you want to drive a car you know you have to put a lot of effort in driving the car itself, that you know you have to pay a lot of attention to this that and then so on so forth.

But once you have learned how to drive a car, then you do not have to put a lot of focus on driving the car, right. I mean you simply go inside the car and your sort of you know your hands are already there at the steering, your feet is already there at the clutch, accelerator, and everything is already taken care of.

So, you know while you are the one who is doing these actions, your motors are the ones which are doing the actions, but most of these things are happening subconsciously, right. I mean you may be you are not aware at the conscious level that, ok maybe I am putting a gear for example, or I am changing this clutch, I am changing this break.

I mean most of the things are happening at the subconscious level because you are already very fluent in now the usage of the product and you have become very comfortable in the usage of the product or the services.

In this case, usage of the iPhone, usage of the car, and unless and until this starts happening, you will you would not like to do that again and again. So, for example, if there is a car and you are not able to learn how to drive the car or it has become very very cumbersome because there are you know multiple gears, and there are the gear is something here some somewhere else, the steering operates in a certain way.

And it is not very usable, it is not very functional, and you have to consciously put a lot of effort in using that product, in using that car, maybe you would not like to do that again and again. You would like to avoid that particular experience, right. And hence, most of the things that happens here at the behavioral level are happens in a very very happens subconsciously.

Other thing that you want to pay attention to this that most of the experiences that are happening at the behavioral level, can be monitored, can be measured in an objective way. This is in contrast to the visceral design or the visceral cognitive process, where most of the things were happening in a very very subjective manner.

So, you did not had a lot of way to evaluate those experiences as well, right. I mean it was very very subjective. I like this design, I did not like this design, I like the symmetric design, I did not like the symmetric design as simple as that. But when you are talking about the behavioral experiences, when you are talking about the behavioral design or the experiences at the behavioral cognitive level, then what is happening that you are looking at the experiences that can be objectively measured is as simple as that.

For example, you are trying to complete a particular task on iPhone for example, may be on your phone maybe you want to make a call. Now, you can simply measure the amount of the time that it took for you to open the contact list, select the name of the person that you want to make a call and in making a call, right. So, is as simple as that. These are very objective.

Similarly, for example, you want to take a photo from the camera of the iPhone, the amount of time that you took to locate the camera app, open the camera app, focus on the user and

took the picture. So, all these there are so many behavioral matrix, there are so many behavioral indicators that you can use to objectively evaluate the experience of the user at this particular level, right. So, that is what is the cognitive processes that are happening at the behavioral level.

And at the visceral level and at the behavioral level, both there are lots of sensory inputs which are involved. But at the behavioral level as I said, mostly since you are taking some actions it is all about the usability. So, your motor actions are very very involved here, right. So, it is motivated by some sensory inputs and then it is followed by, it is reflected in some motor actions such as the usability here.

Now, the third is known as the reflective level. So, the reflective level of the design, it mostly refers to the rationalization or the intellectual part of the experience, right. So, basically this is, what is this? Basically, what happens here, that in the visceral as we already understood, that in the visceral level, we are talking about the initial impression of using the product. In the behavioral level, we are talking about the usability of the product; we are talking about the usability of the services.

Now, in the reflective level, what the reflective level refers to that, ok we have made a very good first impression. The usability is also good. The user is able to come back to the usability. Now, but at the third level the user may want to evaluate the experience that the user had with the usage of the product or the services. So, and this is where the rationalization happens. And this is where the intellectual part of the cognitive process comes into the picture.

So, now they start the user starts making you know analyzing the users experience and starts analyzing the pros and the cons of the things. Say it is like you know, you have already gone through an immersive experience and the moment you came out of that experience immersive experience, now you may want to recall the experience that you had and you want to analyze that, ok.

Whether that experience was good, bad? Number one thing. Was it worth it? Was there a good return on investment? Maybe I maybe it was not worth it. Maybe I am putting lot of money, but the experience was good, but was not worth it.

Or maybe would I like to repeat this experience again and again. For example, should I would I be sharing this experience with someone else, would I be telling this, ok maybe you know I use this particular product, I use this particular services, you should also use this because it is very very enjoyable.

So, this is where you know all these kind of thing happens where the user thinks about whether the user wants to do it again and again and again and at the same time whether the user wants to suggest the usage of the particular product or the services to the other users. And hence, the user may want to you know do some kind of publicity for you. So, this is what happens at the reflective level.

So, basically what happens, that of course, lots of your thoughts, lots of your actions of using the product in a long term are motivated by this reflective processing, reflective cognitive processing. But at the same time it does not have a direct control or the connections let us say to the visceral level because of course, visceral level is very very momentary.

You saw the product, you use the product, you saw the product you and it made a very first impression. You do not; the reflective process or the rationalization process did not come into the picture. Similarly, for the usability, ok once you have started using the product you talk about the usability, the functionality, and the reliability of the product, but then that is there

But then on the top of then on the reflective level, you want to go upper in the user experience pyramid and you want to think about the enjoyability, did you enjoy the experience, you want to think about the pleasure that you have, had, right. And then more importantly you want to evaluate whether there was a good return on investment on this particular product or not, right.

So, most of the time the reflective as I said this is very very you want to there is lot of rationalization here. So, this is where the intellectual part of you or your customer comes into the picture and that is where you want to hit properly. Otherwise, the user may would like to may evaluate that, ok maybe the experience that I am getting from the product is not worth it.

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AC and Emotional Design

- The Visceral Design: Affective Computing can help you to understand the user's feelings in order to improve the first impression.
  - *First time you bought an iPhone*
- The Behavioral Design: Affective Computing can help you to understand the emotions the users would feel during the tasks; both successful and failed attempts. It can enable a thoughtful and emotional flow process within the design.
  - *Keyboard typing on MacBook*
- The Reflective Design: Affective Computing can enable better understanding of post-usage emotional experience and enable an emotional bond.
  - *Recall experience of a roller-coaster ride*

Now, enough about the emotional design enough about that what are the different types of design. Now, why are we talking about this in the course of the affective computing? So, in the affective computing, in the beginning, we already talked about that affective computing is all about the emotional intelligence. It helps you to understand how to model the emotions, it helps you understand how to evaluate the user experience, and more importantly how can you make an experience which is adaptive.

Now, here let us try to see that how the effective computing can help you in making a design at all the 3 different levels, in making an efficient design at all the 3 levels. So, for example, if you are talking about the visceral design. Now, in the visceral design as we already talked about here, in the visceral design it is all about the initial impression.

So, basically, what affective computing can do for you? What it can do for you that it can help you in understanding the users feelings, the users first response, users first impression when the user is using the product or the services. And why would you like to do that?

You may want to understand that for example, when I am first time I bought an iPhone first time, I took the iPhone in my hand, how did I felt. I mean what was my emotional expressions on my face. I mean was did I look joyful, did I look happy, did I look curious, what were the for example, the what were the emotions that were being expressed by my body language, what were the emotions that were expressed by my for example, my physiological signals. As simple as that if you have a way to measure it, so as simple as that.

If you have watch, maybe you want to see that what were the what is exactly happening with my heart rate variability and so on so forth. So, the good thing about all these thing the affective computing is that, on one hand of course, you can have the subjective self-reporting questionnaire kind of thing where you gave an iPhone to an user, and then you ask the user, ok did you like it? Did you see it? How did you felt it? How did you feel about the product? How did you feel about the first impression?

And user may give whatever the user wants, right. And there could be lot of biases that can come in understanding the user's response or when the user is making a response here. And that is where affective computing can really help you a lot. So, without having ask, without having being asked to the user, you can simply by looking at the facial expressions, looking at the different modalities, through which the emotions are being expressed.

You can look at those modalities, you can monitor those modalities and you can attract, you can capture these momentarily reactions that the user is having while the user is using a

particular phone or the product. And this is more true when for example, you have to evaluate those experiences impressions among n number of different users. Now, imagine that there are 100 different users, and for the 100 different users you gave them hundred iPhones and then of course, you want to evaluate their first impression.

In the absence of the affective computing, in the absence of automated monitoring or understanding of this emotions, emotional experience, what you may what you will have to do? You will have to go to the each and every user, you will have to give them a form and you will have to ask them, ok did you like the product? How did you how did it make me feel? How did you like the design? Did you like this? Did you like that? And you know that can be very cumbersome and tiresome process.

So, this is where affective computing can come into the picture. So, we already we already saw in the earlier part of the lectures that how can we model the different types of emotions and how those different types of emotions are expressed in different types of modalities. So, now, you can already analyze that what type of emotional experiences that you are envisioning, that you are hoping.

So, for example, maybe you are hoping for a smile on the users face, ok. So, then again, how are you going to capture that smile? Maybe you want to put a camera and then that camera making use of sophisticated artificial intelligence and machine learning algorithms is capturing all the 100 users face at the same time and it is analyzing all the 100 users at the same time and it is creating an objective kind of report for you, right.

So, you do not have to go to the user and ask the user, but everything is happening in a very automated fashion. And hence, the chances of introducing a bias is minimal and you can use that experience and say that, ok, ok maybe you know when I looked at the responses of the 100 users the experience was not so positive. Maybe I do not know, what happened.

Maybe and then of course, you can correlate it with other modalities. Maybe you can look at the gaze, you can look at the eye tracking, sensors, you can look at the pattern of the eye behavior, the gaze behaviors of the users, along with the facial emotions. And then, you can

combine these two and you can see, ok maybe when the user was looking at the upper part of the phone, for example, he did not felt as happy as it felt while it was looking at the box of the phone itself, the packaging of the phone itself, right and so on so forth.

So, by combining different modalities, you can get very interesting observations about the first impressions that your product or that your service is making on to the user. And hence, this is how you can improve the first impression of the user when the user is using the product or the services, right. So, that is the very first level, in brief how affective computing can help you in creating a better design at the visceral level perfect.

Now, having understood the visceral design let us look at the behavioral design. So, please recall the behavioral design is all about the usability, is all about the functionalities of the product. Now, affective computing in this case, how can it help? What it can do? It can help you understanding the emotional experiences of the user while the user is using the product or the services in very very real time, right.

So, for example, I am just typing on a MacBook, and then while I am typing on the MacBook you are monitoring my typing speed, you are monitoring maybe my different modalities in which you are expecting the responses to be elicited. For example, even you know facial expressions again, one is very good example, again may be some physiological signals. And of course, depending upon the resources that you have, you may want to introduce certain sensors while the user is using the product or the services.

And by observing the data that you are capturing through those particular modalities, through those particular sensors, you may want to say that you know, ok maybe when the user you know in general the user liked the MacBook for example. But when the user started typing on the MacBook, maybe the typing experience was not as good as the experience maybe that the user that the user was having on let us say typing when the user was typing on particular xyz computer or a laptop, right.

So, you can compare these experiences in a very very objective fashion. And then, you can combine these experiences as the data, as it is being observed through different modalities.

And more importantly you it allows you to capture the experience not only during a particular task, that is let us say resulting in a success. But also during the task that are resulting in a failure for example. And then, you want to analyze where exactly they are failing and how exactly they are failing.

So, for example, there is an UI that you created, and maybe let us take an example of iPhone again. Maybe in the iPhone itself you know I launch the home screen and on the home screen there are n different types of apps, but unfortunately what happens due to the design or whatever, that may be all the apps they are being represented more or less in the same color for example, right. And then what happens that, ok you will have a very hard time in locating the app that you want to open.

So, for example, maybe I just want to open G-mail, but all the other apps are looking like just like the email G-mail in the color and everything, the logo and everything. So, it is going to it is it will be difficult for you to locate that particular app and then to launch that particular app.

So, for example, one way that you can measure that, ok it resulted in a kind of failure, that by amount of time that you took for the user to start in locating the particular app that is one let us say behavioral response. And then, while the user was doing this, of course, user will start showing user will start showing some frustration.

And that that frustration, that emotional experiences that user is having while it is not able to do certain things you can capture through facial expressions, you can capture through certain modalities. And using those modalities, using those data you can analyze that what went wrong, when did it went wrong, and how can you create a better emotional flow process through the better design of the entire thing, right.

So, now the last, but not the least. So, this is the reflective design, how the affective computing can help you on the reflective on designing the process or the products in a better way at the reflective level. So, now, here what can be done? That as you understood the

reflective design is all about the post usage experience. It is about that I use the particular product, and after having used it how did I feel about the product.

It is as simple as that. So, what you can do? Once the user has already used the product you can simply put the user through all the affective computing technologies and sensors and the modalities and then you may want the user to recall the experience of a particular product or a service.

For example, having gone through a roller coaster ride, and then you want to see that, ok while the user is recalling that particular experience, is the similar type of emotion being elicited when the user was actually using the product or maybe when the user was having the first impression of the product, right. And if not, maybe this is a very good indication that, ok maybe the user will not be able to create a very strong loyalty with the product or the services that you are offering.

And the maybe the user will not be able to come back for the usage of the services, right. So, this is how you create and you try to understand the post usage emotional experience of your the service or the product. And then, you can try to see that how can you create, how the affective computing can help you in creating a better emotional bond, right. So, that is all about the affective computing and the emotional design.

I hope that you are able to understand that what the emotional design refers to and how affective computing can help you to create better loyalty all the bonding with the product, right. So, see you in the next lecture.

Thanks.