**Design Practice**
**Prof. Shantanu Bhattacharya**
**Department of Mechanical Engineering**
**Indian Institute of Technology, Kanpur**

**Lecture – 01**
**Brief introduction of Design systems**

Hello and welcome to this course on design practice. I am Shantanu Bhattacharya I will be the instructor for this course. So, let us look at design what is really designed and what is design or what is the status of design in the world today. So, design basically emerged more as a discipline I would say from almost when people started looking into sensibly design as a organized subject was from post World War two, where there were several mishaps which happened to all the airplanes and people realize that there is a human side of all the story, we and engineering cannot cater standalone to every requirement.

So, there has to be some kind of a confluence or merger between the human side and the engineering side. So, the challenge today that our country really has is that you know we are lacking in trained manpower as regards global designers who can change businesses go in a certain direction because businesses today are treated as you know more about people, they are not about what really you sell or what are the added advantages that we will come to you if you sell something, but it is about whom you are selling, and what are their aspirations and can we track that aspiration back into our designs and our products or our systems.

So, the need really is this that producing global designers with some Indian sensibilities where the aspects of more or less everything that is related to this side of the world the Southeast Asian economy, can be trapped somehow with the spirit of design in center of it. So, my course that I am going to teach a design practice would actually first look into some definitions related to design or what are the requirements of a design and this is an academic course.

So, we would start pointing out different aspects of product design as well as partially maybe user experience design along the way; learning some basic tools and techniques which would be needed by individuals who try to get trained in the area of designing systems or products or experiences for people ok.

And so, these are some organized tools which the knowledge of which is probably important for all the new beginners in the area of design to start designing for different situations. So, the basic objectives here are to create design thinkers, design entrepreneurs, design leaders so on so forth. So, what is really the state of design in the world today if I were to look at a design as an opportunity.

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So, the best example is an article from New York Times that got published about a couple of years back when the new wave of design came as one of the dominant forces in the industry. So, this article actually drafted by or written by Rob Walker says that it is a golden age of design and thanks to the convergence of creativity technology and big money that finally, the heyday of the field may be upon us ok.

So, there are a lot of underlying facts, which are covered in this article because of which you know this article got published. So obviously, the whole field of design has kind of changed from just designing something which is just sort of a basic you know mass customization based or need based to something which is actually related to the experience related to using of a product. So, it is missing the worldwide recognition as an essential component for what we today called people centered innovation and people centered design ok.

For example the best example can be can be pointed out here in this particular image which talks about this remote you know which is like mostly used for VCRs or

telephones and people find it so much unwanted and with so many features, which can typically drive all consumers crazy that this concept of a remote although it makes life easier and it satisfies the basic need that you could sit at certain place and relax while operating equipments, without going up to the equipment and switching on ah, but instead of the fact that it addresses the basic needs it is highly confusing on the layout for the consumer. So, that people would simply not like to use it ok.

So, how can I make a difference to it, how can I use this people start of designing something where it will be very very easy for a person to handle this issue never got into business before the new design wave started occurring. And so, today the exact map of perception of a consumers mind is what is needed for doing good designing or actually what we know today as designing.

So, today products embedded with software is becoming a norm, the idea here is to make the usability easy. The idea also here is to somehow we able to get into the brain or mind of a consumer, and find out what exactly is this liking. And that liking should be somehow mapped into the product so that, you know through the innovative strategies that people build and that is what design should be about ok.

So, typically all the service distinctions of features related to the product or you know the post productization service requirements of a product, they are all blurring slowly and fading away towards what we know as experience of a product ok. So, the main theme here the central theme here today in design is how to shape that experience by you know shaping or the product or shaping the design that you are actually building based on the exact aspirations or needs and that is quite psychological as a process you need to be able to make a mental map of the thinking of an individual ok. And so, obviously you need so many different tools to get to the nerve center of the problem about what aspiration a user has that; obviously, it has to be studied as a new discipline so of called design.

So, they basically target user experience to begin with, and try to map that into all the you know you know your innovations that go into a product and this way as I will show you in the following few examples, products simply change definitions, products simply change those boundaries ok, but what can be visualized as a product about let us say tens of years back, is no longer considered to be a product anymore or a good product anymore; because there are so many different variants, because of the usability and the

user sense and the user aspiration that, the shape the size, the form of the product has probably gotten completely changed in the current day.

So, currently it is it is strongly felt that they are more than about 10,000 our designer strain designers which are needed by our nation, and probably at this level we are producing not more than about 300 trained designers. So, there is of course, a gap and so, this as a discipline needs to be inculcated into the Indian academic domain. So, that people can evolve with design sensitivity and design sensibility towards the global arena.

So, let us look at some of the very basic innovations related to the user experience design that I have been talking out about in the last few minutes.

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So, when we talk about design and innovation, the best example that we can think of is the company PepsiCo we all are aware that PepsiCo is in the produce in the habit of producing and selling their main line of products are junk food, but still they are in business although the fact remains that the junk food you know is bad everybody has this aspiration in mind today, it has this know how in mind today and then it is not a healthy practice to eat much junk food, but still they happen to be in business.

And if we look at the underlying agenda that PepsiCo has or in building its products and the underlying need mapping that they do and the kind of efforts that they put in order to be in business, we will actually be able to appreciate what a designer can do which can

change something irrespective of a very strong driving force about not about a consumer not approaching a product still they can approach this and they can be in business.

So, if so, this is what the chief design officer of PepsiCo Mauro porcini has to say that, I strongly believe that design and innovation are exactly the same things design is more than the aesthetics and artifacts associated with the product, it is a strategic function it focuses on what people want, what people need, what people dream off that crafts experiences across the full brand ecosystem that are meaningful and relevant for the customers.

So, according a recently according to a recent article which came up in Harvard business review, PepsiCo has made a lot of strides towards mapping the snacking behavior of women. One of the reasons why PepsiCo wanted to do that is they wanted to change their product line from the earlier catchphrase, which was available to people to design things for you know producing the snack pouches for this particular consumer segment that either shrink it or pink it ok.

So, basically what it meant is that either you make the snack packet small carry able into a small purse probably carried by the consumer or you know painted pink. So, that pink is the color which is quite light by women folks women consumers so on so forth. So, then the new study has shown the new snacking behavior study has shown that typically women folk would hate to stain their fingers as the two.

They would hate the kanji chewing sounds, which come during the chewing process or they would like to have a small pack which can be stored somewhere neatly when you have not consumed or when the concerned person is not consumed it fully and so, basically they had give a lot of definitions about how you can design the right package size or design the packaging in a proper manner or.

For example for avoiding chewing sounds or crunchy sounds, the snack maybe designed in the manner. So, that it is otherwise comfortable it gives a good feeling, but it avoids this problem of creating sounds while chewing etcetera. So, a lot of this research has actually technically gone into the PepsiCo products for it to be in business. So, that is how closely the user segment is being mapped for building products which are likable by all.

So, the same comes true for this mixing spire which was you know made because people at the requirement of picking and choosing the drink that they light mix it in a proper manner you know with lot of flexibility. So, that a variety of taste ranges could be had prior to this probably there would be only certain tastes, which would be available for products discreetly available in the market.

So, these are the kind of innovations that lead you forward to be frontline in the business, where you know the act of designing comes into picture. And so, from that aspect the experience design of a particular product by a certain consumer becomes the forefront of carrying out design. Now it is a separate issue that which will also be a part of this course is that how underlying manufacturing capabilities or experiences could be packed together so that you could do everything at a low price structure.

So, the details that I will make during the course here is that how you could make differences to a way that the aspiration is mapped into a product, from the market side into the basic process side ok. So, that a complete realization may happen a realization of an experience associated with the product may happen really quickly at a low cost.

So, there are few more examples which show about how design can really improve this right here shows the Indian market you know the it is it is something like you know this super market, which is somewhere you know in one of these western countries ah. Visible this the new form of the supermarket which happens here is offered by big bazaar, which according to Kishore Biyani the CCO of big bazaar is a form of organized chaos ok.

So, if you look at this particular structure right here of the famous big bazaar layout design, is that this targets the largest middle class consumer segment, which is used to such kind of you know chaotic marketplaces with all these containers for example, you know any shop that you will go today in a local grocer, would resemble something like this.

So, this resemblance gives them sort of a homecoming feeling which enables probably a shoot up in the total sale and purchase index and therefore, design per say is so important, because you are able to map a certain usability requirement in terms of attracting a segment you know to a certain layout, comes very clear from this instance quoted here.

In fact, if you look at the new catch line of big bazaar it says [FL] India [FL] bazaar ok. So, it is like what resembles the Indian marketplace here, this is a vegetable section of the big bazaar.

And you can see that how very nicely as it generally happens in a in a normal vegetable market things have been put in place so that, that organized chaos can sort of attract consumers and make them at home. And they do not really mind paying a little bit extra for the additional facilities which are available to over and above this organized chaos.

So, that is what people center design today's in the world another very important example; that I would mention here is this tool Nano Ganesh developed by an entrepreneur Santosh Ostwal. So, this is actually a small electronic module which is connected through mobile and an app. So, that farmers could control the switching off and on of pumping stations which are quite far away into the fields by you know using a gs module and giving an instruction to a small controller, which is otherwise present a near the pump.

So, this gives you a sort of an innovation which happens to be the answer for a need which was underlying for several decades of farmers having to take this trouble to walk, miles into a field in order to switch on and off a pump so, that they could irrigate suitably their crops ok.

So, this now is possible by sitting at your room and trying to control. So, so this need never got mapped before this kind of a technology evolved and the technology per say is very simple with simple options. So, this is what today's design is in the world that design for the need and design in a manner so that the market comes to you, because of the innovation that you put in your product. This is what the Nano Ganesh really looks like and it is operated through a GSM module and it is basically used for starting on off a pump set.

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Another very useful example can be for this product sold by P and G. So, Procter and Gamble spent as much time to ask this question or ask the right question that people spend so much of time to clean the mop so, that it sometimes even much more than spending time to clean the floor ok. So, there is got to be a better way out to design the map mop in a way so, that you know this whole issue of cleaning the mop, gets eliminated and this led to the development of this mop with a stick concept, where the mop is disposable it could be removed after every mopping and so, it puts together because of the users small use of convenience that you have made into this product based on the aspirations of people who are actually using these for sweeping or cleaning purposes, just make a small difference that they do not have to clean the mop..

So, you are sending a line of business making another you know supply chain which is actually profitable to your organization and it is mapping the need. So, people are buying it you could of course, create a manufacturing situation where this comes over all at a very low cost. So, that people who are cost conscious also get attracted into this market segment.

So, the new problem that people started thinking off at P and G, when the design this product is how to provide a better cleaning tool than a mop with less time spent on cleaning the mop itself ok. So, the solution is right here a wet towel on a stick that could be thrown away one soil. So, basically having a use and throw kind of product here. So, this product by the by the sweeper was an instant success it led to a chalking up about 100 million dollars in sales, giving an annual sales revenue of about 500 million dollars, which shows the power of innovation into mapping the thought of the consumer into any product that could exist.

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So, this event actually happened in 2014 when the a banker in a financial firm capital one in the in the US bought this design path this design company adaptive path when the (Refer Time: 19:23). If we look at the basic reason for this acquisition it was that the banker wanted to get the right kind of user experience design spirit in its services that it would offer which would be again digital as well as non-digital to the customer, because of which they acquired a whole design firm in order to provide the requisite design support or design help.

So, this is what the general trend in business is today that if we invest in design, if we invest at the right time particularly during the inception of a business, then your sale and purchase index happens to almost go to three times almost two and a half to three times as has been seen by various companies.

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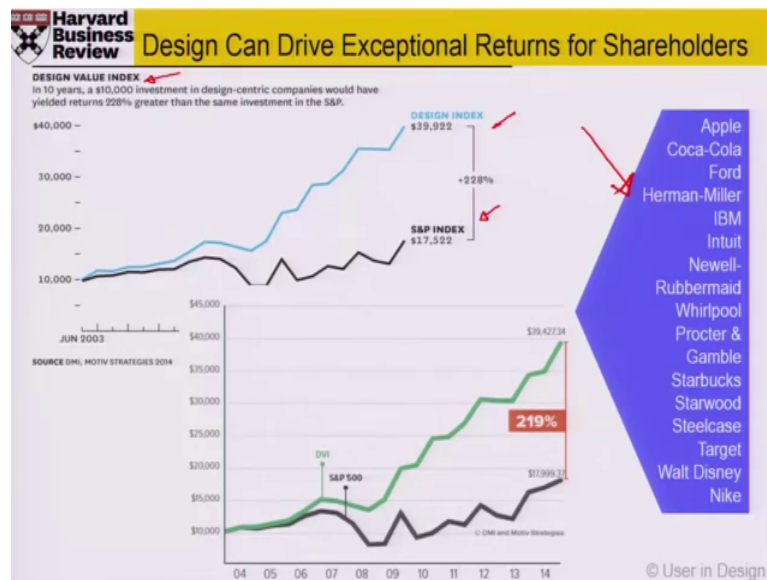


So in fact, what a company motive strategy is along with working along with an institute of design is to Luma institute has actually gauged something called design value index, which is a term based on the overall sentiment within a company that how design friendly a company could be. And they have identified close to about 15 companies where the major returns which come back to a company or the way that the product line changes is based on the user experience design aspect of the products.

So, what they find out is that there is a jump in the design value index which has been mapped by company called motive strategies recently about a year back while working in collaboration with the design firm a design management institute in US. Basically what they have found out that in 10 years almost a 10000 dollar investment in a in design centric companies would have yielded returns, which are probably 228 percent greater than the same investment in the sale and purchase ok.

So, basically it is the design which drives the business it is very very clear from that strategy. So, the work study that has been done here is mostly from about 75 publicly traded firms out of which 15 which are again listed here are the ones which really value design or they are able to introduce more of design interventions towards their final sales.

And it has been found that out of those 75 publicly traded companies, the 15 that are selected here have tremendous amount of improvement in sale and purchase index

because of a small investment in the design area. So, that is how design can drive exceptional returns for its shareholders.

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So, basically the thinking that should be in today's business is that one has to ask the question why not ok. Why not is that golden band between research based design and creative design, that we as designers are super on the positioned to maximize. So, of course, Tony Fadell we all know as the famous guy associated with the iPod Lebanese American inventor designer entrepreneur and also now an angel investor.

So, that is what the basic question in design thinking businesses is that why not ok. Because of this why not several things have come up by the by for example, procter and gamble asked why not that why not somebody uses a mop with an idea of a use and throw mop and a stake, which retains between people ok. So, changing the product from the main product line which is the mop to that of a stick which is retained is a very bold decision, but it makes wonders.

So, that is why in the sweeper or the basic concept of Uber anyone can drive anyone why not that has to be a question that has to be again asked and unless people who have this design thinking into place and people who can in influence company decisions or board decisions, with this idea of think out of the box only they can make businesses happen business successful businesses grow.

Look at the iPod for example, music library outside the player why not somebody asked the question why not. That is why probably tony Fadell could have his way into the apple incorporated and made what is very popularly known as the iPod.

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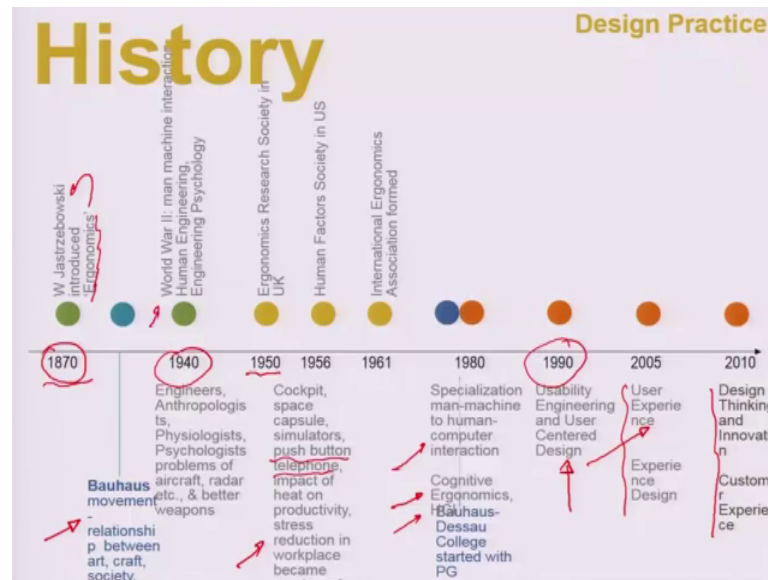


So, that is how one has to understand the design thinking process. A little bit of history about how design really happened so, far and continued. It grew probably if you look at. So, this really dates back all the way to 1870 when on the very famous Frederick W Taylor and Dilbert introduced what is known as ergonomics in a work environment.

So, basically they did the redesigning of the work atmosphere and environment. So, that was geared towards productivity ok. So, of course, the whole area of ergonomics was found by Just Bosky in the very same year. Then of course, there was this Bauhaus movement which was actually another ye sort of a pointer towards how design could be important and what could be the relationship between art craft and society.

The more important need for a design intervention came up during the World War 2 because of repeated plane crashes and the increased need felt by mankind to have man machine interaction to a probably a a better level. So, aspects which are related to human engineering or let us say engineering and psychology merger came up in 1940s again the ergonomics research society in UK was heavily involved in the fifties to look at some of the industrial problems human safety was a very major concerned raised and then you know human factors led to aspects related to redesigning of products.

For example from the general Alexander Graham bell telephone which is based on dial the push button telephone emerged as a possibility the design the impact of environmental aspects on creating productivity, in the work atmosphere or reduction of stress in the workplace became almost a very very common matter of study and common purview..

So, in 1980s again if we move forward we see the specialization related to man machine to human computer interaction, the cognitive side or the let us say the man machine interaction also known better as human computer interaction interface was necessitated again economics was interfaced with all this and then there were other concepts, which generally emerged which led to finally, what we call the user experience concept, which is actually merged now with design thinking and design innovation process.

So, in between in the 90s there was usability engineering user centered design which actually converged into this user experience design, which has now for the last about one decade or so, for more than a decade I would say continues to be the central theme of all design practices.

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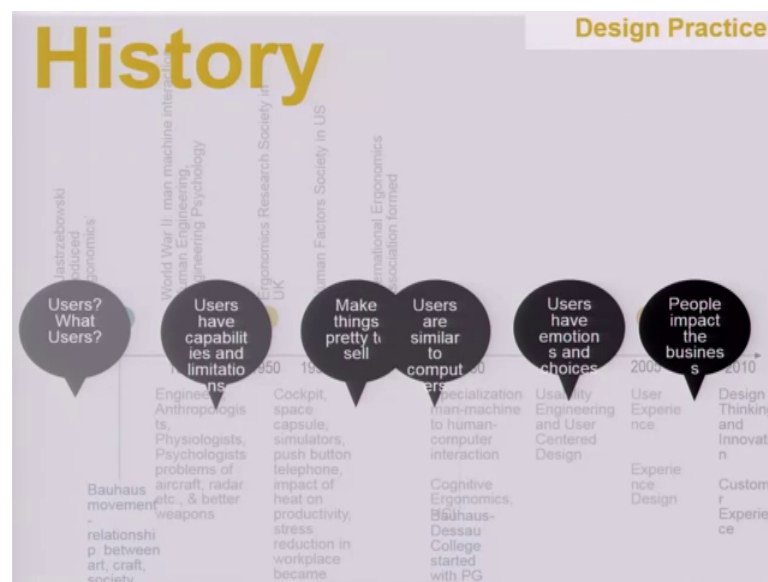


So, if we look at this earlier, probably back in these 1800s people used to ask the very question that users what is the need of users in making products or designing products. Then people started thinking that products do have capabilities and they also have limitations and so, therefore, the users somehow would define what are the capabilities

of those products, because the usability of the product is dependent on the user and his inability to handle the product properly may result in some limitations or may arise in some kind of failures, which was felt you know during handling of machinery.

Then of course, there was a series of you know or series of decades starting from sixties onwards where the concept was how to aesthetically make things pleasant. So, that they can sell for example, the automotive design if we look at was by and large very rugged prior to the 60s, but after 60s there was a gradual improvement in the aesthetics and more compact spaces were envisioned within the automotive which made lightweight very user friendly city driven automobiles quite commonplace in business which we also known as small cars or small segments.

So, then in the 80s again users were treated to be almost similar to computers. So, therefore, there would be a compatibility of the users with the products which would be worked upon finally, people started realizing in the 90s that emotions also are a very important part of a user and you can treat users are simply computers or robo's who are bound to perform something while handling an equipment, but they do have some emotions and there is a factor of carelessness or carefulness in how you design the interfaces you know with such machines or such engineering tools. So, that people can give a bit of deliverance and then finally, in today's light with all this presentation that I have made for the last few slides, it so, seems that it is the people who impact heavy the business and they change and refine and redefine.

And therefore, if I design rightly for the people I think great strategies can work out for businesses to be really successful. So, this is a kind of an introductory talk which I wanted to deliver today based on why the whole idea of design or what should be followed in design. Now in the following lectures we would focus more on product design aspects, also aspects related to when you look at the design process what are the kind of tools that you should be used to in order to realize a product or a system..

And the next lecture that I would give following this would be almost dedicated to what is a product or what are the kind of products or what are the values associated with such products and what could be the kind of features or aspects engineering aspects associated with the product ah, which would lead into an organized way of design thinking so, that a layout of a product can be planned.

So, thank you very much for patiently listening to me.