

Inclusion and Technology Design
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Lecture - 07
Accessibility Fundamentals: Disabilities, Guidelines, and Laws

So, good morning everybody, my name is Ankit Jindal. I am the founder of Friends for Inclusion. We are not for profit technology start up set up with an aim to empower persons with disabilities using technology. We are in the process of creating and promoting technologies and evangelizing accessibility standards and we are currently being incubated I triple IT Bangalore and when we are in partnership developing a couple of solutions for people with disabilities.

I will be accompanied by Rakesh Pala, Rakesh P he is the founder of Maxability and he is also accessibility you know a trainer and an expert of accessibility at Adobe, and I also have my younger brother Pratheek he is working with Wipro and my father who so, we have team friends for inclusion today for you talking about Accessibility Fundamentals.

Before we restart I just want to get a sense of the audience, how many and just see I am blind and I am I have the 90 percent of sight lost and I will be using a computer powered by screen reader. So, that you know I can kind of go through my slide.

Before we really begin I will of course, I do you know I just want to understand how many of you have really had any experience of disability whether yourself directly or with the family member or a close friend before day you know who experience disability in any form either directly by that means, either yourself are disabled; wonderful.

I think that is I think it is pretty fascinating you know observation that you say yes humans are as humans we are different, we are diverse, and you know it really ranges right from even and our life span we change from being a infield into adultescent into somebody who is youth or young and then really transiting to old age. And of course, then this whole lot of variety or a heterogeneous next when it comes to people from different regions, people following different religion practices, gender, economic background.

So, I think bucketizing everybody into one human experiences also in some ways problematic. And most so, if an if you really go to the slide 4 I it really you know my concern with the whole definition of this with the World Health Organisation at given in 1980s was that it kept the if you know the owners was on the person you will not able to participate because you had a physical impairment that was the understanding.

So, there was a normal way of living and then there was a anything which did not comply to a normal way of living became subnormal, abnormal or a you know not a very normal way of functioning, which in itself was very questionable and the whole approach put the owners keep the person it is the problem with the person not with anybody else not with the environment right.

So, I am not able to study if I am blind, because of the problem I have in my eyes. I am not able to travel because I have a you know some impairment in my legs, I am not able to study because I have some kind of a learning disability. So, everything boils down to me as an individual everything is a function of my impairment right.

Any disagreement on this? I am going slow on this topic because what I am going to cover next is going to be very fundamental in the way we want to perceive disability from now. And I think it is if you really get this thrift well I think the whole concept around associability the need for inclusion of persons with disability will be self explained. So, if we go to the next slide and this is a more advanced definition which was it should used by the World Health Organisations and then subsequently indorsed by many other human rights organisation the UN and a similar definition is also been adopted by the UN convention for the rights of persons with disability.

It really talks about that disability is a complex phenomena, it talks about a features of one's human body when interaction with the barriers or the features of the environmental is when somebody experiences disability. So somebody in the beginning said disability is all about the barriers in the environment any so, what it really tries to imply is, that they are persons with disability yes we all have limitations with it can I have I am a person who has retinitis pigmentosa as a result of which I have 95 percent of sight loss.

But is that what is defining my disability? No; disabilities experienced when say if I want to study, today I have excess to assistive technology, when materials are not provided to me in accessible format is when I experience disability. Imagine somebody who is on a

wheelchair somebody using a wheelchair they he or she wants to enter a building, perfectly capable of working on a computer system, but the building that the person wants to work in does not have a ramp does not have a lift.

So, is this a disability because or a disability on account of persons bodily impairment or a disability on account of this features of the environment which is not having an accessible work place. Any thoughts? Somebody wants to work, somebody using a wheelchair, wants to work in a work place, but the work place does not have ramps does not have lift. So, is it a problem of a person's impairment or a problem of the feature of the environment?

Student: (Refer Time: 07:07) feature problem of feature definitely.

If a feature of the environment, it is a barrier, it is a physical limitation or the infrastructure barrier that exist that is limiting a person. Similarly when I spoke about myself and I wanted to study and if I really recount my example when I was doing my MBA at FMS, I think it was very early days that they started inducting students with visual impairment and they had no understanding and of how to accommodate the person.

So, they you know I was never given a material in accessible format and a lot of our professors use to refer to materials from Harvard and Yale and I say [FL] sir, you are referring to materials from these countries where they have a law that you know you cannot discriminate a person on the basis of disability and if a material is to be provided in accessible format, then you have to provide it, but you are giving me and its purely because of the ignorance and not because of anything has not because the willing not having a willingness to support it is just that the though often many of the professors were not aware that yes they can share soft copies if there is a person with disability who needs it.

If I had all those materials in readily available, it could have avoided me the whole process of converting the material into soft copy. Once I convert my soft copy I think my ability to interpret or gather information from those study material was on par with others right. So, if somebody who is not the same as somebody who is does not have visual impairment, they might be just reading it through their eyes and gathering information but me as somebody who uses a technology once had contained in accessible

format was able to perform one part. Of course, things became so, if I do not have that material in accessible format then, it is a chance or it is an experience of disability right.

Otherwise I had that skill set if not material in accessible format, you could have provided you know somebody can provide what you say a reader like many of us in the early generations when technology was not such pervasive lot of us use readers. So, once again it goes back to the fact that it is not only about my physical limitation, but a large amount of ownership is on the society.

So, if we go to the next slide and really it really talks about what is the implication of such an approach. The really ownership moves away out of mean as an individual with a person with disability and the focus starts shifting towards the environment. So, today we have different washrooms for men and women, but if you really go about two or three decades ago, it was not the case so, right. So, the way we accommodate differences in gender, it is the same way we have to start looking at the accommodating people with disabilities and the range would vary much more. So, today it is not because you know so, somebody who is not able to and get access to a restaurant.

So, somebody who is affected by leprosy he or she does not get access to a restaurant not because they are you know they have leprosy, but it is because of the bad attitude that the management of the restaurants have. Somebody who is deaf is not able to study because they do not have a service of sign language interpreter and not because of the deafness that one possesses. Similarly somebody who uses a wheelchair is not able to work or mobilize because they did not have accessible transportation or they did not have accessible you know infrastructure.

So, do you agree to with this kind of a definition? Is it a better way of looking at it or is it the correct way? Any thoughts? It is very important that we reflect if you are not in harmony with the same definition, let us discuss this because this is really fundamental and this is what we called the social model of disability and this is something which we which is moved ahead from the medical model of disability where we said the person is the you know at the centre of the problem. So, what is your take?

Student: I think it is a combination of both.

It is. So, when I said the definition itself said it is a function of the features of one's body in a interaction with the function of of the function of the features of the environment.

Student: How are we going to bring the mental disability to challenges with this?

So, mental disability also so can it is a range of disabilities when it comes to mental and intellectual disabilities, it really starts from somebody having a learning disabilities where we have instance of dyslexia, dyscalculia, dysgraphia; obviously, most of us has seemed [FL].

So, we have an understanding of what dyslexia is, but there are other material disabilities or intellectual disabilities, severe cases of depression, schizophrenia again they are all classified as mental illness and are another form of disability, you have disabilities related to brain development disorders where you know something like a cerebral palsy or you have down syndrome. So, then these are also caused because of you know lack of development in brains. But even then there are accommodations available. So, in cases of say specific learning disabilities your dyslexia.

Now, there are assistive technologies like the screen readers that we use or talking both or just having a sensitive work environment you know teacher can actually make a lot of difference. How many of you are knew that Steve Jobs had dyslexia?

Student: One.

One, two. So, he was he is considered to be the one of the most revolutionary minds in the world and somebody who is changed the face of the planet through iPhones and the devices, the Apple range of products that he is created, but yet you know he had a disability. There are many others who also known to have disability Richard Branson from Virgin Group is known to have disability, who was Tom Cruise is known to have a learning disability. Abhishek Bachchan is also known to have a learning disability, Dimple Kapadia of course, it is it may not be very relevant here, but Dimple Kapadia also was affected by leprosy at a point of time.

Student: Strange.

So, you have a range of very famous personalities who are part of you know who had disability and are successful, often what really makes a difference is the access to an environment which is more conducive which is more accommodative right.

Today if we have Steve Jobs could become a Steve Jobs in the US because he could have access to a institution support, where he could learn in the in a way which could bring you know which could fully utilize his capability. Many of us in India perhaps are not so, capable you know we do not have those institutions which are equipped.

Student: Yes.

What else about this definition, you agree not agree any other up thoughts on this?

Student: Yeah this is a perfect definition for me, we can have a correlation with any natural world itself.

Right.

Student: We have different variety different species different animals who do not have a ear. There are animals who do not have an eye, the normal eye.

Right.

Student: They have different sorts of sensors for sure. There are animals who do not have legs.

Right.

Student: If that are considered natural in normal, so, why cannot we consider that I mean, people from the medical definition point of view?

Correct.

Student: Somebody whose eyes are not as good as somebody else, why it is that cannot be considered as.

Absolutely. And if a focus is on functions you know functional capability I think then if you really see between a disabled or a somebody who does not have a disability, I think this will become a very important instrumental where especially a technology developers

what is your objective, you want to really serve somebody who is a normal looking person somebody who kind of defines a certain norms or really make sure that if you have functionality of say shopping.

So, irrespective of one's own ability one is able to show, what is your focus? Is it on the person, is it on the functionality that we want to achieve? I think that is a that is going to be very critical right. Even at work place do we want to get the work done or do we want to see in how does the person enter my job you know room is that somebody who is walking on two legs or kind of rolling on a wheel chair or somebody using the screen reader just using a my mice you know the you know keyboard.

So, I think it is we need to shared away our own assumptions, our own hypothesis about getting things done how do we want people to do certain things. Because a lot of it a lot of a conditioning starts from our own selves right because we have a conceived preconceived idea [FL] this is what normal is and this is what not normal is. But really going back to a previous discussion what normal is really depends on my own personal environment. Today even in this room if I really ask a lot of you the way you would interact with technology would be very different.

Somebody would be like somebody would want to use a keyboard, somebody would want to use a mouse, somebody would like using a touch interface I think we all would have any different preferences. So, once why then have a really filter where we say [FL] you know normal is for me only these five things, but now the rest of the things. Normal could be somebody wanting to read through and really see it all extends and we will see through the spectrum that I am going to talk about disability comes at different forms different shapes and at different times with and its experience in different ways. So.

Student: In fact, different ranges too.

In different ranges too absolutely. So, you know not waiting for the whole that slide to come in imagine. So, of course, when we talk about sight somebody who is blind is known to be having a permanent disability right. Somebody who has a cataract he or she may be experiencing disability for say 1 month, 2 months, 3 months, 6 months depending on the time whether about somebody you do it through treatment. So, does that means, some that person has to shall a way work is work and somebody who say drive also in way is very focused on driving.

So, anything else around it is not they do not have a access to that information. So, today a personal assistant device which is say powered by a Siri or a Google assistant and many of these invention has its rules on solving problems of people with disability. Today a blind is able to use a screen read a personal assistant somebody who has a cataract would also use it and somebody who is driving would also use the personal assistant right and its a range of disability right and in various forms in the case of driving we may call it situation disability.

Similarly, imagine somebody who has a you know let us say an example of hands, somebody who is who has a hand who has who has lost his hands due to an accident somebody imagine somebody with a temporary disability who has a fracture and some imagine a case where for a situational disability sum it up parent holding a child in his or her hand. So, they do not have a access to her hand. So, really it is not only about talking about persons with disability, but when you really create some solutions for you know taking the needs of persons with similarity mind the application may extend far known.

So, any thoughts is it making sense is it is it or kind of also again brail again brail light reading is a reading brail is also in is a art, which you practice in your master and you keep getting better with every you know the more you practice the more better you kind of become with that. And I agree seeking differently abled just to kind of give this on the semantics offer.

As disability as a part of the disability raise movement there is a lot decent in terms of using the term differently able; because the whole thing is at the premise itself you know also it is coiling persons different from one another. And when you really see difference we discussed in the beginning [FL] we all are different in many ways.

Student: Everybody is differently in many.

Yes in that case then everybody is differently abled, but the more accepted terminology or the more accepted way of addressing is a persons whose language where we say persons with a disability. So, the focus is on the individual first the capability of individual, and not on the disability yes disability is also an identity and that is a subsequent identity and not the only defining identity right.

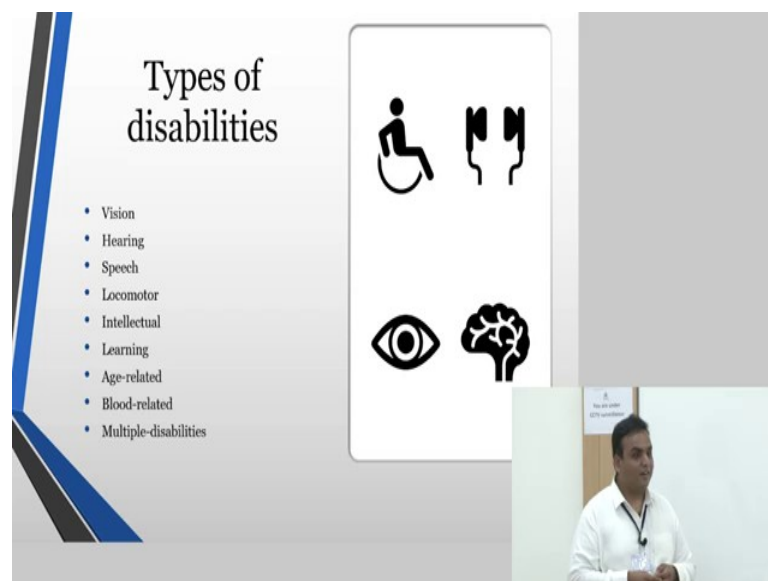
Student: Is that handicap or better world?

No. So, handicap it is a very interesting thing that you ask me while lot of us do take they use it one of the and I do not say it is the only definitive source of handicap, but one of the interpretation of handicap is after world war a lot of people lost their hands. So, they were they use to beg using a cap in their hand ok.

So, that is way one of the again I it is one of the interpretation and it is where it is being used. So, you actually coining or personal as handicap people take it as a as offensive as calling them as beggar. So, generally the best way of reflecting or a addressing a person is a person with disability, person with visual impairment, person with hearing impairment.

You might hear me talking about disabled as a term that I will use quite often, and they imply meaning where we say it is disabled it is not disabled because of my bodily impairment, but because of the barriers that exist is that I you know I am being disabled by the environment.

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So, that is also a term which is often used and accepted right and you know its a its really a reflection on how much do we want to allow people to flourish. So, today I comes from a family where we had I had like six other people in my family my grandfather a few of my aunts and uncle who had similar condition.

But because they were conditioned in a way and they did not get the right facilities I think they were bounded by many things and it unfortunately a reality that many people do not get that kind of an exposure. We assume [FL] you know it is the best you have working is only using the you know at two legs and say somebody who is blind and uses a cane to kind of navigate is considered to be normal like we really need to start challenging the whole thing [FL] why we call something normal and not normal.

(Refer Slide Time: 24:02)

A look at the numbers ...

- Globally, it is estimated there are 1 billion people with disabilities
- By 2050, it is estimated that the total population of persons with disabilities will double and reach 2 billion
- In India, the population ranges from 26 million to 200 million
- There are 21 categories of disabilities recognized by the law

The slide features a blue and black decorative graphic on the left side. To the right of the text is a small icon of four stylized human figures. In the bottom right corner, there is a video inset showing a man in a white shirt speaking.

And if you really go ahead and we will talk about the numbers, imagine any idea on the numbers of people? I think Georgia could have covered that what is the size of persons who disability?

Student: From billion.

A billion right one and every seven person on this planet has a disability imagine is that like an outlier or is it as the normal as anybody else right a something that we need to reflect and then why do we go on something which is as (Refer Time: 24:33) as one in every seven person something as not normal. Perhaps you know somebody who is literate and unilliterate may have a very different composition, but here we have like 15 16 percent of the population, many countries claim it to be twenty percent of the population.

So, I think it is important to start challenging our own assumptions on access on disability. And once we understand what disability and where it will comes from and

where it will you originates, I think you start appreciating the need for accessibility or lot more when you are building your own products. Today if any you know if you join any start up or if you part of any product development. If somebody comes to you and tell that there is this whole untapped population 15 percent of the market is not tapped at all, would you want to go and kind of a [laughter] pitch for that? Definitely, right.

But the moment we say oh it is a disabled population it will say no I do not want to target its a very difficult population, but just to get a perspective and additional perspective. People with disabilities and the associated family tend to influence a total of 8 trillion dollars of global Spain 8 trillion dollars. And same thing being accessible automatically starts influencing their immediate family or social groups buying behaviour also. So, give you to give you an example when the whole E-commerce start while web site started in India, we had Flipkart, Snapdeal and Amazon.

Amazon because of its global best practices it was far more accessible and inclusive for me and we started doing a shopping there. Because I started doing my shopping there the whole of my family which included my parents my wife and my brother only my brother had you know who also had a disability, but the rest of them also started using only Amazon Flipkart never kind of ventured it. Similarly Uber and Ola Uber was far more accessible it the application interface was accessible. So, we only start we started using Uber and over period of time we kind of defaulted into Uber and now most of us do not even have an Ola cab installed on a thing.

Now, for a fact that now when Ola is trying to be things accessible still they kind of lost the way. So, imagine how much it can influence once you start making your products more inclusive. So, let me see how you know where are my with that with my presentation, but meanwhile if you have thoughts any questions I will be you know feel free to ask me those questions because.

So, there is a slide on times of disabilities, I think this slide number seven we briefly discuss, but then there are range of disabilities difficulty visual impairment hearing impairment cognitive, intellectual disability, blood related disorders, age related disorders, Parkinson disease many of us have heard about that; and amongst each of these disabilities also this is whole range right. So, in vision impairment for instance this a category of low vision which mean [FL] somebody having some difficulty in one or the

other form. So, somebody having a colour blindness, somebody maybe having a progressive condition like mine web over a period of time your retina and your pick (Refer Time:28:24) reducing.

You may not have the right strength in your eyes or a cataract or a blood blurry vision. So, it really ranges from all that low vision to somebody having a complete sight loss. In fact, not most of the people who have vision impairment are actually not completely blind then may have some residual or some sort of vision, but again in most popular understanding of vision impairment is somebody who is completely blind.

Similarly with hearing impairment I think that people who are heard of hearing there people who are you know who have complete hearing loss. The people who sign you sign language and there is a people who also lip read and talk. So, why while talking is a function of hearing and then learning how the sounds work, still there people with hearing impairment thanks to speech therapy they are able to talk

Now, does all people with hearing me impairments speak or they do lip read? No and similarly not all people who are hear who are who have hearing impairment not necessarily everybody use a sign language. So, they have their own preferences we spoke about specific learning disabilities of course, dyslexia dyscalculia dysgraphia is there, we have cognitive impairment or intellectual disabilities like autism, blood related disorders like haemophilia thalassaemia.

So, people might need blood transfusions at various levels and in many of the western countries while I have listed the most common and these are the ones which are actually accepted by the law in our country they are countries like the United States which also acknowledges and an incidence of a heart attack, an incidence of cancer and even diabetes as disability.

Student: So, in case.

So, as I said.

Student: Thalassaemia right.

So, thalassaemia is you know it is very interesting question and I think it really goes back to a usual discussion and diseases what you are you know a bodily impairment is which

is kind of causing a problem in your body. So, you may have a thalassaemia for which you might be needing blood transfusion at various want of time, but disability is because of thalassaemia am I fine you know I do I have I mean is there other barriers that I am existing you know experiencing.

So, am I not able to work or sit for 8 hours in a day because I need to take 2 hours of rest or whatever you know I need to take a break for transfusion I think that is why disability is. Similarly if you go back to hearing loss not have you know having a ear drum which is malfunction because of various conditions is a disease. But not having access to sign language interpreters or materials in accessible format or real time captioning or sub titling is when I experience disability

So, disability is just not about my own body living limitation.

Student: To understand that.

Yeah.

Student: When it comes to haemophilia and thalassaemia.

Right. So, again.

Student: (Refer Time: 31:52).

They also have various environmental factors even for that matter attitude and factors that restricts their full infected participation is not it a good design see while we maybe extra cautious for somebody having, haemophilia and we do not want our product to kind of injured, but isn't it you by having those good practices of universal design and making sure that your products are not harming, its equally applicable or its also going to be beneficial for say children right or somebody who is who has a old you know whose who has who is old age.

Because in an they are you know their reflexes are not as a controlled and perhaps by maturing that your design is not harming anybody will actually make it more appealing and why only somebody like anybody of you hear say if you using a mobile phone and you are and we often tend to kind of multitask we tend to drive and use a mobile phone we tend to eat and use a mobile phone we tend to sit on in a lecture and use a mobile

phone. So, not always we are very conscious of the design, and you might actually get you know have an accidental injury due to that.

So, its good practice to ensure that you know it is not and safety is a very important aspect of universal design. So, yes keep the questions coming I think the those slide a it really talks about the numbers and just to recap 1 billion numb people of disability expected to raise to 2 billion by 2050, which is going to be like more than 20 percent of the total population then in India we have a whole range of disability numbers the government likes to claim it at 26 million as per 2011 senses we had disability sector believed at that the number is at 200 million which is at 15 percent of the population.

May be the truth is somewhere in between, but definitely we need to seek its a big market and that 21 categories of disabilities which have been identified or recognized by the new law which is the rights of persons with disabilities act in 2016.

Student: There are few considers number of categories to be solid?

Student: So this is close to 26 million or 200 million.

So, 26 million.

So, 26 million is only considering 6 disabilities when we did at 2011 senses, it only captured data on 6 disability and there was one for others. And you to see the senses number is also a data where people self report right there is no way of if invigilating what if the number is correct or not.

So, if an invigilator comes to your house and if you seek him none of my family members have a disability he will take that as a truth. I mean in India with disabilities such as stigmatizing propel most parents most family members do not declare themselves. In fact, many invigilators do not even ask that question they say if we see somebody with a disability we mark it as say otherwise we do not do it

Student: So, for the same number of categories the range is 26 to 200.

So, the range you know if you really go back number to number we do not have an absolute numbers even at this 21 disabilities because the data collection techniques in the country is very poor, we been struggling and I really also a dispose on data on disability

where we have spoken to ministries statistics and program implementation to the department which handle senses and many of the government departments, data is a very specially on disabilities of very miss it is a very poorly focused (Refer Time: 35:54) address want of time.


The politicians do not want to show an entries number because that will reflect poorly on them, but the challenges that if we do not have a repeat number represented or been shown in official records, the resources do not get allocated for the development or the welfare of disabled. So, even like having accessibility or making a notes infrastructure trans like accessible, you will not see right the government will seek I like I have thirty percent who is from a say economically poor background 50 percent women. So, I will give more allegation towards that, but only 2 percent of people with disability it is when if I give a little lesser money for them.

So, it is a challenging situation the number is definite as I said the truth is in between somewhere between 2.6 and 200 million and if you really see senior citizens and so, many of this laid disabilities, accidental disabilities they just do not get accounted for it. And I think we have one of the accident capitals of the cut world. So, imagine the number of disabilities that gets add it, but does not get really actually reported, we are trying various ways let us see hopefully in some years we will have an answer to that.

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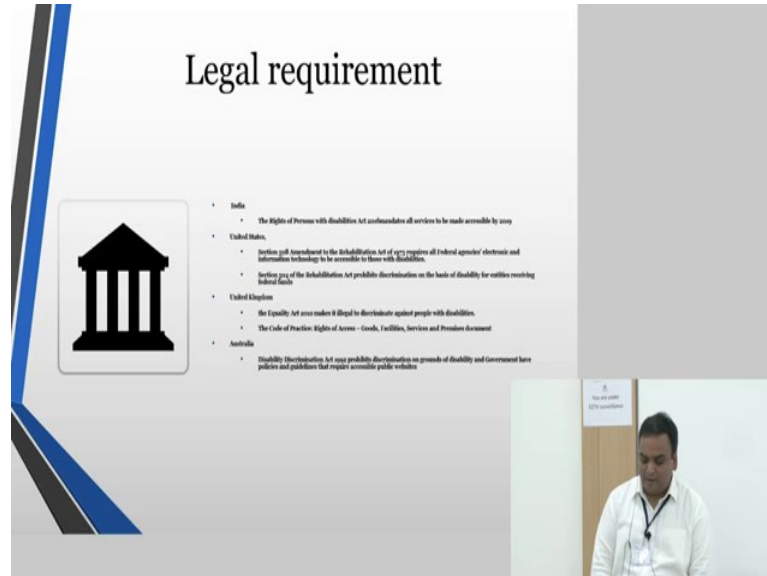
	Permanent	Temporary	Situational
Touch	One arm	Arm injury	New parent
See	Blind	Cataract	Distracted driver
Hear	Deaf	Ear infection	Bartender
Speak	Non-verbal	Laryngitis	Heavy accent

Disability continuum



So, this is the nine slide nine talks about the continuum which we discussed. So, I am (Refer Time: 37:21) get back for now legal requirement.

(Refer Slide Time: 37:22).



So, I spoke about the rights of persons who disabilities act in India for all those who are into technology development I think this will interest you by 2019, the rights of persons who disabilities acts says by June or two 2019 your services are suppose to become accessible and services definition includes websites, mobile apps including E commerce for any sort of things.

The; obviously, the streets thing like everything else in India the enforcement is always a challenge and the awareness is the bigger challenge, but yes there is a law which says which essentially means [FL] if tomorrow after June 2019, if I as a disabled persons find a particular app not accessible I have the power or the right to take it to the law to the courts and this law is also applicable to the private sector.

So, the law is very categorically saying all establishment and the word the way establishment is defined it includes public sector companies which is your government companies and your private sector company and private sector includes every possible types of company like from proprietorship to factories to limited liability partnership over day (Refer Time: 38:47). So, it covers the whole thing even NGO's for that matter even if you are a disable in NGO's focusing on disability or you not focusing on

disability and unfortunately I have seen myself that many organisation on disability their own website is also not accessible.

So, yes its accessibility is a mandate even all those who are inspiring to work with a multinational companies laws in the United States section 508 and 504 have a specific provisions where it mandates to make your digital products and technology accessible. In fact, it is pretty interesting to note that if we even if say you want to do a any business with the government and if your products are not accessible you cannot do the you do you cannot trait with the government. And this actually became one of the single most important reason for many of the other US let based companies like the Amazon who make kindle more accessible for people with disabilities.

Kindle a few years ago until few years ago I think 2012 or 13 until 2012 or 13 it was not accessible for people who disabilities, but then they certainly realised that they are not eligible to get business from the government from the education department does they started making it accessible. And the beauty of, but the you know one thing which I give it to them is that they made it completely accessible and they never region lot it they made it available across the world, and they cannot standardize it and thanks to that to many of us in India are able to kind of benefits from it.

So, a lot of these reasons are actually while in a I am not trying to undermine the efforts of giants like Facebook or Google or Apple or Amazon they have done some amazing work adobe as far as making a product accessible, but lot of it is also from this fact that the law made it in mandatory and then they put in a lot of efforts resources to not only just complier tick mark, but really better it and improve it.

And that is why today we see micro soft not only making their windows and office 365 accessible, but really opening of the whole ecosystem of the a i and development tools seeing a i is a tool is a free software, which is not available on iPhone and coming soon on android using that most cutting edge technologies of artificial intelligence and it is a great solution as a as far as the visual impairment group is concerned. So, you know that is how it is so, people have of course, it started by their own interest also from the push from the government, but yes if the many of them are taking it taking the matter far ahead and making a considerable effort.

Similarly, other countries like UK Australia I have listed some of here there are other countries Israel Norway European Union they all have some or the other law or demanding accessibility. 150 couplers countries have signed united nations convention for the rights of persons who disabilities, that convention mandates them to mandates the signatory countries to bring in a new law which proposes accessibility. So, in today's to come in years to come you will see the top of accessibility really picking up is at much more bigger scale because of the various mandatory requirements.

Student: Has this (Refer Time: 42:31) come enough for the last 2 years I think (Refer Time: 42:34).

In India in India. So, we have seen we have used this law very effectively to advocate with the government. So, b h i m BHIM app when it was launched by prime minister Modi was not accessible, we lobbied with the government and Rakesh and many of us due to the department giving citing the law and that kind of made it more accessible now and I see the national informatics centre has a dedicated ring they have incorporated accessibility as a guideline. So, there is a effort I had a very interesting fight with Neethi I O.

So, there was one particular document on HDG that they released after the law and I kind of rude directly to Vivek Debroi saying [FL] you know we will pass the law and important documents like this are also not accessible. So, immediately like an less than ten days they kind of converted it and they kind of did it made it accessible. So, yes it is it is being effected effectively utilized at this point of time with the government, government has made the last counter hack was they made about more than 120 sites or application accessible how are they completely accessible of course, they have gaps.

But we have a channel now where we can actually talk to the government and say [FL] you know what this is not accessible make it better. There is also in focus effort by the government in terms of accessible India campaign which was launched in 2015, where we say where with the government said [FL] more than 5000 websites will be made accessible they said they will focus on 50 f50 cities and they will try to make global environment accessible.

They talked about making all airports accessible by 2020 and the many other things as a part of the charter some of it is taking good achieve, some of it is lagging behind, but

definitely there we are now seeing a consider to focus on getting accessibility incorporated.

Student: And there is solid legal backing from group 2019?

Yes absolutely.

Student: So, there is a penalty.

There is penalty there is a imprisonment also.

Student: Very nice.

And I am glad that you say that and there is levels. So, as a person you disability I have the right to go to commissioner of persons with disability I can go to a district level. So, from an enforcement point of view the good thing about the law is that they created district level committees, district level special course where people can file their complaint and they will get you know fast access to justice.

Student: Is the private sector is a private sector are (Refer Time: 45:18) right to come line as of now.

So, the awareness is a challenge I am you know and there is a lot of effort that the government is trying to do in a well be as NGO disability sector a working with organisations like CII phiki and the NASSCOM to create bring more awareness. Once peoples are becoming more where they are wanting to make a change in the policies whether its employment, whether its accessibility of the you know buildings or technology, but the challenges really they you know the awareness part of it I think that is with the first challenges, the second challenge is a of course, the willingness after that [FL] you know how willing my to do this in our countries some [FL].

Student: In I that.

Yeah it is.

Student: Yeah when it a legal requirement.

Student: Would you require all the apps on the play store to comply it to?

It is if you are doing a service, if you are making a public service and a service definition could include from banking education, transportation, judicial postal it is a whole long list. In fact, anything and everything that comes under service spectrum is included in that definition and if you are and if you are serving country India, then I think you are pretty much suppose to make it accessible and if not then you could be challenged after 2019.

So, for services the timeline was given as June of 2019 and for making existing public buildings accessible the timeline was given of June of 20 22 and in fact, the law also says that no new buildings no new public buildings and public building is again a anything which is there for public use. So, this includes your malls and whatever they also cannot be sanction us occupations are difficult different is not accessible.

Student: So, what do you think of being productivity expenses as an (Refer Time: 47:24).

So, if you go if you want to planet and in the in the in the building phase it will not be expensive right point is too often you know we have seen this at various stages if I building it if you are doing it, and if you are planning for accessibility to normally very expensive. Challenges often this retrospective fitting which is often expensive because then you need to kind of work around with the existing design and you know you may have to create certain things.

But if you really see from an impact point of view, and if you say if you are a mall and you know you have customers you cannot be saying right like the Britisher's use to say [FL] you know Indians are not allowed or dogs are not allowed in that campus you cannot be saying these tables are not allowed because they are not accessible. So, you know it is their duty when we when you are into public service that you make it more accessible.

Student: Yeah one point I would like to add. So, we are talking about the law which is going to enforce on June 2019 onwards.

Student: But we all have to look into one more fact that what is the level of accessibility complains which government is putting forward as of now please understand that it is only a (Refer Time: 48:40) complaints which can be achieved by very (Refer Time: 48:42) products oriented people it is not a big charge, but what are the other complaints

which need to be in place that even now government is not only drafted that their standard (Refer Time: 48:49)?

Which is there.

Student: (Refer Time: 48:51) that time (Refer Time: 48:53) are there, but actually a part of the deadline existing right now which is only complaints with the (Refer Time: 48:57) standards.

No its not.

Student: (Refer Time: 49:00).

So, there is a correction on that right now the law or the guideline and Rakesh if you can act to that, Government of India has introduced a revised guideline I think couple of months ago.

Student: Yes.

It is called GIGW.

Student: Right.

It is based on WCAG.

Student: Right.

Two point told level double a compliance.

Student: Right.

And that is a level of compliance even the W 3 C also recommends.

Student: Yes.

Rakesh you want to add to that.

Student: (Refer Time: 49:28) anyways we are going to talk about that.

So, Rakesh will be focusing a lot more about it, but and government has also started giving guidelines for build environment for buses or many other things. In fact, a big bus

consignment you know Delhi government was procuring certain high floor buses which was not accessible.

Student: Right.

There was a stay order put because you know the disability lobby dam.

Student: Only I was only talking about the ICD complaint because.

Correct. So, ICD even double A complaints is the required and it is kind of it is the most recommended one and of course, there is it recommends that whatever elements you can incorporate from triple A.

Student: Right.

It is good to do that of course, Rakesh can talk a lot more and I do not want to step into his entry.

Student: Yes.

(Refer Slide Time: 50:16)



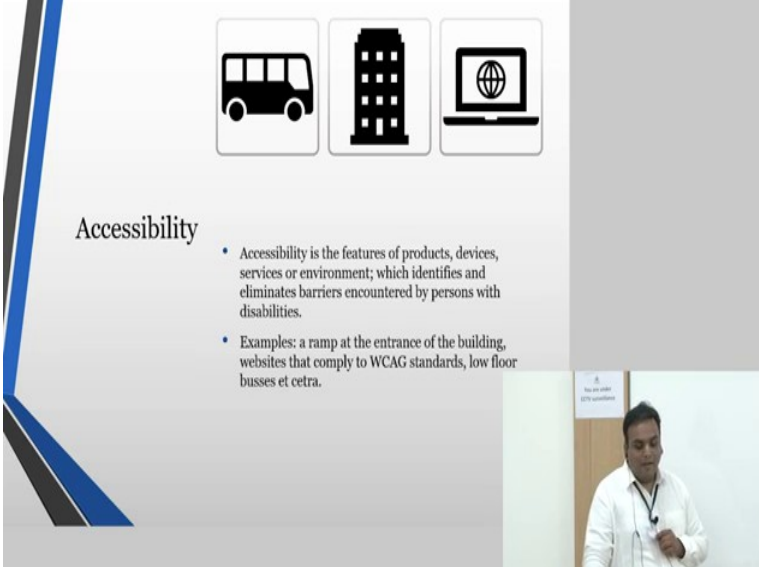
Assistive technologies

- Assistive technologies is the umbrella term used to refer to products, systems and services used by people with disabilities to maintain or improve their functioning and independence.
- Hearing aids, wheelchairs, communication aids, spectacles, prostheses, pill organizers and memory aids are all examples of assistive technologies.
- Did you know? Only 10% of persons with disabilities who need assistive technologies, actually receive it.

Assistive technology in accessibility you know eleven and 12, assistive technologies are all those specialized products and services that we use as persons with disability we use and this could be low tech to high tech devices really if you really see a low tech device could be a magnifying glass, up bell organizers somebody for a you know somebody

who has Parkinson disease, a white cane all these are low cost or you know low tech devices. We have and then of course, the at the upper end of the things we have products and solutions powered by AI. So, prosthetic devices. So, which are powered by I O T or AI or you know the. So, it really ranges it is no you know and this tools and technologies are pretty much very essential as far as getting access to or help people with disability interface with the environment.

(Refer Slide Time: 51:19)



The slide features a title 'Accessibility' on the left. To its right are three icons: a bus, a building, and a laptop with a globe. Below these icons is a bulleted list. In the bottom right corner, there is a small video inset showing a man in a white shirt speaking.

Accessibility

- Accessibility is the features of products, devices, services or environment; which identifies and eliminates barriers encountered by persons with disabilities.
- Examples: a ramp at the entrance of the building, websites that comply to WCAG standards, low floor busses et cetra.

Quickly on accessibility I just give a overview of introduction on accessibility and then I hand it over to Rakesh for web accessibility.

Accessibility in the most simplest term is about making your products more disable friendly, it is about features identifying those features and really working with those features to make it more disable friendly, and accessibility covers things like having a ramp having accessible documents, having low floor buses and there are standards they are guidelines which are available.

So, following which if you are able to follow the guidelines on civic act you will be able to address the means of most disabilities may not be all, but say 1995 percent of disabilities would be covered and that is the rule standards play. So, once you have standards and their standards available for many things now for making it accessible, if you have a knowledge of guideline and understanding and appreciation of that and if you

start incorporating it in your design process, then I think a lot more things will happen automatically.

(Refer Slide Time: 52:28).



So, with that I think I will invite Rakesh to kind of talk about web accessibility, digital accessibility and he is a leader of web digital accessibility in the country and I think he could have done much more justice to the topic and hence I requested him to accompany as on this section.