

Course on Landscape Architecture and Site Planning-Basic fundamental
By Professor Uttam Banerjee
Department of Architecture and Regional Planning
Indian Institute of Technology, Kharagpur
Lecture 21
Module 5
Behavioral principle (Continued)

Good morning, so how was your experience over the last few lectures? In the last lecture I was discussing about the behavioral principles in which we have discussed about the base planes, vertical planes and the over planes which makes a space and then how to measure very approximately what is the degree of explicit base of that particular space, whether it is architectural or landscape. In architectural it becomes very solid ten is the value may be slightly discounted with a glazing and all that, but in landscape ten is bad if you attain ten it is bad.

So now there is another aspect of the behavioral principles which I will discuss today. One aspect is the kinesthetic behavior that means people who are experiencing this particular landscapes when they move, what kind of behavioral principles starts walking with it. After that I will discuss about various landscape design principles which are classical which are also approved and agreed by almost all, though there would be some bit of in a confusion or some bit of lack of clarity in real definition of it, but I will discuss about that in sequence, okay.

(Refer Slide Time: 1:49)



Now let me start with this, the Kinesthetic experience basically what is this Kinesthesia you know Kinesthesia is like a when a person or user is in mobility is exposed to all five senses and the behavioral sense and other sense other (stimu) which are working it stimulates the you know psychophysical conditions of the person. So if he is looking at a particular landscape while in motion, then it is one kind of stimulation and if the person is standing at one particular point and trying to see the landscape that is another kind of stimulation.

So here, essentially I will be focusing on the movement things, okay. Now, where in the history have you seen that they have exploited this particular Kinesthetic phenomenon that is in Japanese garden in fact all landscapes are to be seen maybe in motion, but one also has a opportunity to see this being static. In Japanese landscapes styles they have deliberately exploited the situation or exploited the phenomenon and made the people walk through so that they every time a different kind of several experiences this the theoretical background of this how it happens, how it works and where it does should not really become a problem that is what I am trying to explain to you today.

(Refer Slide Time: 3:20)



This site slide I have taken essentially to show you just trying to connect you with a earlier days lecture in which this refers to the base plane, this refers (ver) vertical plane, this refers to the base plane the soffit of the tree becomes the over it plane, the soffit here which is solid becomes the over it plane. You are viewing this being static at one particular point, but imagine that if you had

been moving through this particular line and going forward or walking through this and then suddenly take turn or turn left or go in a diagonal manner the experiences will vary.

What you are seeing here as once single short picture on this would behave differently rather will come in the foresight of a person and the experience will be different and this is what is the Kinesthetic effect that is I am trying to take you to.

(Refer Slide Time: 4:25)

Kinaesthetic Experience

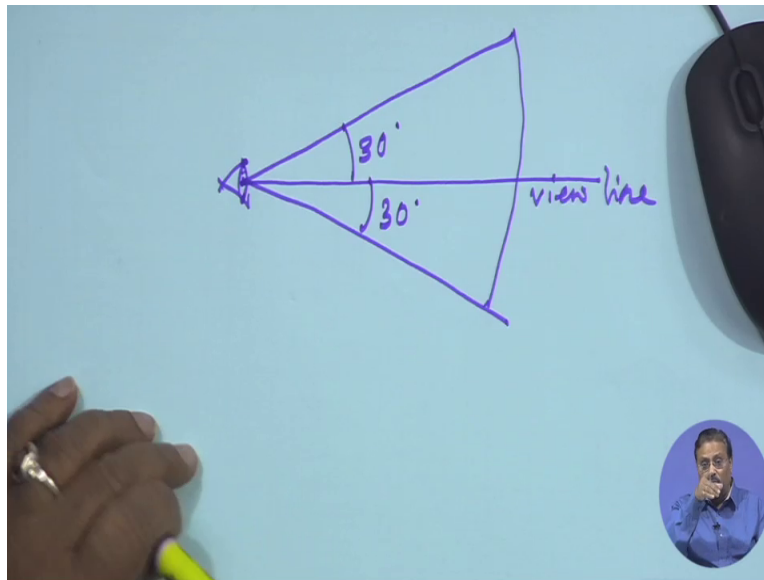
Static Vision	View	<ul style="list-style-type: none">- Focused- Foreground- Background- Distant- Panoramic- Tilt
	Vista	<ul style="list-style-type: none">- Framed- Guided Linear Forward Vision- Converging to a Focal Point / Object

NPTEL



I will just fall back on one very standard picture before that let me tell you, so there will be one is a static vision in which you have (vis) view and vista. What is view? View is you stand at one particular point your eyesight is open to the (for) forward positions and you are viewing it.

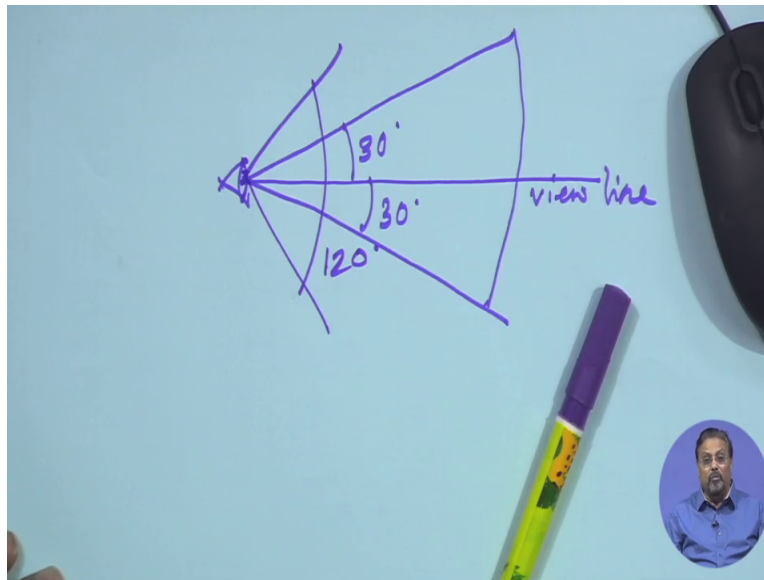
(Refer Slide Time: 4:57)



Let me give you one a bit of theoretical idea about this, when eye is viewing something towards front if I take this particular line which is aligned with the eye this particular line is called view line. But the eye is able see clearly a solid angle which is very clear, now this is 30 degree and 30 degree above and 30 degree below the view line. That means, whenever you stand straight keep your head upright straight look forward I would say if the view line is (horiz) parallel to the horizon and then you are looking at it you should be able to see clearly 30 degree above this view line and 30 degree below this view line and since it is a solid angle that means 30 degree all around this solid view cone, okay this is a clear view. Interestingly, what happens is you are not blurring beyond this particular 60 degree limit beyond this you also have a view, but that is not a very clear view.

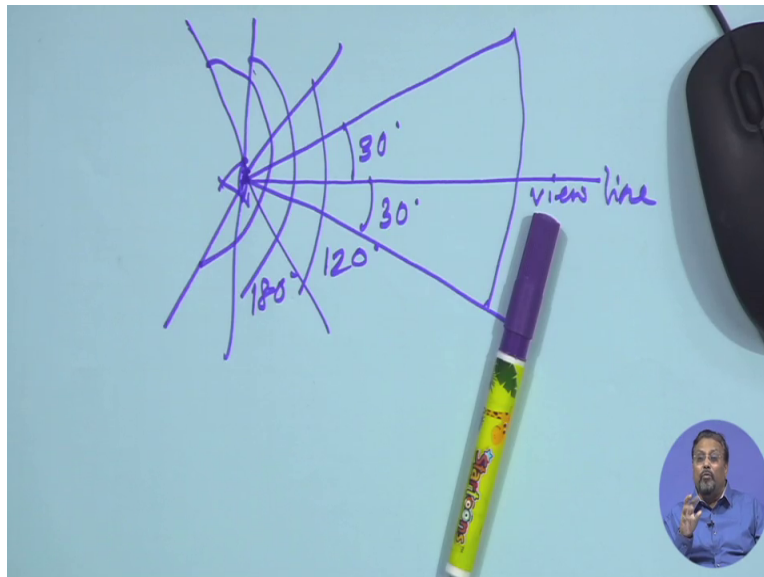
Clear view means you have a very focused view in this you are seeing much beyond you can sense it without changing your position of the eye ball you are sensing it that there is something, how would you know that you can see it? If somebody enters into that particular within that particular zone beyond this 60 degree and comes within this particular angle, then you will be able to feel yes somebody has come in, you may be able even able to judge what is the characteristic of that particular element which has entered into your that visual domain, how much is this?

(Refer Slide Time: 6:47)



That is altogether 120 degree, that means another 30 degree 30 degree on either side of this particular line is within your view. But I will tell you very frankly if you stretch you hand towards the right, stretch you hand towards the left you can see very () (7:08) your palm very () (7:10).

(Refer Slide Time: 7:15)

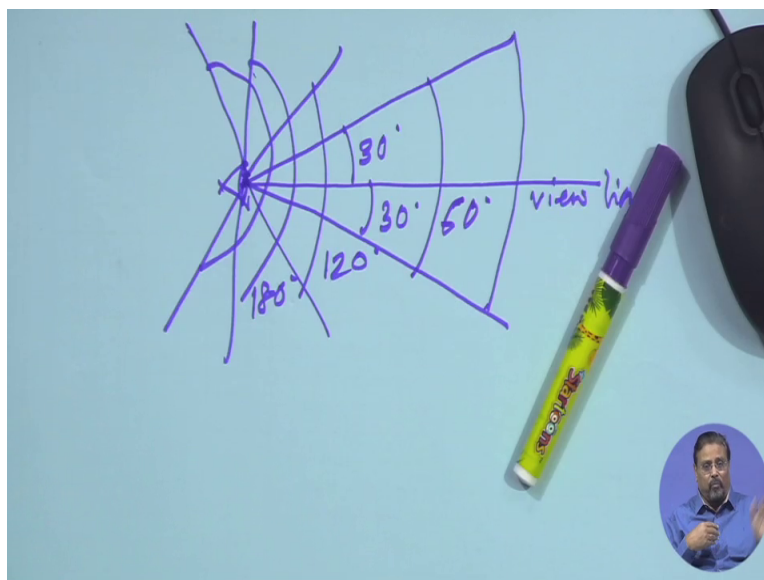


That means, you can view 180 degree, so theoretically you are supposed to see 180 degree, fine am I concern about this 180 degree? Yes, we are concerned I will tell you when, you are

concerned about visibility of 180 degree, but beyond this beyond we cannot see beyond 180 degree you cannot see.

And interestingly, you cannot see interestingly the fish has the capability or there you know the eye structure is designed in such a manner that they can see beyond even this. So when they said this seed even beyond, alright and that is that is why you know we say the you know fish you fish eye lens if you have heard about the camera lens the fish eye lens if you focus on something you see you record pictures which is beyond 180 degree I am not concurred about that because if you see while discussing about the explicit end of the space we have always considered or rather discounted the (acc) in a visual effect of anything which is just behind us when you are view it, okay.

(Refer Slide Time: 8:26)



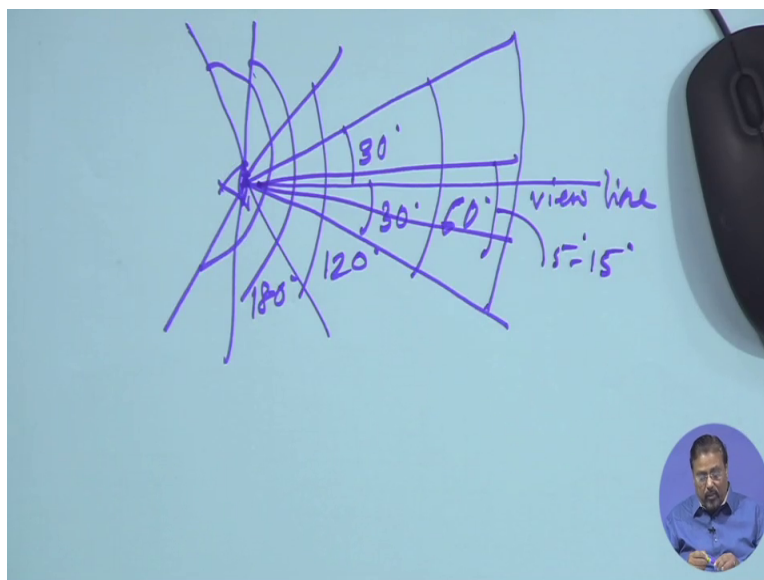
I am more concerned about this 60 degree more concerned that how much I am seeing it. Now the theory is you look straight view line you are seeing a 60 degree view cone (mo) do not move your ((8:42) do not move your body move your head towards right my right or towards my left. The moment I rotate it my view line got changed, how much the view line got changed from the forward line is depends on how much my head has been turned around, okay.

So when you are turning around you have another situation your body is aligned with this line and view line is aligned with this when you are standing straight and looking forward, stand straight body heading line is straight this is what is called body heading line when we are in

motion body static line is this body heading line is when you are heading towards that and your body is moving forward, okay. Now this body heading line and the view line aligned and body heading line at that static position is this your head has turned or the eye has turned so view line got turned by a certain angle which you have worked.

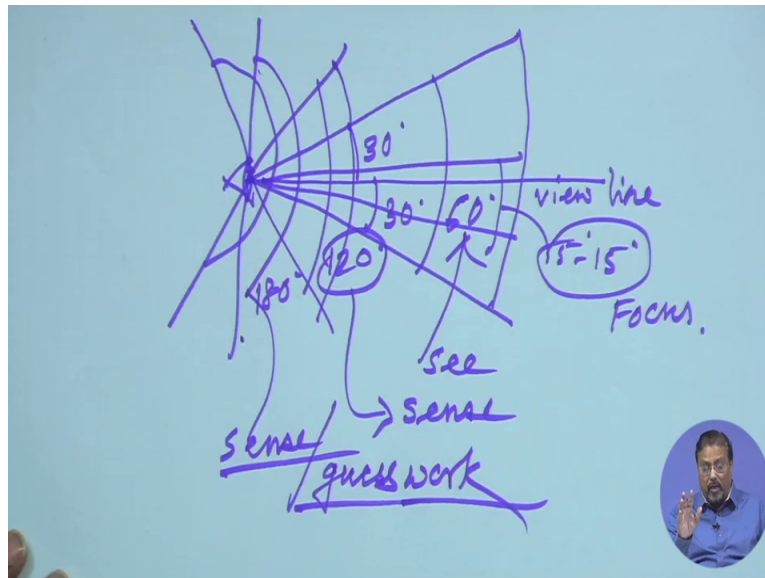
Now the conflicts starts conflict starts in terms of your Kinesthesia, how? I would say conflict something happens something changes you are walking towards this and you are looking towards another direction, think about forget about the landscape experience think about just walking and trying to see others, quite often this becomes hazardous. That means ideal is your body heading line and the view line is aligned ideal situation, that means you have no hazards you are seeing where you are walking, where you are stepping on to you are seeing it.

(Refer Slide Time: 10:37)



This situation suppose in between within your body heading line and view line I put an object of interest of attraction, then what happens is your eye which was seeing 60 degree suddenly will get focused, this focus is to the angle of it varies between 5 to 15 5 to 15 degree. That means what happens is your body heading line is this, your view line is this your eye ball has constricted and ultimately focused on an object which is now the view solid angle created as 5 to 15, okay within this you are seeing it then your focused. So whenever you are seeing something, try to judge means after listening to me in your real life you just try to see that you are moving and you are seeing and then you are focusing.

(Refer Slide Time: 11:15)



So at this point I would say what between this 60 degree what happens is you see, within this 5 to 15 degree what happens is you focus within this (one) 120 degree you have a sense of inclusion of something 180 degree is also a sense of inclusion of something, but the difference is this is also sense the difference is you can make out in 180 degree you can make out what has entered into your visual domain in 180 degree it becomes very difficult to make out what really happened.

But you can still have that strength it is it varies from person to person with the visual ability to judge or to guess. So what happens is in this 120 degree when you sense you are sensing something has come in in 180 degree you make a judgment, you make a guess, so this is a sense supported by guess, okay or the guess work and it is because of this one has to be really alert when he is he is moving somewhere. This phenomena is very strongly exploited in our landscape very strongly especially it has been done in Japanese landscapes.

(Refer Slide Time: 12:45)



So is this clear? If it is then I am showing another picture in which another illustration in which this will be clear. But before that, okay static vision focused there is a foreground, there is a background, there is a distant view, there is a parallel view and there is a tilt, you just look at the slide once again focused direct, foreground that means what you are looking at whether focusing or less focusing there is something called background in the front and there is a sorry foreground in the front and there is a background behind.

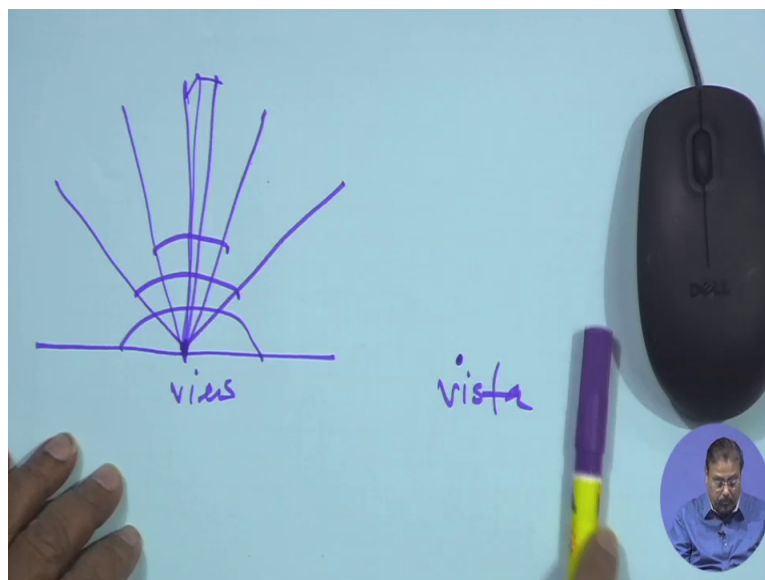
So foreground in the front, background at the back you have an element of view the view also have a distant objects, that means there is a background beyond that at distant objects, an example when I will show the pictures I will try to bring you to that, okay but still let me give an idea that suppose there is a wonderful flowering tree in front focused in the foreground you have a lawn and at the background you have a hedge or hedge row beyond that is a cloudy sky or beyond that means if you are looking from slightly from top, then beyond that there is a water body.

So such things will be always be there, so what happens is when you view it you are static at this particular point, that means your body heading point at from here you will start walking and then another action will take place your head will now rotate in two directions, once you are rotating horizontally it is panoramic view that will have. And once you rotate vertically it is a tilt view

that you will have and the entire you know the camera movie camera is designed with that principle that pan and you tilt, okay.

The same principle over here, only thing is we become the camera stand with the camera eye as our camera and we view it. Now interestingly what happens is landscape is a very large area and you are out in the open nobody can really control you in terms of whether should we panning or should be tilting. Even it cannot be controlled that issue should not pan should not tilt no, the point is landscape we have created the user has entered, now user is having a full freedom to decide what to do, how to see, how to view, should we pan, should we focus, should we even you know reject everything, but at a static point. The second one is of this time is which what happens is that is also a static, means here you will be seeing from test from a point and looking forward in the view it was all open on the sides. That means 180 degree open you can see everything feel, sense, guess.

(Refer Slide Time: 15:50)

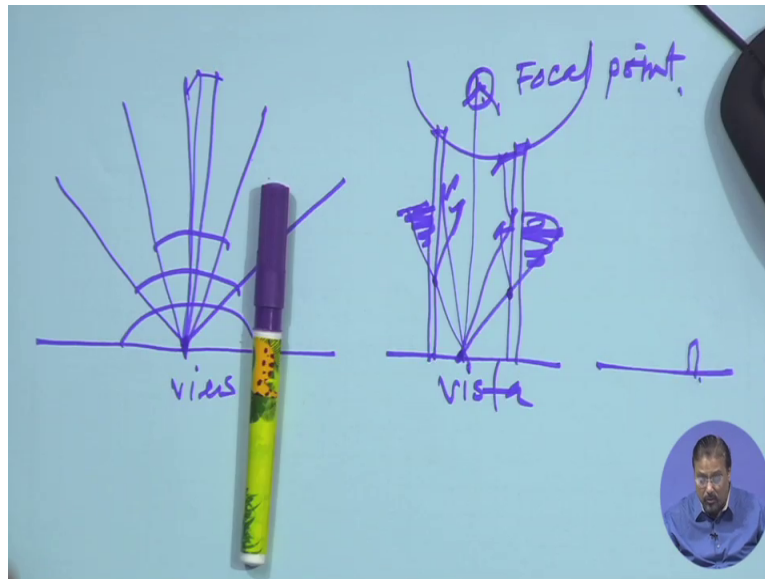


In the vista it is restricted vertically on the sides, okay and once your (res) once your view is restricted I will just try to make a you know figurative sketch for that, one is the point of view, and this is the point of vista where you are standing as a viewer you are looking towards this direction this is the body heading line as well as this is the view line and you are sensing up to this 180 degree you are guessing sensing sorry guessing up to this 180 degree sensing up to this

120 degree seeing it up to this 60 degree focusing up to this 15 to 5 degree that is what is happening.

This only I have given in the form of static, means you are static not only in terms of your position, also static in terms of your movement of the eyes.

(Refer Slide Time: 16:37)



In vista same situation think you are standing here, you have a view line leading towards this you are looking towards this and there are something which is placed on the sides which is vertical. The moment it is vertical, what happens is if it collides with your 60 degree that means your view now gets obstructed towards this, also here.

So you miss the elements which are on the either side, once you missed this element very interestingly you know eye starts working and the entire moment of the eye or say the reactions of the eye gets limited by this vertical elements and I want to say that the eyesight or view line goes like this, but the thing is your focus gets more converged towards this anything that you are seeing gets more converged towards this and ultimately what happens is your entire strength of the visibility that goes and gets connected with this focal point.

So whenever you are the difference between this is you are standing and in the view positions static position you are seeing everything in front means different degree of visibility when you are on this angle. In vista what happens is whatever is on the side you are seeing it, but only


thing is since you are seeing from the sides you are having a distorted view of that or rather perspective view of that. So your eye does not really register that much, what happens is the entire strength of the visibility or the view or the reaction of the view gets focused into the focus point.

So it must have a focal point, this focal point maybe anything, anything which is a single entity, it may be a building, it may be a bollard something like you know a bollard standing, it may be a small one animal just at the center it may be a person, it may be a tree, it may be something which is a large area but being focused within, let us say it may be a water body. So what happens is just imagine if suppose you are your view is limited by this particular two edges and then you have a water body and then the (wat) you are seeing water body restricted view with a frame view framed by these two elements and then at the center you have a fountain you know what will happen the your view will straight away flow over the water and ultimately get focused on the fountain.

(Refer Slide Time: 19:15)

Kinaesthetic Experience		
Static Vision	View	<ul style="list-style-type: none">- Focused- Foreground- Background- Distant- Panoramic- Tilt
	Vista	<ul style="list-style-type: none">- Framed- Guided Linear Forward Vision- Converging to a Focal Point / Object
Dynamic Vision	Serial View Frames	
	Sequential Experience	
	Circulation	
	Kinaesthetic	

NPTEL

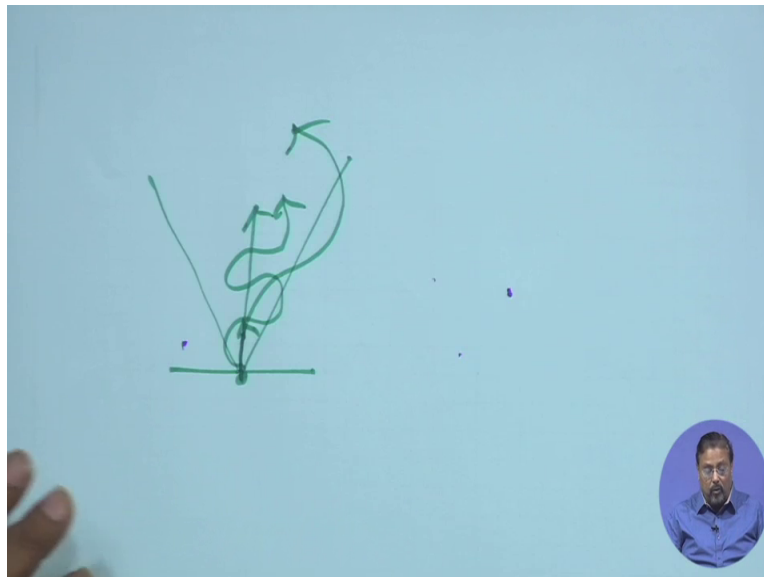


This is how the whole vista concept works. Next is the dynamic vision, in this dynamic vision what happens is, user starts moving so what happens as soon as user entered a landscape site first views it and then views whether it is panoramic or tilting and then given an opportunity starts moving, not given an opportunity while virtue of the tendencies expectation tendencies behaviors starts moving forwards. In which direction they will move? If you are a good landscape designer

and if you have planned for it, then defiantly you will judge that this up user at this point if he has reached, then he is likely move forward and the moment you understand the user expectation tendencies and behavior, then we will follow preferably that expectation route and then you design the path accordingly.

This is how means you develop it by virtue of which is guided by the user expectation, but suppose you want to define this expectation and you do not want the person to move forward then you put a fencing or you put some kind impediments which cannot be you know encountered or negotiated.

(Refer Slide Time: 20:44)

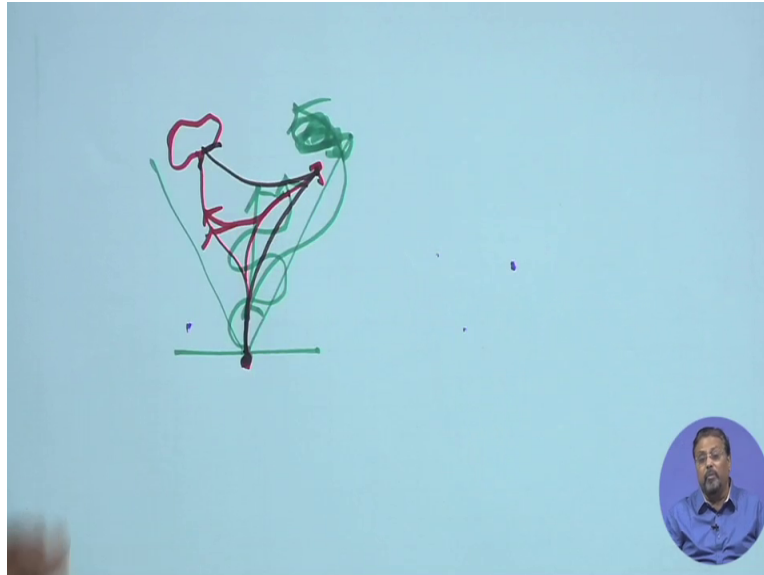


And if you want the know I want whom to see go further, then we design a path, this path can be of different kinds you can give a path which is straight you can say at this point the viewer has come and then is viewing it in this angle and the viewer has a expectation to move forward body heading starts.

Tendency of (bod) expectation of body heading starts tendency of body heading starts and the body heading really starts. So the person starts moving if you have understood that yes this has this is the way if the person is allowed to move freely without any restrictions, then you will find that the person will decide his own body heading line, it may be straight, it may be curved it may be anything you have no control, but in the landscape that you have designed perfectly every

elements you have put with some cautions and with some objectives purposes when you have done this, you defiantly want that the experience of the person should be guided by you.

(Refer Slide Time: 21:56)



And once you decide that you should be guiding the experience, then you put objects at different points and then you allow the person to move by a very designated part that you have worked out, an example let me tell you, suppose you have put a water body here and (th) you have allowed this viewer to come to this particular point, and you want the viewer to see the water body and not get distracted by any other things then what you will do is you proudly give a path which will be leading to the water body.

And if you think no let them be free I have given a water body here and I have given up say group of plantations here, let them see it then it is a free flow but if suppose you plan yes somebody will go the water body will have a also have option to this to the go the plantations and then come back here and then go to the water body basically if you see the red lines what you have done here is your planning your design you guided the person to move in the way you wanted.

Now whether this is first or this is first, that is immaterial if you wanted that this is first and this is second, then what you would have done is I will just draw with another color probably in that case you would have done this and then this the person goes first here then here. That means

what happens is the whole kinesthetic experience that you want to create in the mind site of physical conditions of physical conditions of behavior of the person.

It is purely your design you are deciding as a designer and there you have to be really very creative, innovative and also knowledgeable one, what knowledge you need? You need to know the kind of expectation tendencies and behavior which I have explained in the last lectures. If you define or refute it I will tell you people will break, break the rule it is because of which I gave that example earlier also in many of the parts when you are gone there is a pathway and then there is a nicely you know maintained more lawn but there is no fence.

You are expecting or you know relying on the behavior of the people that okay they will now behaving the way they should as a civilian, so what you (exp) do not expect is the person who is supposed to walk will step out of the grass, you do not expect but the thing is you cannot control everybody's mind and really (th) it is impossible nether it is the desirable as well. So what you do? you just try to give him the sense that okay give him a sense of some indication that okay please do not step on the grass and you walk on the foot walk and enjoy the grass.

So what you do is you put a plate like you know on which you have written "keep off the grass", if you find that the "keep of the grass" plate does not work and people are still you know violating because they have not understood exactly what you wanted to signal to them, then what will happen is you will put a fence and if you find that the fence is of low height which can be scaled over the years if you see no no it is not working the keep of the grass plate did not work even without the plate it did not work, then the plate the sign inch the sign inch did not work then a low height fence and low height fence did not work people are scaling still then you raise the fence.

And you raise the fence up to the level which is non-negotiable, these are all the design elements that gets generated you have no control of the others users, but the thing is I can still tell you if the design is good if the design elements are placed in a very sensible manner very innovative manner, then people can be discouraged, okay this is the idea.

(Refer Slide Time: 25:21)



Now here just look at this, this particular picture the kinesthetic effect the question is means I have been often asked by my students whether the kinesthetic effect works in straight line? Or it has to be you know in curvilinear manner or in some irregular manner.

My point is kinesthetic effect works everytime, everytime, whether it is straight or curved if you are walking straight still you are subjected to that steamulae guided by the view what you are seeing and you are moving around then you are also still seeing.

(Refer Slide Time: 26:05)

Kinaesthetic Experience

Static Vision	View	<ul style="list-style-type: none">- Focused- Foreground- Background- Distant- Panoramic- Tilt
	Vista	<ul style="list-style-type: none">- Framed- Guided Linear Forward Vision- Converging to a Focal Point / Object
Dynamic Vision	Serial View Frames Sequential Experience Circulation Kinaesthetic	

So basically what happens is you have a serial vision, let me go back to my earlier slide in which you will see this in the dynamic vision you have serial view prints, that means one print, next print, next print, next print.

You have a sequential experience from this at one particular you have moved to you have an experience set of experience the next set next zone that we are walking into another set of experience and then you know in a whole process you are being connected from one to another when I will discuss about the design principle I will highlight on this bits you know with my sketchy examples, okay the whole thing is kinesthetic, now if it is straight, no problem.

Basically what happens is if it is straight, then you go from one zone to another but since you are (mov) not moving your eyes beyond that 60 degree and you are straight body heading line and the view line is in the same direction, then what happens is you see the same object, same elements within that view cone only difference is the objects which where distant they will now become closer to you because you have gone closer to them and the scale or the size will increase in your image, okay is only that.

But if you are moving in the curvilinear directions, then what happens is that you have a different view frames. Here the view frames remains almost same here like this, but it's simply gets enlarged in terms of the continuing objects. But if it is curvilinear one in such cases the view frame also keeps on changing, so many other elements keep on entering many elements get rejected. This particular idea which gives a kind of you know (psyco) psychophysical stimulate in the mind of the viewer and this is what is the kinesthetic experience that one has.

And this is generated or rather created with the pattern of circulation that we design. So in my next lecture I will explain how it is done, okay thank you.