Usability Engineering
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Module - 01
Lecture - 03
Standard Terminologies

Welcome to lecture 3, in this lecture we are going to discuss about Standard Terminologies that are used across industry and academia in the context of Usability Engineering and associated terminologies. It is important for all of us to understand these terminologies and the specific constructs so that when we start discussing about tools techniques and processes it becomes clear to what specific construct are we referring to. So, let us begin.

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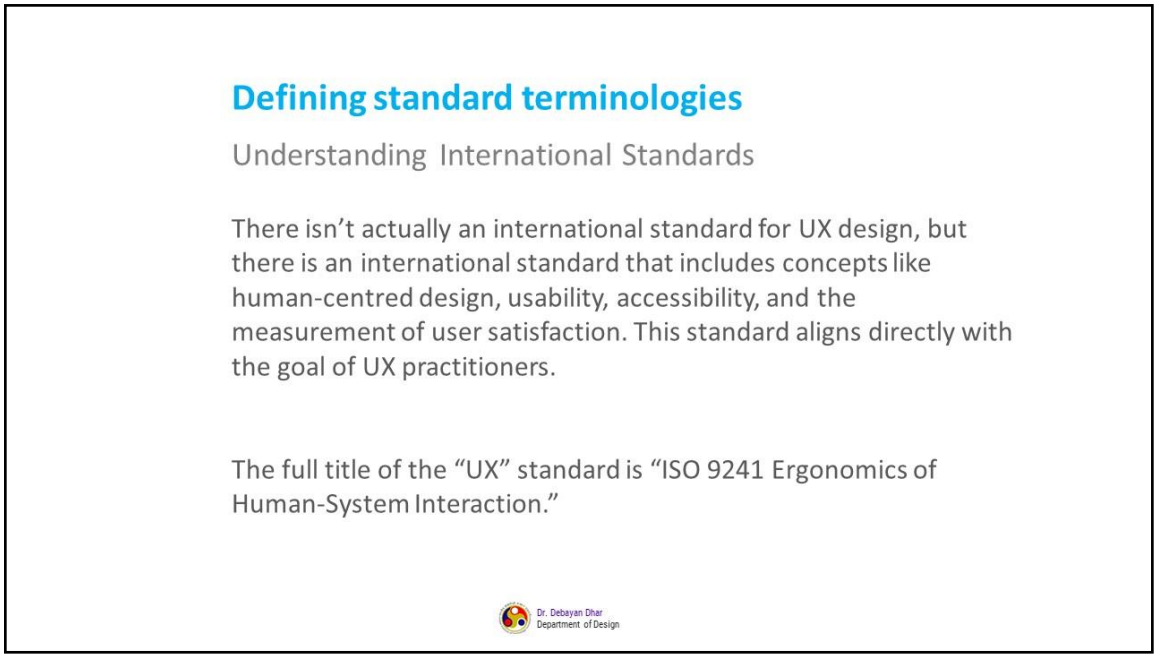

Now, specifically when we talk about usability the word user-experience design comes into play this is a highly used terminology in the industry, but specifically you will not find any international standard for the concept of UX design right, but there are concepts like human-centred design, usability, accessibility and measurement of user satisfaction. And these standards, the definitions, the directions all of them aligns directly with the goal of user experience practitioners.

So, since we are talking about standard terminologies associated with ua with usability we are going to understand and see how these terminologies relate to each other, where does the difference lies, how each terminology means a specific characteristic of the job profile or the task that is being associated with it.

And so, in order to understand this, it is imperative that we understand ISO International Standard Organization, standard definitions across that are used across in this discipline. Now, the full title for the terminologies that we are going to refer to you know is being referred from ISO 9241 Ergonomics of Human - System Interaction.

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And these are some of the highly UX centric standards and that are referred to, these are ISO 9241-210:2010 known as Human-Centred Design for Interactive Systems, ISO 9241-171:2008 Guidance on Software Accessibility. ISO / IEC 25062 Common Industry Format for Usability Test Reports. Now, though this is not a formal part of ISO 9241, but references it and builds on some of its principles.

So, essentially the one that is primary concern to all of us would be the ISO 9241 and its associated modifications that would allow us to understand these terminologies with its exact construct.

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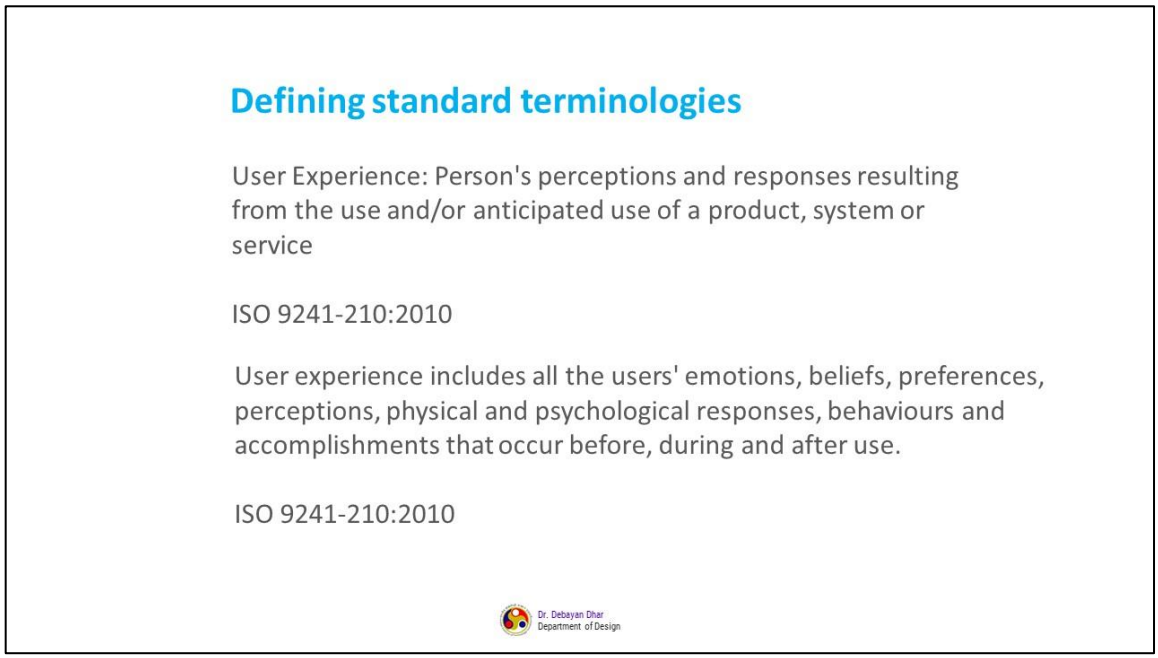

Now whenever we you know talk about this user experience we are talking about this term because these terminologies are extensively used in industry, extensively used by the design community and therefore, we are starting with the word user experience. Now, whenever we use the word user experience the person's perceptions and responses resulting from the use and or anticipated use of a product system or service is being referred to that is the standard definition how user experience is defined in ISO 9241 right.

Now, if you understand or look closely at this definition you would realize that ISO is trying to explain the temporal status of the concept of user experience and that temporal status is associated with the existing use; that means, while actual use being carried out by the user and then it also extends to post actual usage and before actual use happens.

So, the entire duration whatever experiential aspect is associated for that entire duration of the anticipated use, actual use and post use can be classified as the temporal aspect or the temporal duration for user experience characteristics. Now, in this entire duration your users, your customers will have perceptions and they will respond to the situation accordingly, it is this aspect which designers want to know, want to learn, want to understand.

Now, user experience includes all the user's emotions, beliefs, preferences, perceptions, physical and psychological responses, behaviours and accomplishments that occur before, during and after use that is where I would like to draw your attention.

You know this word is very important - before, during and after use you know, majority of the time what we understand or what we relate user experience to is between is only during the use of the product; that means, when your customers or users are actually using the product it is not so, ok. It not only considers while your user is using it, it also gets associated while before he starts using and post his usage and this is where you know because of all these things he gets into the mood of the product and these are the aspects that defines what we call as UX right.

Now, when we talk about experience, we must understand that experience means all these important parameters, emotions, beliefs, preferences, perceptions, physical and psychological responses, behaviours and accomplishments all these things together are considered as aspects of user experience.

So, it is not only important that we realize that we go to our user we ask them few questions we must ensure that all these important facets of their experience are captured, their emotions are captured, their beliefs are captured, their preferences are captured, perceptions physical and psychological responses how would they react to given stimuli right.

Their behaviours and accomplishments and all needs to get recorded in order for us to understand the experiential state of the user during, before and after the use of the product or using your design intervention that is how ISO 9241 defines user experience.

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Now, user experience is a consequence of brand image, presentation, functionality, system performance, interactive behaviour and assistive capabilities of the interactive system. The user's internal and physical state resulting from prior experiences, attitudes, skills and personality and the context of use all these influences his user his or her user experience.

So, what you understand from here is that; when we refer to the word user experience this word user experience is resultant of the image of the brand that you are building; that means, exposure to the brand even marketing strategies, advertisement strategies word of mouth all these thing influences your brand image.

Presentation how the product or your design is being presented to the customers, how it functions, what are the features, how your user can use specific features to reach his goal that is what we talk about the functionality of the product, system performance, its efficiency right, its accuracy, all these are important part of system performance it can be hardware related, it can be software related interactive behaviour.

You know the user asks for something and the system responds to it, this kind of interactive behaviours and whenever the user faces an issue the system must have assistive capabilities to ensure that your user can recognize the situation and then assist him support him to recover from it or even assisting him to complete his task both these things are important.

And all these things influence the user experience apart from this which is a you know all characteristics of anticipated and actual use the customers priors experience with the product, his attitude which is influenced by many things, his social dynamics, word of

mouth from his friends and circles, his skills and personality, what kind of skill sets he has acquired over the years and what is his personality. And the situation where the product is going to be used all these influences user experiences right that is what ISO tells us 9241.

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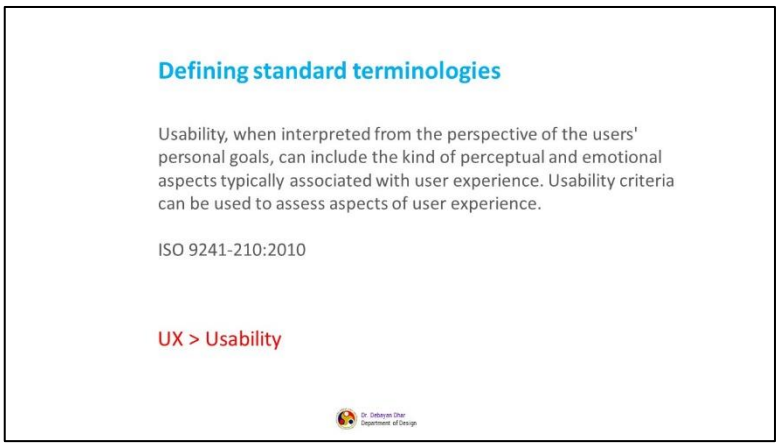

Now, why we are discussing about user experience because we need to know or understand about usability, in order to understand usability it is important that we understand the temporal duration of the concept of user experience.

So, ISO 9241 defines usability and it interprets usability from the perspective of users' personal goals; that means, what he wants to achieve, when we talk about personal goal it means what are the objectives your users have set forth to achieve and it can include the kind of perceptual and emotional aspects.

Typically, associated with the user experience now usability criteria can be used to assess aspects of user experience, see every time now if you understand here it is talking about personal goals; that means, it is referring to the situation which is anticipated and during use of the product.

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Similarly, user interface is defined by ISO 9241 as all components of an interactive system be it software or hardware that provide information and controls for the user to accomplish specific tasks with the interactive system.

So, see user interface is actually a medium, the moment we talk about the interface the word interface. It means between two entities; and which are the entities? The human and the component or the software or the hardware that performs your activities, your takes, your commands and performs your queries; so, in between these two aspects or in between these two entities what lies is an interface a medium through which the functions or call to actions are executed.

That means, the users gives a command through the medium, through the interface to the software and hardware and the software or the hardware executes that command processes information and responds to the command by providing them some result and that result is again provided to the user through the interface. So, interface becomes the medium. So, that medium is what we call as user interface.

It is the medium that connects human actual users with the software and the hardware; that means, with the computer.

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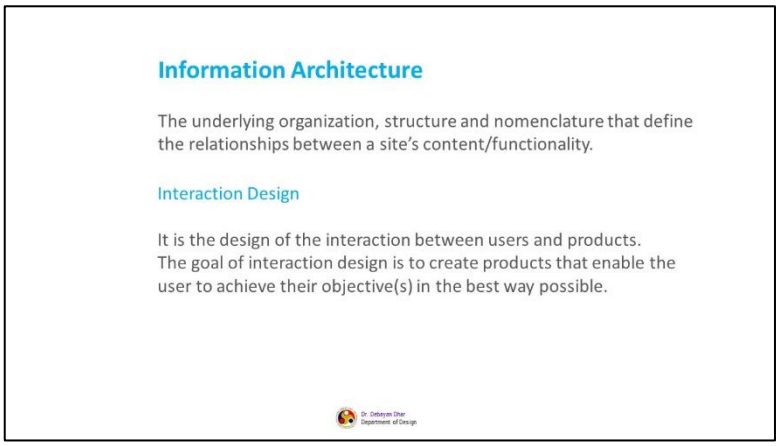

We also know these words which are quite extensively used in the industry like information architecture, interaction design. Now, information architecture means the underlying organization, structure nomenclature that defines the relationships between a site's content and functionality right.

See, whenever we look at a software product there is an underlying structure of how the information have been clustered, structured or put into a particular hierarchy. Visually you can see the interface elements, but as you start interacting with it you realize a structure that is associated that allows you to predict where you can get which particular information right. That organization, that structure, that clustering of information according to nomenclatures are the relationships, based on your software or the sites person content and functionality is what we define as information architecture.

Another important terminology which is extensively discussed and referred to is the word interaction design. Now, interaction design is the design of interaction between users and products. The goal of interaction design is to create products that enable user to achieve their objectives in the best possible way. See, if you can refer to the definition of user interface you would realize that I said user interface is the medium through which the user provides gives a command and the software and the hardware executes.

Now, interaction design is focused the objective is the focus on is designing these communications, you have the interface now how do you communicate, how do you trigger a query. So, essentially it is a dialogue. How do you establish a dialogue? How do you execute the query?

The design of that dialogue between the user and the interface and the system in a way that it responds to the user's query, design of this dialogue between the user and your system is what is referred to as interaction design. So, the goal of interaction design is to create products that enable user to achieve their objectives in the best possible way.

See, many a time we get confused that the overall objective of our user or customer is to use the systems no that is incorrect, he has chosen your system, the system that you have designed, he has chosen the product designed by you only to reach to the objectives be it a site, be it a software application, be it is a mobile application or any product take the example of cars and vehicles.

The essence of using or driving a car is to reach from point A to point B with less human drudgery with high user satisfaction driving satisfaction and to reach to the place the most effective and efficient way, time is a constraint here right. So, the vehicle is the medium through which you reach from point A to point B that is how the initial vehicles or cars were designed to, but as our customers got accustomed using it our behaviours have changed now.

We not only look for reaching from point A to point B rather it is about the experience part, it is about how the car that I own projects my personality, among my social circle. So, it is an extension it is considered now as an extension of my personality, social status.

So, users behaviours, their requirements also change over a period of time that is very important, important in order to understand that we cannot or we would never be able to understand user because correctly because over the period of time his requirements, his behaviours would go through a drastic change.

Similarly, like this the interface that your user is using, the application your user is using, these are also mediums, these are also mediums for your users for your customers to achieve the objective they have or they want to. And the experience that they have while reaching their objective is what decides whether there is going to continue use the product or they will reject the product after initial adoption.

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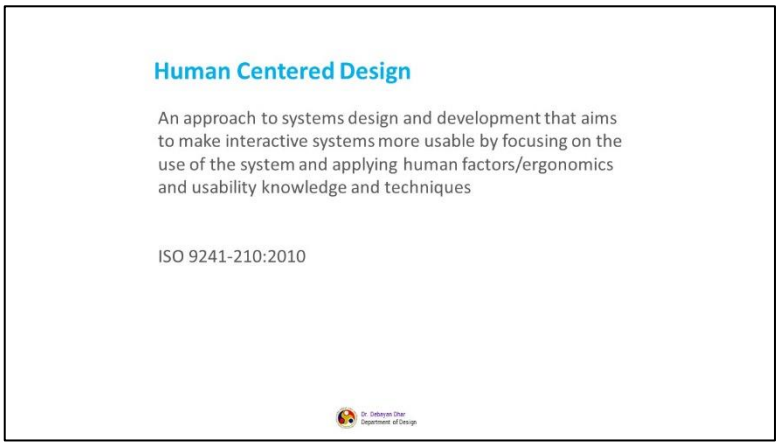

So, human centered design is what is the focus for all these aspects that we have discussed now, be it user experience, be it usability, be it interaction design, you see the focus is always on the requirements of your customer of your user, how well you can understand what your customers' or users' require.

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Can you clearly define their requirements their need? So, it is an approach. So, this study of defining their requirements is important and we use the techniques and tools that are enshrined in the concept of "human-centered design". So, human-centered design is defined by ISO 9241 as an approach to systems design and development that aims to make interactive systems more usable by focusing on the use of the system and applying human factors ergonomics and usability knowledge and techniques.

So, the focus of the human centered design approach is to make systems usable, is to make systems that increases satisfaction or it ensures satisfaction of our customers and users and we can achieve these by applying the principles of human factors or ergonomic techniques and also by applying the usability knowledge and techniques that is how ISO defines human centered design.

Now, the term "human-centered design" is used rather than "user-centered design" you would see that we discussed about human centered design we did not use the word user centered design. Now it is so, because to emphasize that when we use the word human it addresses all the associations the product has with various segments of people it may be the stakeholders it may be the various administrators who run the system.

So essentially, they are not your end users, but they ensure that your system is serviced, your system is maintained and therefore, we must also take into view the concerns and the issues that are raised by them or that should would make their journey with the product more satisfied right.

So, whenever I say later user keep in mind that we are referring to all the different stakeholders, all the different people or user segments that are associated with the product it does not only mean the end users.

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So, now, usable systems can provide a number of benefits, including it can improve productivity, enhanced user wellbeing, avoidance of stress, increased accessibility and reduced risk of harm, these are the benefits enshrined in ISO 9241 about usable systems.

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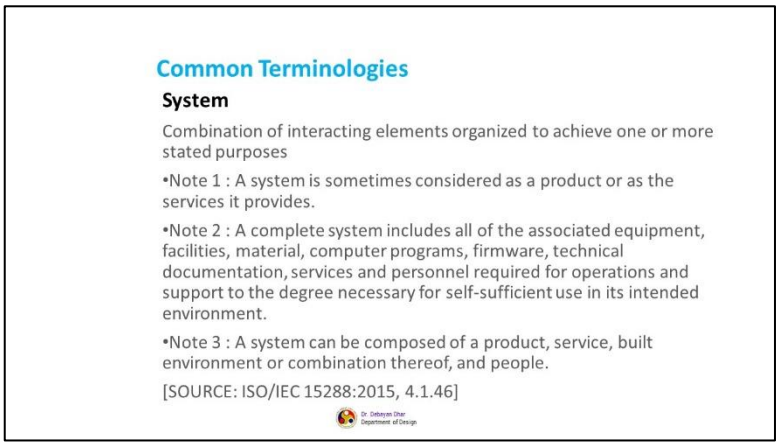

Some of the other common terminologies that are enshrined in ISOs are how it defines system. Now, what do you mean by system? It is a combination of interacting elements organized to achieve one or more stated purposes and the purposes are defined by the designer design team. Now it is important to understand here that a system is sometimes considered as a product or as a service it provides, it can be a service, it can be a tangible product, it can be a software, the focus is that it helps the user to reach to his or her objectives.

A complete system includes all of the associated equipment, facilities, material, computer programs, firmware, technical documentation, services and personnel required for operations and support to the degree necessary for self-sufficient use in its intended environment.

All these parameters constitute the structure of system and the system can be composed of a product, service, built environment or combination therefore, and people.

It is a composition of interacting parts for example, whenever you go for an admission process or a recruitment process, you would realize if you see the entire process from the top side you would realize that it is an association of multiple departments, multiple groups of people taking care of individual aspects to ensure that the best person is getting recruited for a organization or the students gets specific admission to the colleges based on the numbers, based on the criterion, so on and so forth.

So, these are when we look at all these systems we only look it as an interface, but then there is a hell lot of interacting parts, huge interacting parts that constitute this system. It

ensures that whatever command, whatever requirement is there from the user whatever trigger of or of query is raised by the user the system ensures that the interacting parts work together to help the user achieve to his objective and to provide a response to the query by providing response to the queries.

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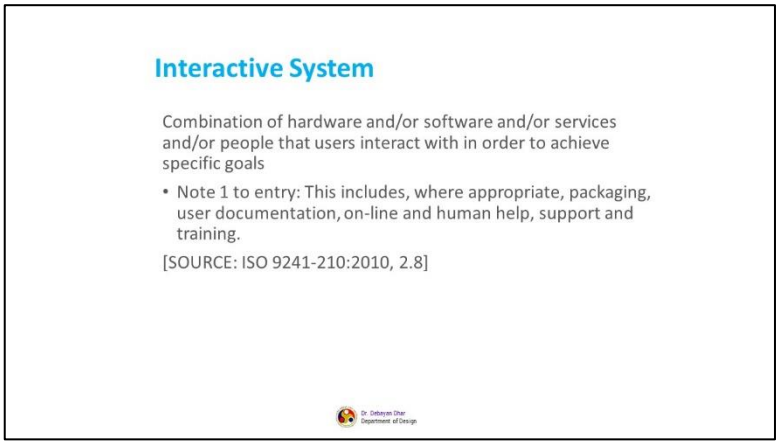

When we talk about interactive system we mean it is a combination of hardware, software, services, people that users interact with in order to achieve specific goals that is how we define an interactive system. And this includes where appropriate packaging, user documentation, online and human help, support, training all these aspects are also include the moment we talk about interactive system.

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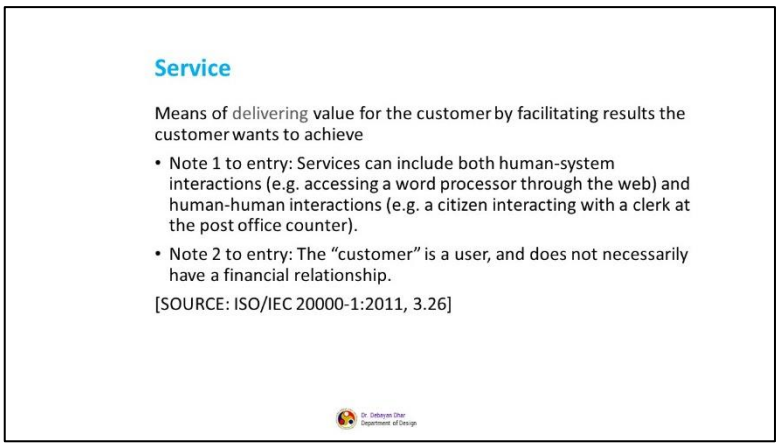

Service, we all refer to the word service as we started discussing about system. Now, what do we mean by service? Service means of delivering value for the customer by facilitating

results the customer wants to achieve, services can include both human system interactions. For example, assessing a word processor through the web and also human-human interaction that is where I was trying to draw your attention to, citizen interacting with the clerk at the post office counter.

So, a service means that it is a system to ensure that the users get what they require for what some value they want, they are there to get a value they have a requirement out of their query requirement and there is a system in place that would ensure whatever requirement this user has it is fulfilled.

Now, this system can be a system where your user interacts with the software. So, software hardware interaction takes place to ensure that the response is given to the user or it can be a human-human interactive system that is also the concept of the service. So, a human interacts with the human and then the other human responds to this human who is an user to make to fulfill his requirement, that is also how we define a service as.

Now, the "customer" is a user and does not necessarily have a financial relationship. So, every time an act of query or a requirement is there it may or may not be necessary that it has to be related for a financial transaction no, requirements can be of many types educational requirements, requirements for information, requirement for socializing, requirements for support mental support, all these things are important apart from what we essentially know as financial transactions.

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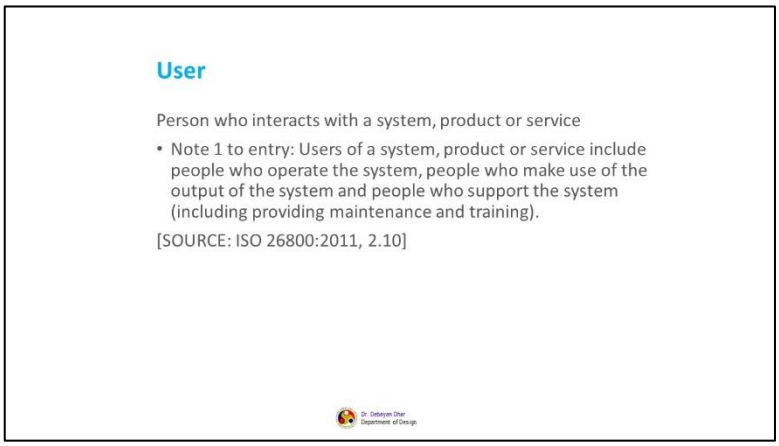

Now, after knowing system interactive system and service let us understand who is the user and how he is defined according to ISO. So, a person who interacts with the system,

product or service interacts, who is essentially having a dialogue between these three system, product or service can be considered as an user.

It does not say user does not mean that he is only the end user right, it says that at any point of the life cycle of the product, there are a group of people who are having a dialogue with the system or with the product, whether it can be the designer who is building up the product or he is the person who is maintaining the service or the system or he can be the end customer as well.

Now, users of a system, product or service include people who operate the system this is extremely important for us to understand, that the people who operate the system, people who make use of the output of the system that is what we were referring to that when you have a trigger of command from the user side you have a response.

Output means the response of the system and people who support the system right; including providing maintenance and training all of them are considered as users. So, from now onwards whenever we talk about users not only about customers, please understand that we are all referring to people who operate the system, who use the system or the output of the systems and who support the system like the people who maintain it and the people who provide trainings we are considering all of them when we say or use the word user.

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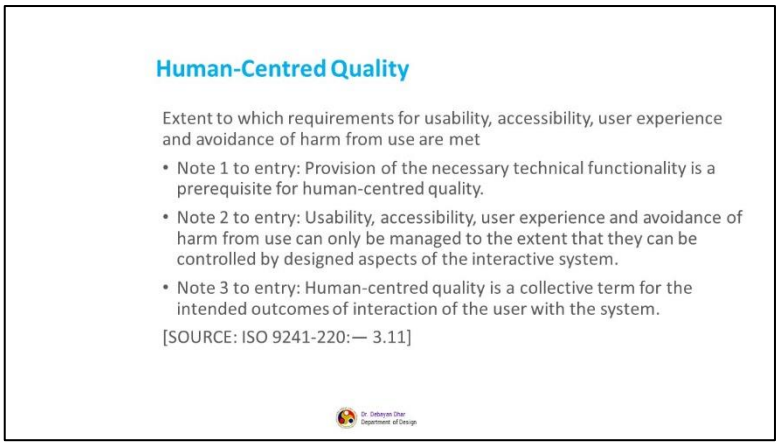

Human-Centred Quality, now ISO defines human-centred quality as the extent to which requirements for usability, accessibility, user experience and avoidance of harm from use are met that is how we define a human-centred quality.

Now, provision of the necessary technical functionality is a prerequisite for human centred quality. Usability, accessibility, user experience and avoidance of harm, understand avoidance of harm this is very very important feature from use can only be managed to the extent that they can be controlled by designed aspects of the interactive system.

We can only ensure that these qualities are met if we design our system with human-centred approach. Human-centred quality is a collective term for the intended outcomes of interaction of the user and the system it is a collective term.

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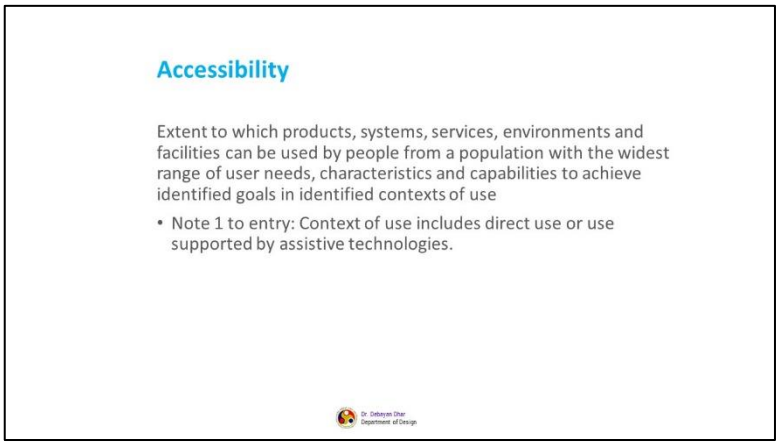

Now, we use the word accessibility here and many a time you must have realized that whenever a product is designed we always consider the aspect of accessibility; now how does ISO defines that?

Accessibility means it is an extent to which products, systems, services, environments and facilities can be used by people from a population with the widest range of user needs, characteristics and capabilities to achieve identified goals in identified context of use. If you understand if you closely examine the definition you would realize it says facilities that can be used by people from a population with the widest range of user needs.

This word widest range of user needs means what? It means that it must fulfil the requirements of people who are spatially abled, who have special requirements, it can be related to eyesight, it can be related to hearing, it can be related to cognitive processes, it can be related to any physical disabilities they have special requirements.

And when you design a product you must ensure that these special user groups their requirements are considered, their requirements are addressed, it is imperative for us as designers to ensure that we do not exclude these special groups of people, who would otherwise get affected because if you not if you do not design your system based on the specific requirements they have they will not be able to reach to the objectives they require to the requirements they have.

So, therefore, accessibility is the concern is the concept of the concern that the designers take or addresses in order to ensure that these requirements of the special user segments are met right, that is how we define the word accessibility.

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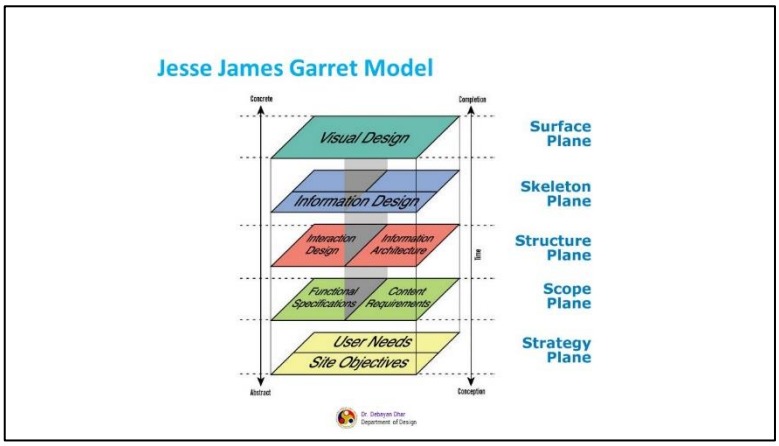

Now, with this understanding of these specific terminologies that we have discussed in this lecture we must understand that all of these are associated to the product that we are referring to and the product that we are designing follows a structure it has a structure and it can be rightly explained by the model Jesse James Garret has proposed.

If we understand the structure of the product we can ensure that all the important aspects of human-centred approach can be met and in our next lecture we will discuss about this in detail. Jesse James Garret has provided this model that gives us a glimpse of how a software product is structured, it moves from being abstract to concrete and then from being conception from this phase of being a concept to completion, we will discuss all this in detail in our next lecture.

Thank you.