Disaster Recovery and Build Back Better

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Lecture – 38
How to Teach Disaster Recovery & Build Back Better in Build Environment Education

Welcome to the course; disaster recovery and build back better, my name is Ram Sateesh, I am an Assistant Professor in Department of Architecture and Planning IIT, Roorkee. Today, we are going to discuss about how to teach disaster recovery and build back better in built environment education. So, this lecture is being prepared based on my own experiences for about 2 decades how I have been involved both as a student and as a faculty in different cultural and environmental setups.

So, how disaster has been integrated in the curriculum, in the education and the methods which were adopted and in fact, some of the courses which were actually executed by me and where I keep testing different methods of how to teach the disaster risk reduction and build back better for the built environment professionals especially, for architecture and planning students in India, UK, Mediterranean countries and in Sweden.

So, that has given me a good exposure of working in temperate climates and the tropical climates, Mediterranean climates and the arctic climates so, I keep testing various tools and methods in teaching this DRR so, I am trying to bring a kind of concise understanding of what I have implemented and what I have learned through that, so before that I will give you a brief theoretical understanding of the educative component of it; the education component of it.

And how it is relevant in the architectural phenomenon and especially, in the present age how it is drastically changing and what are the threats and as a result how this DRR has to be looked into it in the built environment education. When we start about architecture or planning or urban design any of these studies which are related to the built environment orientation, in the past, we mostly have talked about the monumentality of the architecture.

You know, whether it is a Vatican city plaza, whether it is Duomo, you know the Bernard smith work; so the great architects, the great master builders who have actually made these spaces to happen and that is what we all studied about architecture and in fact, when we were studying

these architectural courses, there are different segments of the training starting from your design component and as well as the construction component, the structural component, the service component and the historical component.

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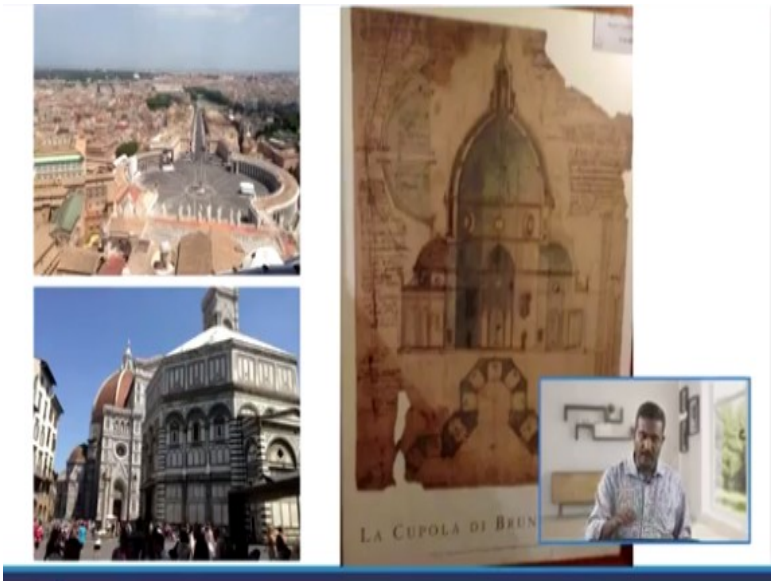

So, somehow we end up studying in most of an isolated manner like each component in a different aspect, so there is always a need to integrate and how we apply the learning of this to that so, this is the missing component and if you take ahead from the historical times of architectural understanding, where people used to work under the master builder and that is how they learned architecture.

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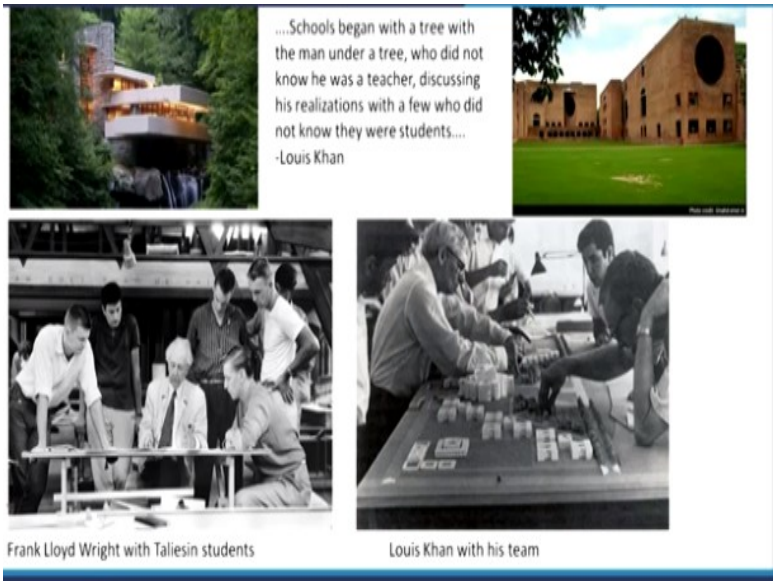

But coming into the modern era where the Frank Lloyd Wright or Louis Khan, you know people that is again, it's a kind of a friendship, how they learn from these masters, learning

from masters, even Bauhaus you know, that has that is just not a school of thought, it's a vision and right so, that's what Louis Khan states; schools began with a tree with a man under a tree, who did not know he was a teacher, discussing his realizations with a few who did not know they were students.

So, this is a very intimate relationship which he brings up and as a result of this interaction, the architectural friendship or the student he tried to test a few ideologies and then come to a particular decision-making process, so that is where this whole education is unlike the engineering subject which happens in a classroom, we as an architects and the planners we deal with the real situations and the psychological aspects of it and the behavioural aspects of it and the financial aspects.

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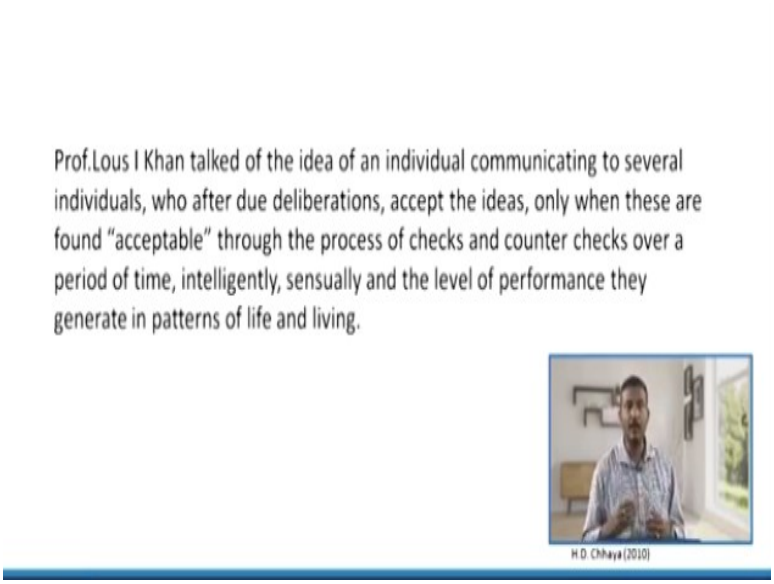

There are various dimensions which are involved in the built environment studies, so that is where this kind of training has been followed upon and Louis Khan talks about this idea of an individual communicating to several individuals who after due deliberations, accept the ideas only when these are found acceptable through the process of checks and counter checks over a period of time intelligently, sensually and the level of performance they generate in patterns of life and living.

So, this is all about the trade and error process of how you develop this idea and how you communicate this idea and how you check this, how you countercheck this and how you see, how it has been experiencing it, how it is behaving, what is a responsive pattern of it, how

people are responding to it, you know that is how the learning process happens. When we talk about an architecture study, we mostly orient our students into the building orientation.

But one has to understand that the building is not just an objectified form of an architecture, it is also the cultural setting you know the cultural setting which makes an important contribution in understanding giving meanings to that place.

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Like for instance, we called about the Jean Marie Tjibaou cultural centre, Ranger piano, which talks about an ecological setting and the tribal understanding and how bringing that into the architectural aspects.

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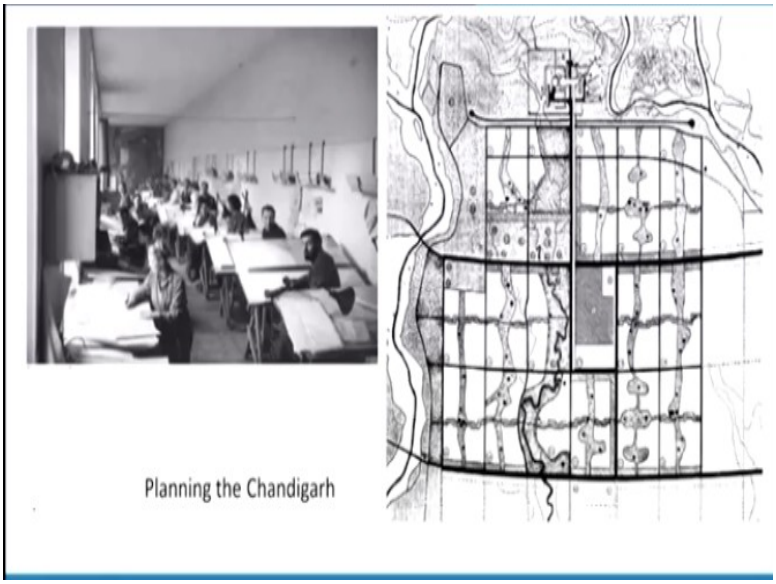

And similarly, when we talk about the post-independent architecture where Chandigarh; planning of the Chandigarh where western philosophies have come and worked in an Indian with a modern vision and the visions for democracy and equal opportunities and how the method of working and how they have understood the site and how they have understood so, this is all a transition process in the way the architecture have understood with the community, have dealt with the communities.

And earlier, it was very singular process but now it has gradually changed from a singular to the shared visions. When we talk about the shared visions, in fact, today, we are talking about many important courses like urban design or architecture masters.

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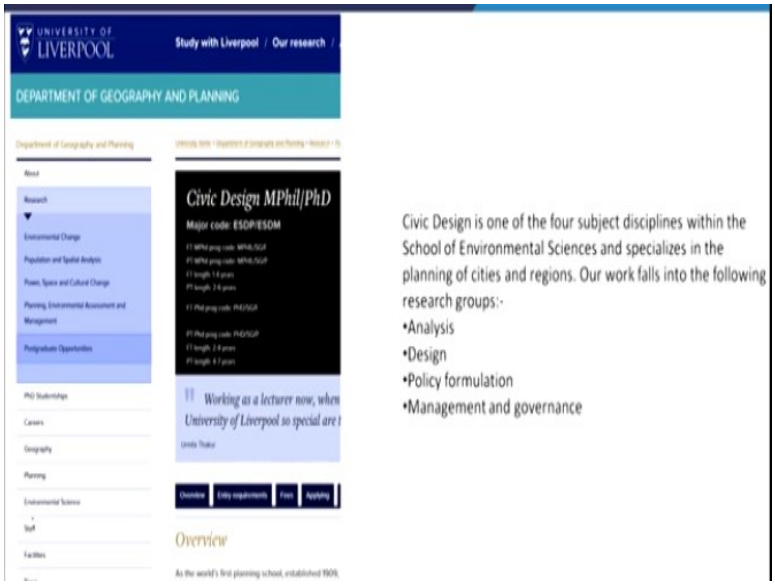

But you see way back in early 19th century and 1850's, Liverpool which have started the Civic design courses, even today this particular course do exist, so that is where they talk about bringing the stakeholders into the design process in the planning process so, this is very important that we have to move from singular vision to a shared vision because many at times they notice that a singular vision process have failed apparently.

And one has to look into and take into the account of different user groups, the stakeholders, the decision-making authorities in the process. In our present context, the globalised so, if we look at the time frame of how our society have moved at least from India, what I mean Srinivas talks about from the Sanskritization, to the westernization and to the colonization and to the industrialization and to the modernization and now today, we are living in the globalization.

But still the gap between the rich and the poor is ever increasing you know, there is a challenges for poor and there are challenges for the rich, it is a very diverse challenges, it is a very incomparable challenges which both the groups are facing today, right so, the poor obviously the poverty reduction is one of the basis of the disaster risk reduction and when we have to talk about the rich, whether it is in the form of a well-planned settlement, well-planned city obviously, it is been organized well.

And whether it is in a building, whether it is a city, one also has to look at in what conditions this city has been planned and what would be the impact not only today but how it will make an impact after hundred years as well, so this is important setting how the for planning has to be taken care of.

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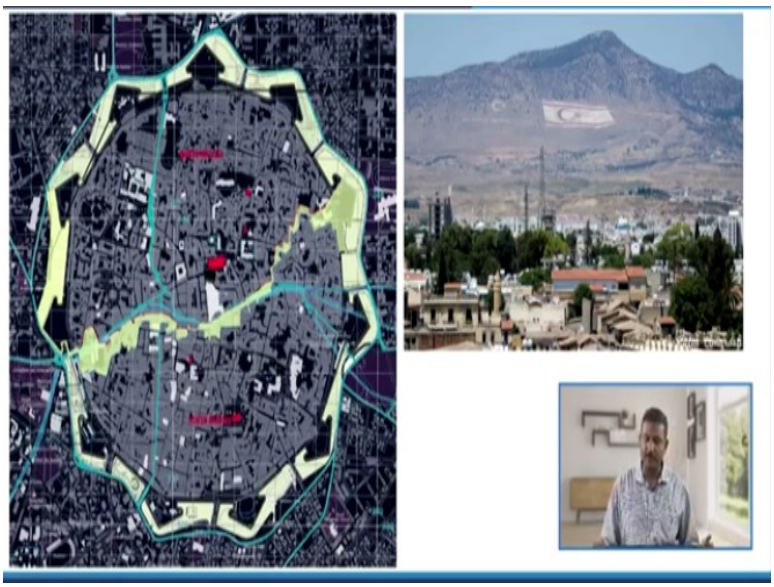

We are also living in the state of wars, we are living in the state of contestation that is where an example of Nicosia, you know how a cities broken into 2 countries, this belongs to two countries; one is the Turkish Republic of North Cyprus and Greek part of the Cyprus which is a Nicosia and the left coast side in the north and in this conditions obviously, how to channel the services, how to have a holistic understanding of DRR, you know whether it is the natural made or a man-made disasters, how we need to have bring back consent.

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These are some of the challenges which we have and the great people like Laurie Baker who actually worked with the poor and especially, developed the low-cost technologies, how we can actually work with local masons, how to train the local mason, so these are all some of the bottom-up approaches of how we can engage these communities or we can you know develop some indigenous methods to construct, so this is one of the idea.

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But then the same aspect, we also have to look at the long-run adaptation of these efforts like for example, in Jungle Chula, what you can see is what Laurie Baker have designed on the right-hand side but what the communities have developed their own initiatives later on and today, one have a very great difficulty even finding out the locating what the Laurie Baker have designed exactly.

So, this actually shows that there is also some gap between what the architecture on that day a vision; made a vision and today how communities have responded to it, maybe due to various schemes coming into the practice, maybe due to the various financial inflows and maybe various needs and demands coming into, so I think this is all a very complex phenomenon.

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Similarly, some NGOs like Hunnarshala, where they are also organizing various summer training courses for the people and students of architecture, that how one can learn with the communities you know, so being with the communities and working for the communities, it also benefit not only the student who is there and learning interacting with the outside world, it will also benefit the community, it will reduce the cost, it will you know certain; there is a win-win situation in both the aspects.

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SINGULAR VISION TO SHARED VISION

That is what till now, I was talking about how our design methodology and the teaching has been progressed from a singular vision to a shared vision.

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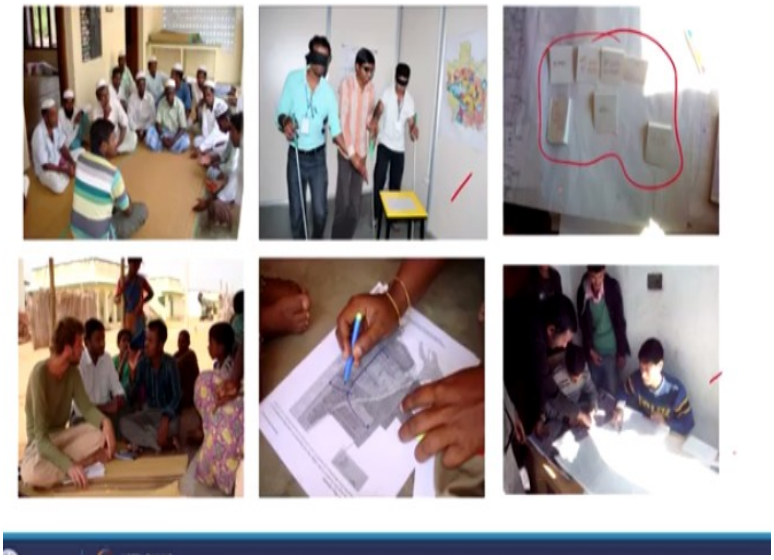

So, this is where we started about engaging our students you know, like even addressing the diversity of people, when you are planning something it is not just a common man for a common man you are planning how you are going to plan for differently-abled people, whether for a children, whether is a old age people, whether is a blind person, whether is a physically challenged person, so we used to do some kind of workshops where people realize the essence of and the importance of other diversely abled people.

So that one can understand what are their needs you know, that is one important sensitivity we try to do with that process and also in my own study, we did the mental maps and that also some of the techniques we have some of the students have adopted in taking the mental maps and how to analyse the mental maps and what are the different ways one can take the mental map so, this is all some of the learnings which we have passed on through other learnings to the next generation.

So that in fact, when I was a student no one have taught me about what is a mental map but then when in my research, when I learnt it then I obviously, tend to pass it on to my students and then my students have developed in a different innovative manner, in different contexts and they have taken it in a different way so, this is how the knowledge have transformed from one generation to the other generation.

Like for example, he was my Piyush, he was my bachelor student was doing a thesis in earthquake-affected area in Uttarkashi, it's a bound village so, to and it's a small bachelor dissertation, he was looking at the resettlement of a village and then the way he was looking at it is basically, I took him to the village and he developed the community mapping you know, there he asked, he gave them some maps of the village.

And then they asked him to how do you understand where are the important problems in this village so, people started mapping it yes, this is how we get lot of water drains out in this rainy season, we get the snow accumulated here, we get there is a dial-up pattern buildings in this, so you know, that way communities also do possess some understanding of their own vulnerabilities.

The second aspect, which we also tried to do was in that level he also mapped out for various conditions of the house and the whole settlement, various social hierarchies, like whether it is a Jat community, whether it is a scheduled caste community, you know that is how and how they are segregated and how they are integrated so, all these things we have worked for instance, then in terms of the individual layout, we tried to make some kind of small blocks.

And then try to interact with the community and people say that yes, I want you know a toilet outside of it and I want place for the cattle to rear the cattle and interestingly, it is one of the important finding also was they were not happy to have an another social community in front of their house but they were happy to have the backside of their house but then we can see a possibility from the designer, the moment if you keep them in front obviously, there are possibilities that some disputes might occur.

But when the moment you keep in the backyard at least in that process, long-run interaction can develop maybe in a long run process and also, we have to make them the students aware of the adaptation process because when we talk about a disaster, it's not just only the event, it's not only about the relief, it's not only about the rehabilitation, it is not only about the reconstruction.

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But it is also one has to understand how communities have changed their dwellings to how they have modified according to their cultural needs, this is a toilet converted as a pooja room, this is standardized dwelling converted back to the traditional forms and this is where an architect can understand the whole build back better with a cultural approach.

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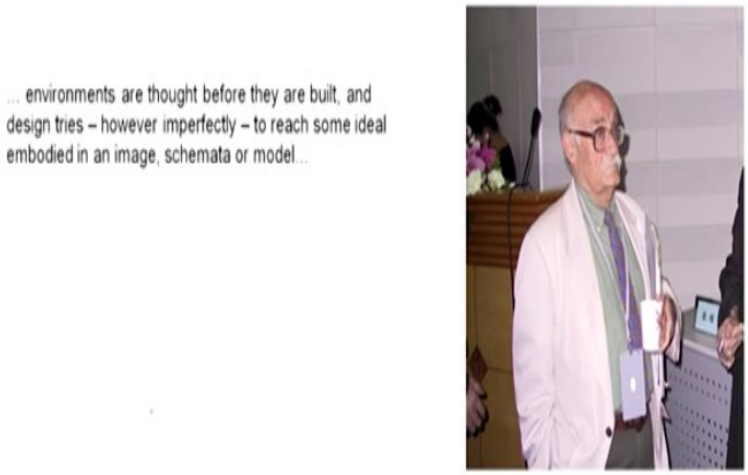

That is what a most reports has said, environments are thought before they are built and designed tries, however imperfectly to reach some ideal embodied in an image schemata or a model.

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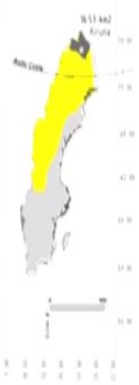

And like this is another discussion, I did also explain in one of my lecture on the Kiruna, the moving Kiruna, where there is a mining town and people are relocated the whole town is getting relocated.

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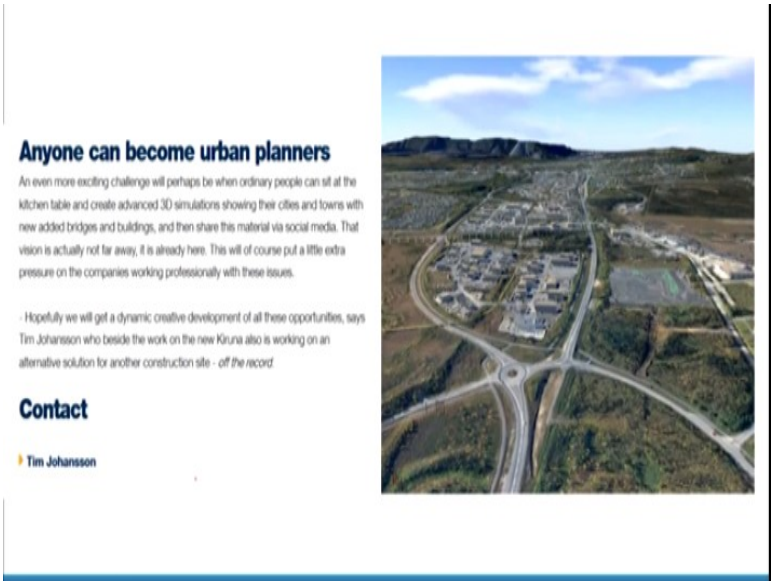

But now, looking at the digital tools now, with the VR; the virtual reality so, one can see that now people are making the planning even by sitting at a desk, you know by the tools have been operational and how this particular city could be planned, the high way program could be planned, so that is where people are getting a different notion, anyone can become urban planners, how is it possible?

You know this is; see, one has to understand the ground realities, the demographics of it, the sociology of it, the economics part of it, the infrastructural aspect, the procurement aspect so many other things, it is not just only from the virtual reality which one can look at it.

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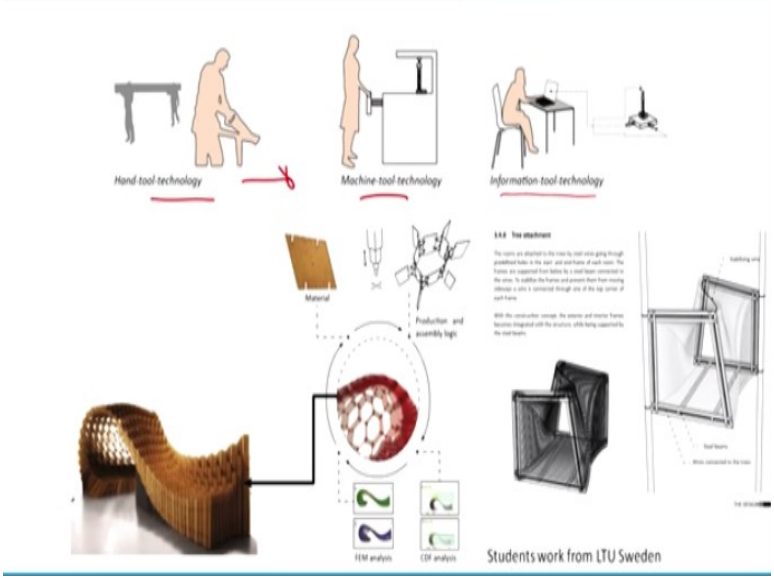

There is many because the technology is moving. Earlier, it was all made with the hand tool technologies now, after some time they moved on to the machine tool technology and now, the condition have moved to the information tool technology so, it is focused more on the form generation.

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And today, what we are dealing with the houses with the housing with the city development or whatever we are urban design, we are all doing with the same softwares, whether it is a peasant house, whether it is an industrialist house or it is only with the templates which we are getting

from these software's we are trying to apply it but there is also how much a student is learning with these template, it is a big question.

Because when he was interacting earlier in the physical form, he was able to see what kind of trees, what kind of flora, what kind of fauna even a smell of flower makes a big difference.

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When we talk about the curriculum part of it; Ashraf Salama talks about 2 sets of pedagogy approaches; mechanist pedagogy and the systemic pedagogy. Here, we talk about the schools, curriculum, grade, subjects, courses, lessons but then here also the same thing but here, what it is very important, how are they relevant to the society.

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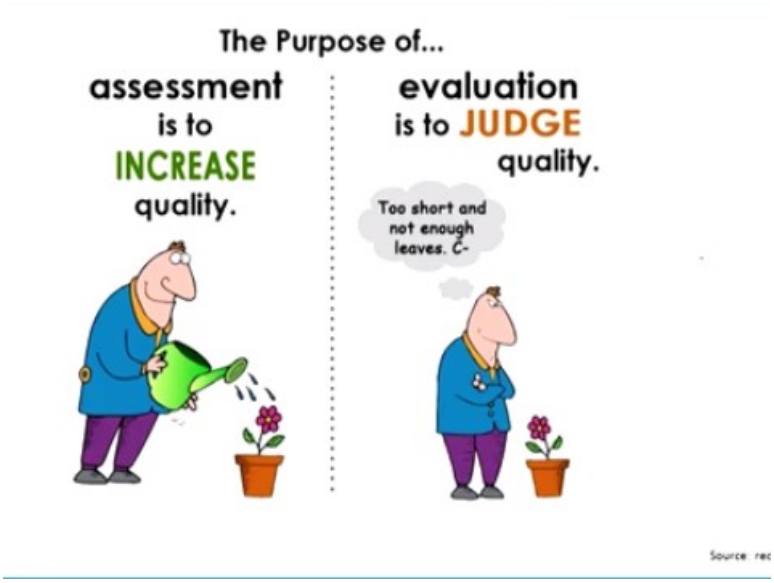

And in terms of assessment, you know, we talk about the assessment to increase the quality not just only grading them like C plus or C minus, it's not about the judging but it is assessing to increase the quality, how we can enhance their skills further, this is where a teacher has to look at even when teaching the disaster risk reduction, how we can bring certain thought process, so that he can understand the disaster context and the build back better context.

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There is also another problem in many of the developing countries of course, it is common; is it true just most penguins believe it so, students tend to believe that some master have developed in the trend to believe that it is true so, I think we need to also develop certain critical approaches of questioning each and everything and that makes a thought process. If there is a river and there is a settlement you are designing.

Then a student can start thinking about, can I construct here, what happens when a flood comes, what happens to what level the flood comes, then what way should I move, do I get any land from this so, these are like the brainstorming questions you know so, it is not just only let's say you say a rule says you have to do this, then you have to critically question it, this attitude has to be developed further.

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As I said to you, in the education process, we learn by part by part but it is very important that how a system works together when it is all connected and interconnected, they are dependent and interdependent with each other.

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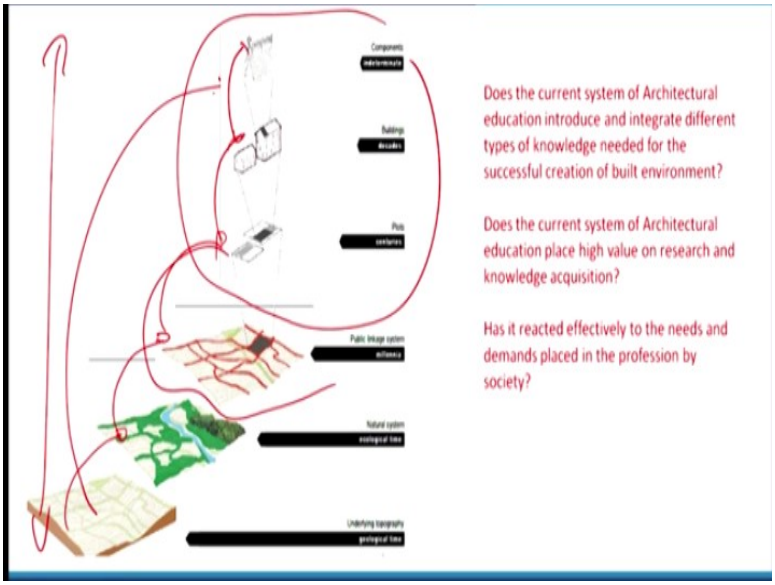

This what I talk, a settlement is not just a thing, it is a system of things, whether it is an underlying topography which has created the flora and ecological dimension of the flora and fauna and then you got the public space network which might change in a millennium, you have the plots and the centuries and then blocks and then you have the buildings and then the intermediate levels.

Unfortunately, many of the architects, they try to orient only this level or maybe it a planners level, we also need to in a disaster context, we need to see how this vertical understanding goes

and inform the macro-level understanding to the micro-level understanding and the micro level to the macro level so, we need to have that kind of interface.

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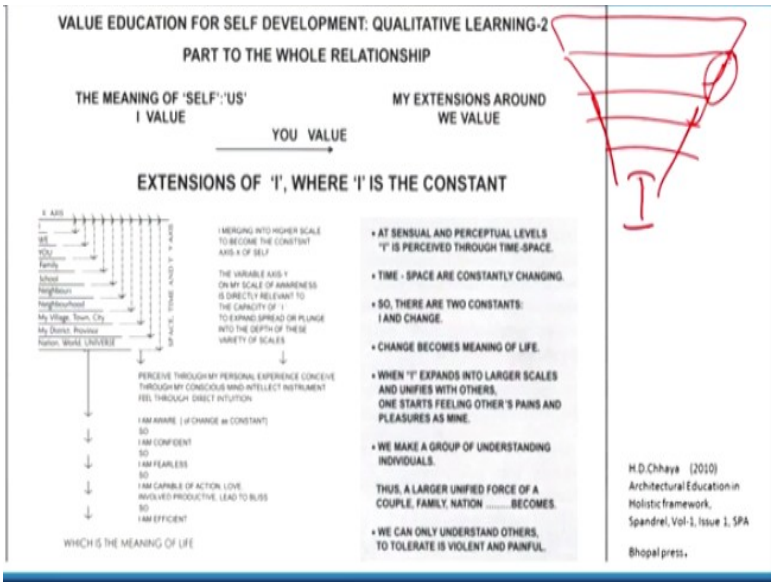

Here, I want to also bring some theory of H.D. Chhaya, how he talks about the self-development aspect from a part to whole relationship. In an education, we teach about subjects but we also teaches very important to teach about the self-responsibility, how they realize themselves, how and I is interacting with the whole world you know so, the moment he is born, he is related to his family, he is related to his gender, he is related to his caste, he is related to his neighbourhood okay.

So, in that way, he is related to his town, he is related to the state, he is related to the much more macro level nation and as well as the universe so, if something happens here will he should not be bothered, if something happens in China, right or in Nepal, don't you think he will not; he will just ignore it so, this is where the sensitivity has to understand that you know everything starts with I, it is not just only I have to be happy.

But if we, you, they, that attachment process also has to be part of the integral education because I is always perceived through time and space and time and space are constantly changing, the moment he is travelling a different places, the moment he is growing up but then it says there is only I and change which are constants.

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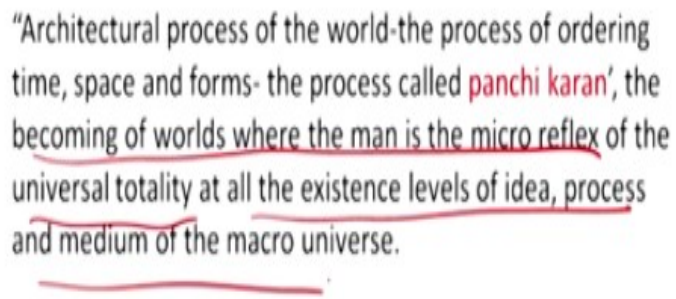

And this Chhaya calls it as a kind of the architectural process of the world, the process of ordering time, space and forms, this process is called panchi karan and becoming the world's where the man is a micro reflex of the universal totality at all the existence levels of idea, process and medium of macro-level universe, so it starts with I and how your responsibility goes back to a much more macro level is very important.

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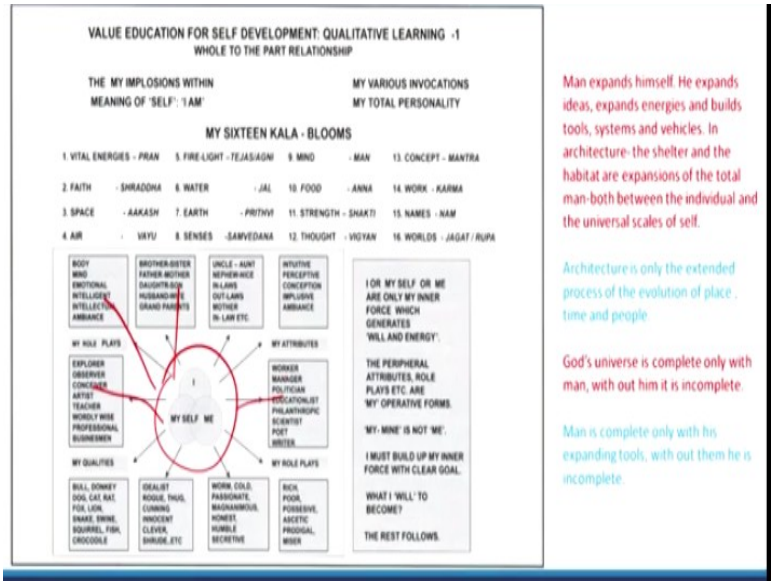

And that is where your roles you know, how this I, myself and me and how your roles reflex the body and mind, how your relationships and how as your role plays like an explorer as an observer, how it keeps interchanging with it and how the attributes you know so, this whole thing is a very theoretical concepts, though I am not going in-depth of it but at least one has to understand that the God's universe is complete only with man without him, it is incomplete.

So, which means we are the cause for everything you know, whether it is a nature of a disaster, the cause for a disaster, it starts with I, we will be responsible for everything, right without us, the concept of disaster cannot be understood.

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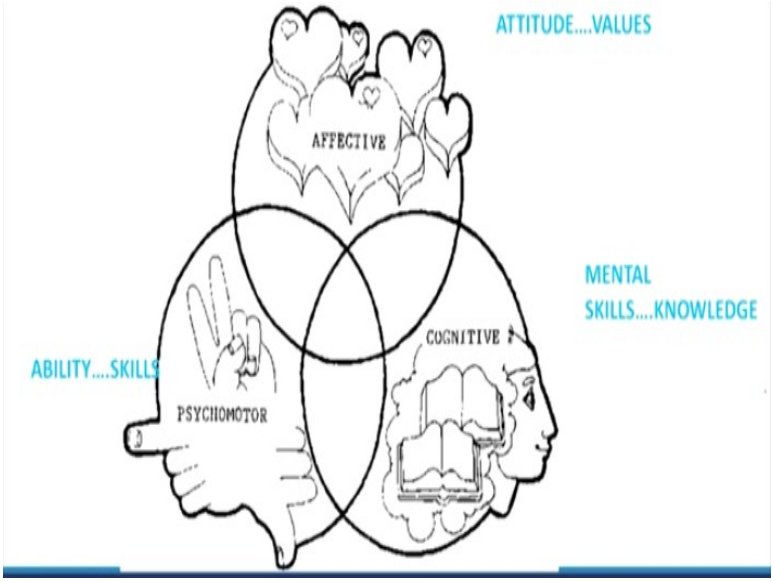

So, in an education process, there are 3 things; one is the cognitive aspects and the psychomotor aspects and the affective aspects. So, cognitive is talking about the mental capacities which talks about the skills and the knowledge which you learn through the brain and whereas a psychomotor, how you learn through the hand and effective which you learn which goes into your heart you know which had some value of your education.

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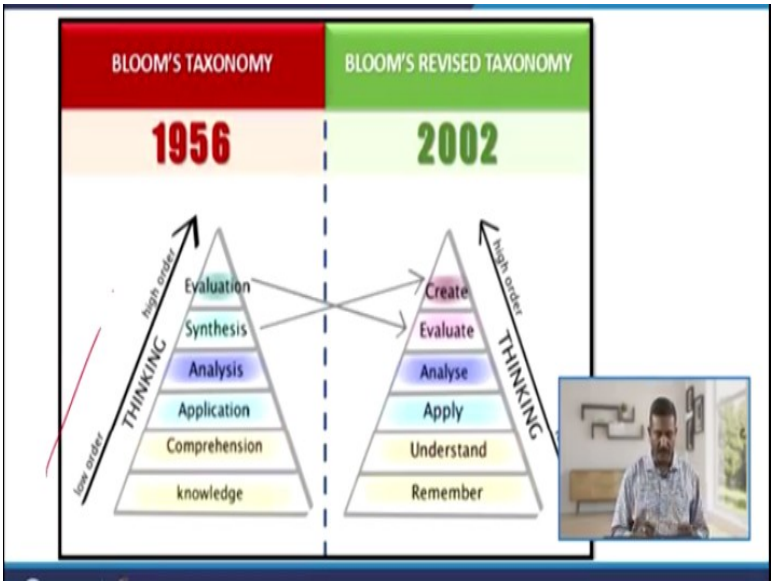

A lot of taxonomies which has been developed; Bloom's taxonomy is one of it, Blooms have developed 1956, where there is a lower order to higher order, the evaluation was on a peak but in 2002, he brought the synthesis and then the creation into the top in the summit.

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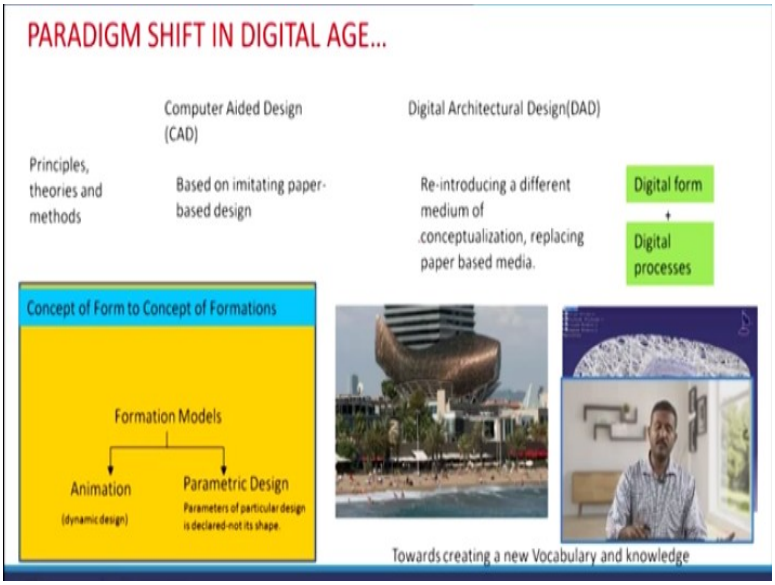

And now, in the present generation of architecture, we are talking about not only the digital forms because of various fabricated models, where technology has been advanced and also we are looking at the digital processes as well.

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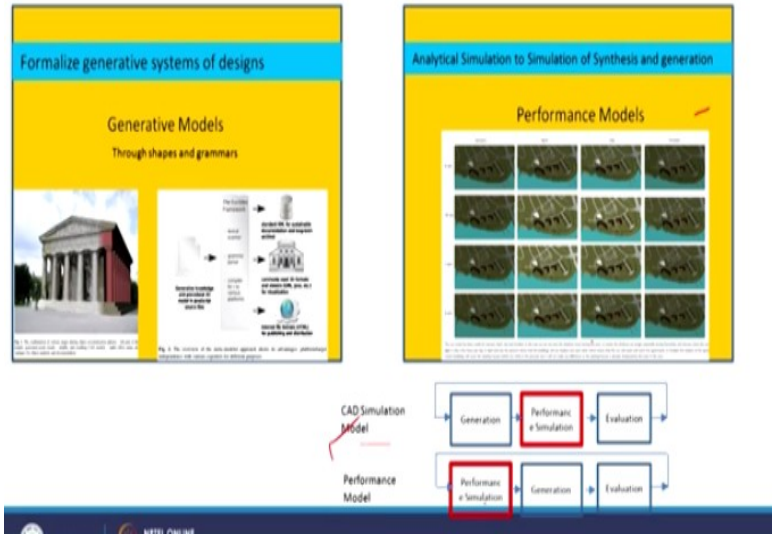

But in this process, what we are missing is the ground realities, in fact, there are many models like CAD simulation model, like this is one of my students work where they try to simulate the lighting aspects and as well as you know the climatic aspects of it. So, in this process, you

know when you do a design, when you have to test back how it works in this context, on a simulation level, yeah, maybe it will give you some hint.

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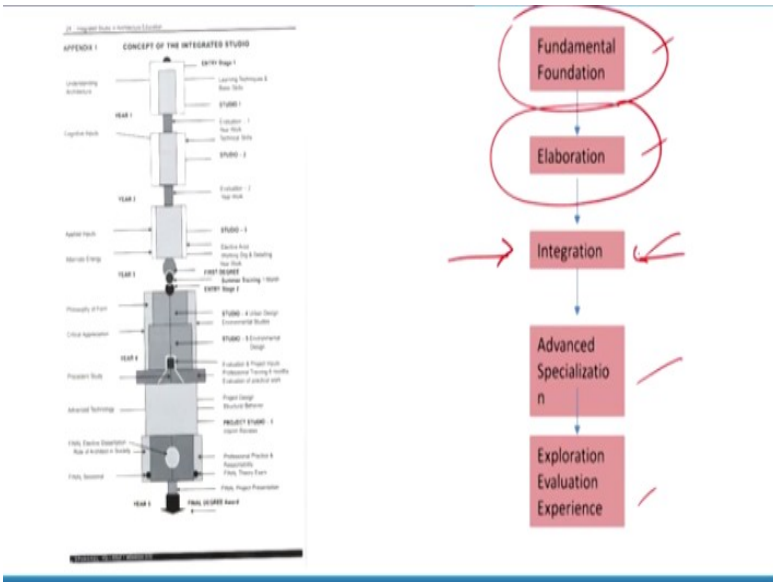

But one also has to see from how he will document it and how he will take it further and an architectural education is a 5-year course and where it starts with a fundamental foundation elaboration, integration, advanced specialization and the last 3 E's; exploration, evaluation and experience. Here, you start with the small things, basic knowledge of it and then you try to elaborate on further but here this is where we integrate structures, construction, quantity pricing, the financial aspect, so we start integrating.

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And then, we move on to the advanced specialization you know, your focus will be oriented but in the teaching you know, it is not just about what you teach, how much they have learnt, this is

assess that it is not about how much you have thought but how much they have learned is more important. I have taught Snoopy to whistle but I can't hear him whistle, I said I taught him not he had learned, so this is where the gap has to be analysed.

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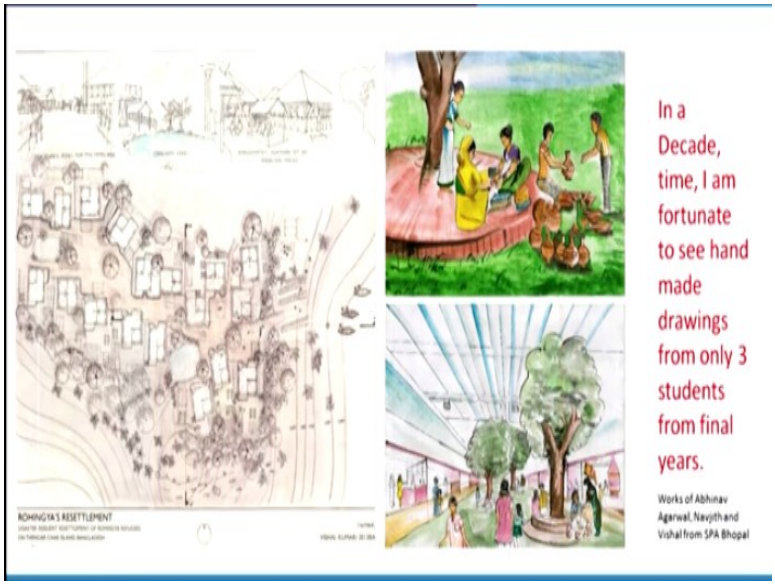

And also, this is one of the thesis of Vishal, one of my students and he developed a Rohingya's refugees, sheltered as a project and you can see the handmade drawings of his work and the moment person is touching his pencil and drawing on the board, it will give him more time to think about the details he is working. If it was a digital thing what happens is mostly, they try to copy and paste from different aspects of it.

Of course, if you are drafting and design then that makes it different but here they will have some sensitivity of the scale and the proportions and you know, this is what I can see that their imagination also comes into the picture.

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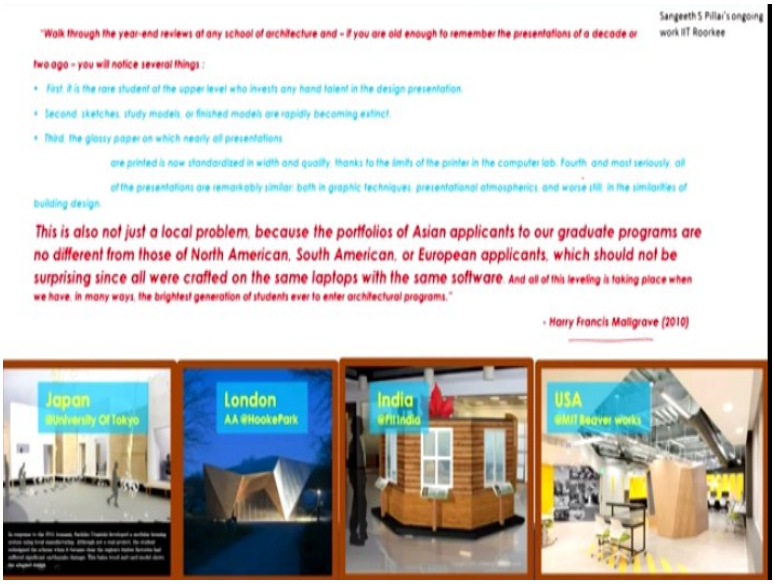

Today, because of the various tools which we are doing, we are having many tools like the CAD simulation tools and energy efficiency orientation today, we are not having anyways, the final year students are not at all using their hand skills which they learned in first year but eventually, they forget about it you know, this is one problem and also the site interactions become very less and they mostly end up in sitting on a table and drafting things you know.

I think this is very important that you have to make interact with this process of digital interaction and along with the site interaction knowing the realities for instance, when any US admission procedure when they get a portfolios from all around the world, every portfolio looks more or less the same because they are all developed by the same tools and same processes you know, so in that way the diversity and the context has not been addressed.

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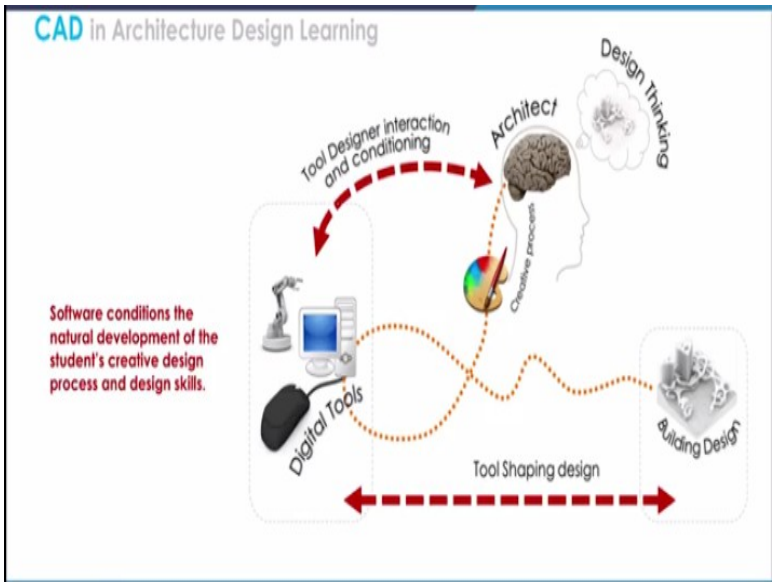

And this is where how the tools; the digital tools are also conditioning your thinking and your understanding process and also your design ability as well.

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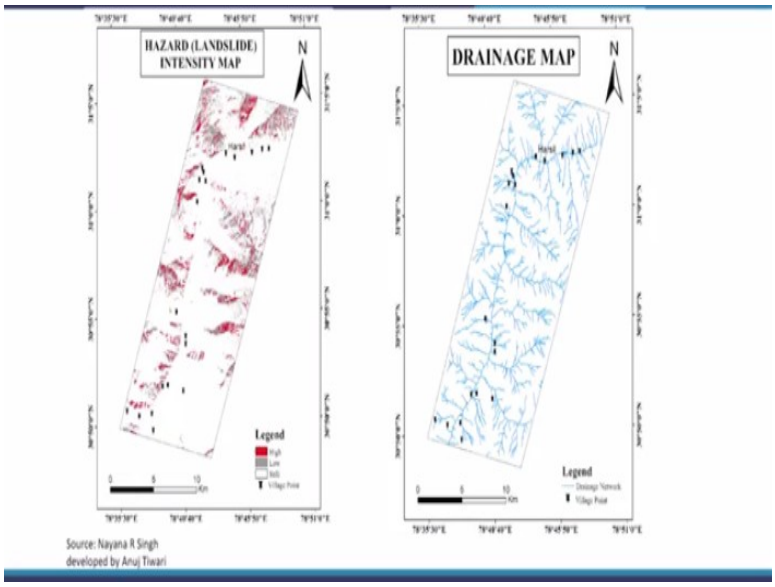

Now, the one of the useful tools which have come up with the geographic spatial information technology; the GIS tools where you can see from one of my students work of the hazard landslip because the satellite imagery plays an important role but now to what extent, we have to include that satellite imagery at B Arch level or we plan because they deal with much more of a larger scale projects of city planning or the regional planning, for them GIS is already within the subject, in the curriculum.

So, in that way, it was helpful for them to get the drain layouts and as well the hazard landslide intensity maps, so that will give you an overall original understanding as well.

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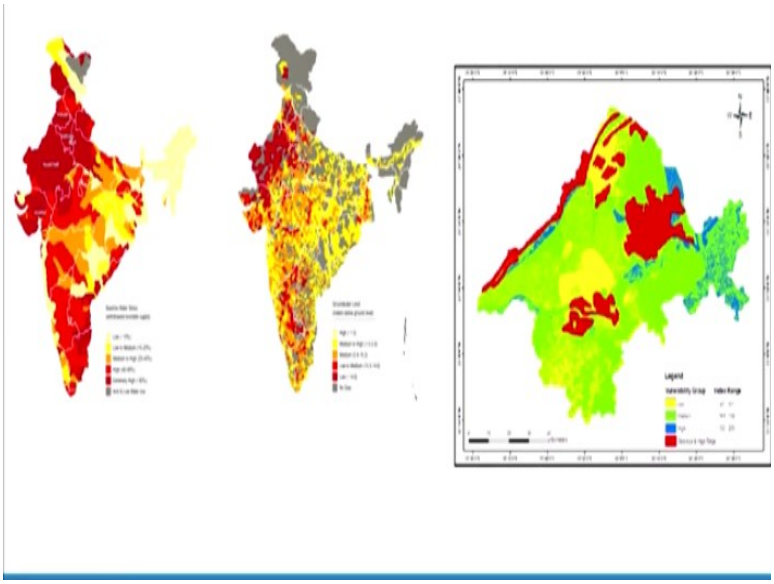

Also, the GIS is one of the useful tool but one has to know that what scale you have to apply and what scale the macro-level scale to the micro-level scale, how one can understand, the moment it goes to your site-level how this information would be useful, I think that is where the gap comes in between. So, when we say about the psychomotor skills, we also have demonstrated by with the help of Indira Gandhi Rashtriya Manav Sangrahalaya in Bhopal.

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This is a disaster of shelter which has been built by yerukula tribe in 3 hours' time, so we brought them procure the material, we collected the various labourers from different parts of Andhra and then we brought them here and we demonstrated and in this process, what happened is students have learned that even a lightweight hut can be made in 3 hours, you know which is very quick.

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So that has given, which is very indigenous but one has to learn that skill. Also, when I was a student in Oxford, my faculty have taken us to the centre for alternative technologies to test various technologies, the local technologies you know how we can make it work so, this is all the hands-on training which will remain in the students mind forever.

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Also, when I was doing my research, I used to engage some of the B. Arch students along with me, I should take them to the villages and they used to interact with the villagers, they used to interact with various council development activities and you know, the lot of discussions, living with the villagers and knowing their difficulties and that has really opened a third eye for them you know, before that they were all imagining a different context, when they started interacting with it, it was a very different experience for them.

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And similarly, some of the things what I also developed is; we have so much of information to read but how much to read and how to synthesize, it is a very important aspect, unfortunately, for each course there is a lack of reading materials for DRR and build back better and this is a very great need that we need to develop by topic by topic so, what I try to do is; I used to give them different topics within the groups and then let them compile a lot of information on it.

And then at end of the day, I will compile as a reading material, like this was a subject on climate conditions in Sweden, so in that way, I have given a wide variety of topics, which is falling out on that and then at the end of the day, we do a kind of big poster putting all of this reading material understanding one big poster of it. This is another important technique which we played; this is one role play for DRR.

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So, here for B plan students in SPA, Bhopal, what we did was we given them a task of a disaster context whether it was a village, under the dam and a flooded area and then we given them, make them into small groups and then we made into like community, engineers, planner, architect, NGO, district collectors, so there is a decision-making, there is a user group, there is a provider group, there is a technical group.

So, all these people will actually discuss the real aspects of it, in a virtual understanding. In fact, as a very important to see how even students have developed a model and brought to me that this is how we want to propose and this is where they counter-argue with the director and how they can establish the funding mechanism, how they will establish the co-operative between community and the technical providers you know, this is all things have been discussed.

Because when you imagine yourself in a different shoe obviously, you think of many other practical situations and this was one of the successful which I can see.

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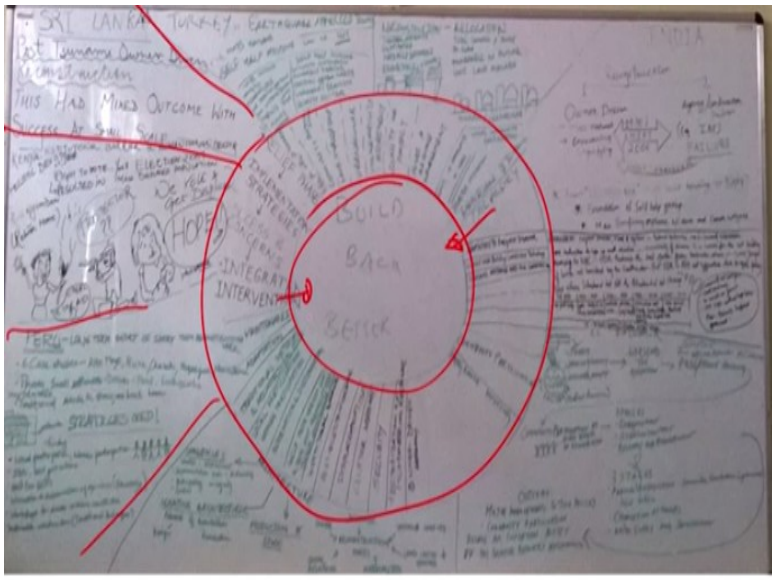

There is another concept, which I have used for teaching build back better is; I used to give them 2, 2 people in a group and then one chapter for the build back better, Michal Lyons and Theo Schilderman's work and then I asked them to read and analyse and make a critical review of their understanding, so then what I do is; I try to first this is a build back better and I leave this as an empty part first, I do not fill this so, this is the skeleton I give them.

And then I give them; each of them a segment of the; this is my blackboard actually, so whatever the discussions we are getting, what they learnt I try to ask them to summarize in this

part so, the moment they are summarizing then I asked them to keep what are the keywords which are informing this so, in that way you can see a very important keywords or security, adaptation, traditional knowledge you know all those things are coming into the picture which is informing the build back better you know, that is how I try to put.

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And then we ask them a big poster, in that process, what happens is the people who do not just study their chapter and forget it, they will summarize it, they will portray it and it becomes a memory for them. Now, if you look at all the circle here, these are all various tools what we learnt, whether it is an insurance, whether it is the participation and all these things.

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So similarly, the end of the workshop will be like this. So, and more importantly, I try to cover different geographical positions like Kenya, Pakistan, Australia or Turkey, China you know, the

variety of geography conditions Lima, Peru, so how they have adopted, how they have faced, what kind of tools they have used, what are the successful things, what is not.

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So, this is how I was trying to develop various methods and obviously, these are all my trial and error process, I am also learning and whatever I did and what I felt was more successful was some of the tools. Here, this the cognitive and effective and the psychomotor skills I tried to addressed in a balanced way because it is not just only by theories and concepts you put it on word and or even the software tools plugging in it but how one can actually critically look at it.

You know, one is by time-wise, how they look at it and by management perspective, how they looked at it, an integrated perspective how they look at it you know and a learning perspective at the end of the day, so this is what I want to present about how to teach build back better, thank you very much.