Innovation, Business Models and Enterpreneurship
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Lecture – 05
School of Innovation

Welcome back friends, we have some sessions in this course where we had some kind of introductory knowledge about various aspects of innovation.

We tried to understand the meaning of innovation; we understood some of the myths which are related with innovation. We also discussed the different types of classifications which are available in different books, different papers related to innovation.

And now moving ahead in this journey of innovation and business models; today in this session we are going to discuss various a schools of innovation. Now the question of schools of innovation arises because we are discussing innovation in a formal environment. This is a virtual classroom in which we are discussing this concept of innovation.

Now, we are we are discussing this concept of innovation and particularly innovation management in a classroom environment. So, what are the different ways in which we can understand we can practice innovation and therefore, this concept of schools of innovation comes to over mind.

Now, let us see what are the primary questions in front of us.

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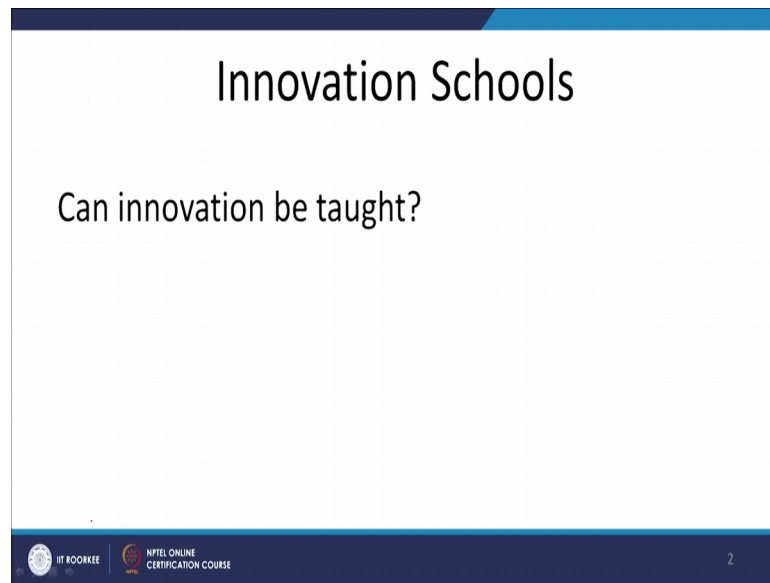
The most fundamental question when we take this session but can innovation be taught many of us keep debating on this particular aspect that can we teach innovation in a formal classroom environment.

Can somebody taught Newton about the principles of gravity from the concept of falling apple? I think it is a particular moment and apples were falling, even before that incident also. But something some moment; something clicked to the mind of Newton and that resulted in the concept of gravitational force.

So, those type of things; I believe cannot be taught, but there are large number of things. Like yesterday we were discussing in our other session about six sigma, about kaizen, about total quality management, the principles of new product development I believe that these things can be taught in a formal classroom environment.

So, therefore, the concept of a schools of innovation is a very valid concept; yes this debate is there that what can be thought and what cannot be, but when we classify when we go into depth of this topic, we realize that there are few things which can be taught in a classroom environment. And there are few things which are difficult to classify, which are difficult to teach in a classroom environment.

We were discussing that our brain is trained in two types of thinking process. One is the emotional way of thinking and the other is analytic way of thinking; the emotional way of thinking cannot be taught.

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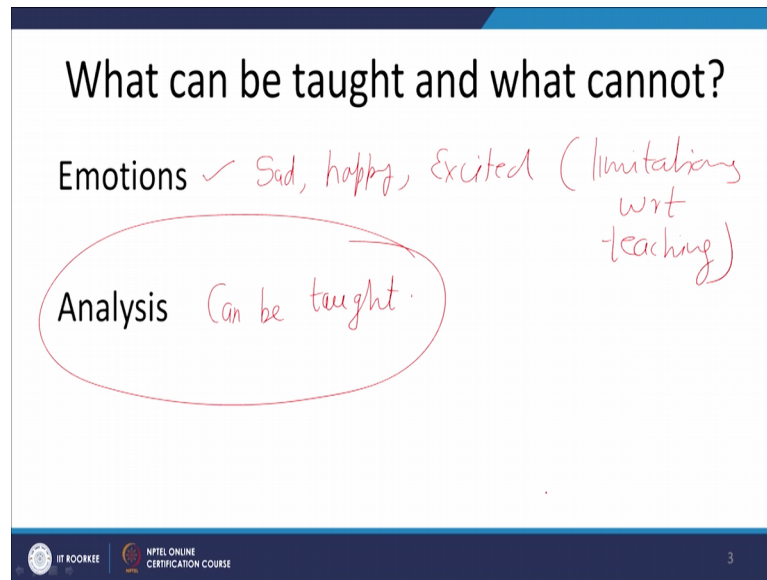
If you are in emotions, you become sad, you become happy, you are excited; these are different types of emotions. And it is very difficult to teach anybody that which moment, which type of situation will bring sadness in you, which type of situation will bring happiness in you, for which particular input you will be excited.

So, these are emotional things and emotional things are governed because of our culture, because of our society, because of our pears, because of our friends, because of our family because of some hereditary issues. So, all these things play a very important role in deciding our emotional part of thinking.

And I particularly believe that it is very very difficult to teach emotional aspects. On the other side you have analysis, which can be taught in a formal classroom environment. You can teach various techniques, you can teach how to use different tools, you can teach to analyze a particular situation.

So, large number of things which are in this particular course are revolving around this concept of analysis. We will be discussing how to do analysis of customer requirement; we will be discussing how to make experiments on the basis of your ideas. We will be

discussing how to make business models from the prototypes; we will be discussing good practices of diffusion of your innovation.

But the emotional thing which is equally important in the journey of innovation management; I think we have limitations. And limitations with respect to teaching, it is difficult for us to teach the emotional ways, to teach you how to express your feeling, which types of feeling comes from a particular situation these things are relatively difficult to formally teach in a classroom environment.

But certainly as I mentioning that analysis can be thought in a formal classroom environment. So, our school of innovation management discussion is mostly focused around this analysis aspect. But how are you analyzing a particular situation, how are you analyzing a particular idea, how are you analyzing the solution development process for a particular problem? So that all will be the focus of our discussion.

Now, when we are discussing that what can be taught and we agreed that analytical things can be taught. And particularly if I see from the organizational point of view, the awareness creation with your formal innovation management program; in an organization, you can create awareness for innovation, you can make campaigns, you can create buzz, you can lawn sometimes of competitive programs so, that more and more people know about of innovation activities in your organization.

So, that is the first important thing which can be taught that how to create awareness?

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So, this; how to create awareness? This can be taught because in some cases you can create awareness through positive campaigns. In some cases you can create awareness through negative campaigns, we will elaborate more in our future sessions , but it is important from the psychology point of view to know that in which situation positive campaigns are going to give you result and in which situation negative campaigns are going to give you result.

Sometime we go for vaccination, some time we go for vaccinations because we are having the influence of negative campaign, that if you do not take this vaccine, you may be caught by this virus.

And therefore, as a preventive measure we go for the vaccination and sometime we go for some type of vaccination because of positive campaigns that we need to remove polio from India and therefore, pulse polio drive is necessary.

So, this is a positive campaign that we want to remove polio from India and therefore, we should have polio drops to our child of 5 years old. On the other side there may be a threat of some virus and a negative campaign may be launched. So, it has to be designed appropriately and which type of campaign is suitable for which situation that is something which can be taught in the classroom environment.
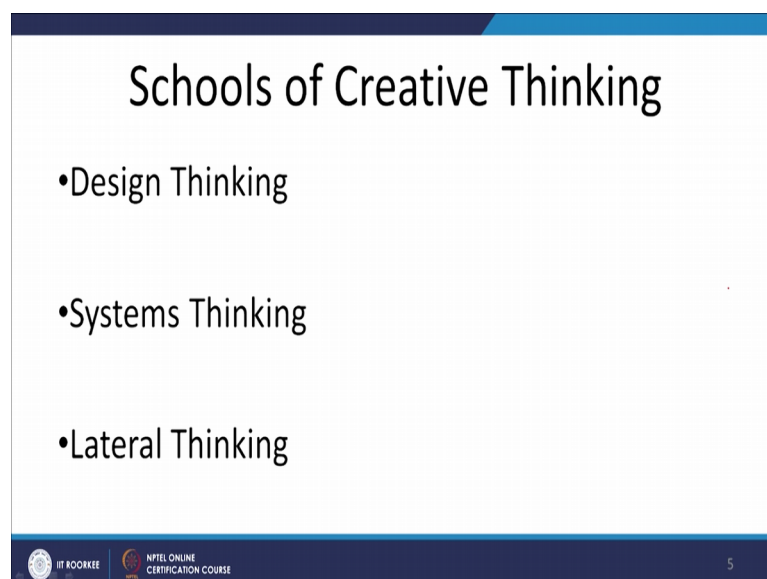
But another important thing we were discussing in our one of the session about the story of Hanuman and Jambavanth. So, that development of confidence yes you can do it, you can do it can also be taught. Because we do not know our potential and when a teacher, when a mentor tells us that this potential is inside you and therefore, you can do it. So, that is the development of confidence.

So, confidence development can also be taught and it is again a very very important aspect of management of innovation. Because when we do not have confidence we have that resistance to change and that can be overcome by the development of confidence, you can do it. And the third important thing is we discussed in one of the session about various myths of innovation that innovation starts with creativity.

Innovation is a simple linear process; innovation is about risk taking all these myths can be removed in a formal classroom environment. You know the reality now, but innovation begins with curiosity; you know that innovation is an iterative process. And it is an outcome of series of experiments and innovation means taking calculative risk, risk with mitigating activities also.

So, all these things we can teach in a formal classroom environment. And therefore, the concept of schools of innovation management becomes a very important concept. Now moving further let us see what are the important schools of creative thinking or schools of innovation.

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Three very important schools of innovation are mentioned in the literature and these are design thinking, systems thinking and lateral thinking. These are three important schools of creative thinking and let us see one by one that what do we mean by design, systems and lateral thinking.

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So, when we talk of design thinking which is nowadays one of the most popular school of innovation programs. Now the design thinking says simply as this word design is there. So, it means that you want to use the principle of design; this design principles and the innovation.

So, we want to use the design principle in innovation that is design thinking. And now the obvious question in your mind is that what is the design principle? So, to answer this question that what do we mean by design principle? How we can bring those design principle to innovation?

So, it says that that is very very important for us to understand that design principles are not problem focused, these are solution focused.

So, we need to change this approach that whenever you talk of India, whenever you talk of India and we start complaining about n number of things. In India, there is corruption, in India people are lazy, in India people do not care about their hygiene, in India people

do not want to work, in India there is no system, in India there is no governance, in India people fight for petty things; so, many your list is endless.

So, that is not a designers mindset because you are problem focused; you are only focusing on the problem that what is not there. But a designer mindset is this solution focused, you focus on the solution that how we can use these opportunities, these problems are opportunities and how can we develop a solution for that.

One of the problem can be nowadays because you have good roads, good highways and you also have very good automobile. And now the problem of because of that is of the over speeding; so, problem is over speeding. Now considering this problem what type of solutions you develop so, that it becomes attractive to drive your vehicle within the speed limits; that is the solution focused approach.

So, the design thinking is a kind of paradigm shift; from problem you are moving to solution. And with the change in this mindset from problem to solution, we try to create a preferred future; a future we want to develop those things, those businesses, those services which are liked by the customer, which are liked by the stakeholders. And in that this approach of changing my focus from problem to solution is very very important.

Now, going further to understand this design thinking concept people will give you different types of inputs.

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One important thing is that design thinking approach is the human centered approach of design human centered approach of innovation.

Now, what is human centered approach? To further give you the explanation of that qualities like this approach of innovation, this is school of innovation emphasizes on empathy; this also emphasizes is spending time with people to observe their behavior, their emotions, their anxieties and aspirations.

All these things are important element of design thinking the school because it is human centered. The user the one who is facing the problem the one who is looking for the solution of those problems that person is in the center of my discussion all the time.

So, the human centered approach; the meaning is the user is in the center and then I keep close watch on various characteristics which are peculiar to my user. And therefore, this is very very close to the concept of marketing also.

In that also, we say that customer is in the center of all of our discussions. And here we are not using this word customer rather we are saying the user or human centered approach. And then we see the behavior of my this user that what is the purchasing power, the emotions, the anxieties, the aspirations etcetera etcetera more characteristics can also be added.

So, these things are the core of my design thinking approach. Then the enabler for design thinking to take place that is prototyping because in design thinking the idea is rapid iterative improvement and that rapid iterative improvement has become quite possible with the concepts of prototyping; without prototyping it was very difficult to implement design thinking.

But thanks to technology that you have now solutions like 3D printing which help you in rapid prototyping. And with your idea you can easily do large number of iterations without involving huge cost.

Because earlier when these types of technologies were not there, technologies like 3D printing; it was a heavy cost to do experiment with your idea. And doing experiment was a costly idea and then doing iteration was even more costlier.

But now because of 3D printing; you can do rapid iterative improvement and therefore, design thinking has become one of the preferred school of innovation in the current scenario. And then you also need to collaborate with cross functional teams because you are handling different types of user needs, you are handling human centered design.

So, in that human centered design you sometime are talking of quality, sometime you are talking of cost, sometime you are talking of delivery a speed etcetera etcetera; sometimes we are talking of new features. So, these different types of aspirations of your customer can only be fulfilled when you work with cross functional teams. If it is only limited, if it is only limited to let us say new product development department NPD.

The department which is primarily responsible for developing new products, if it remains restricted to that department only that it will be difficult to achieve various aspects, various aspirations of new design. And therefore, this cross functional teams are very very important in a design thinking related innovation school.

So, design thinking is basically you can say that it is human centered, it believes on rapid iteration and for that purpose prototyping is a suitable technology. And to enable the design thinking, you should have cross functional teams. Some of the good examples of design thinking which may be controversial also to some extent , but the example like demonetization in our country; it is from my point of view a very good example of design thinking.

The reason is very simple when demonetization activity took place at that time initially government had some kind of broad idea that how are they going to implement it? But during the period of implementation itself, they were continuously taking feedback from the public. So, it becomes a human centered approach because you are continuously involved, you are continuously spending time with the people to observe their behavior.

So, regular feedbacks were coming and on the basis of those feedbacks, rapid iterations were taking place. So, if you remember initially you were allowed to exchange 4000 rupees old currency note over the counter. But with the feedback this increased to 4500 rupees because people thought that 4000 is too little amount.

So, government increased the limit to 500 rupees more and it became 4500. But then the feedback came that there are people who have lot of black money with them and they are putting people on wages in queues to exchange their old currency notes.

So, government all of sudden reduced that limit of 4500 rupees to 2000 rupees and again the message came that people are still using hired people for writing their notes exchanged. So, government decided not to exchange any old currency note over the counter.

So, if you remember during those days of 2016 November, Reserve Bank of India used to give guidelines almost on the daily basis. So, that is rapid iterative improvement and in the lighter mood; people used to say that Reserve Bank of India had become Reverse Bank of India.

So, rapid iterative improvements also took place and we know that within 1 or 2 months everything settled down and people started using new currency notes. So, that is how design thinking takes place that it was human centered that approach it had the elements of rapid iterative improvement. And it was collaboration between various teams the team of Reserve Bank of India, teams of various commercial banks team of local police, team of intelligence units, team of Government of India.

So, all these different types of functional teams they collaborated for the implementation of this idea. So, therefore, I say that demonetization, the implementation of demonetization was a very good example of design thinking.

The other school of innovation management is systems thinking.

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This is from the concept of system, where if you go to class of operations management; we say that operation management to be a studied as a systems concept.

Now what is that system concept? That it says that all the system, all these systems in this organization, in this world, in this institution are made of various smaller systems like this and these systems are interconnected.

So, I am making a very simple system here and from here it is input and output comes to this side and there are four subsystems in this bigger system. So, this is the overall system and these are subsystems.

And now this is these systems concept that each system is made of various subsystems. And you need to identify how these subsystems are interacting with each other to deliver some kind of output from the given inputs.

Now, according to this systems thinking, you need to find a point of leverage; now this point of leverage maybe this is point of leverage; the subsystem 2. Now what is the meaning of this point of leverage?

The meaning of point of leverage is that if I concentrate all my energies for improving this subsystem 2, it is going to give me system wide impact; it is going to give me the system wide impact. The meaning is if I concentrate on this point number 2, this is going to give me the benefit which I can see at each a stage of my this overall system.

So, I say that this is a silver bullet concept, this is a silver bullet concept that if I target this point number 2. So, this is going to give me much higher return as compared to inputs as compared to my efforts; which I am putting to target this 2 number. So, that is the silver bullet.

So, we are in search of silver bullet in this system thinking concept that is very very important. But many a times as managers for us it becomes difficult to identify this point of leverage that where is exactly the problem in your system. And if you can identify, then you can see that how you can get the return of that particular thing in much much times or many folds.

I am mentioning two important ah books you can say or two important resources, the one is the fifth discipline by Peter Senge. In this book Peter has mentioned that nature also gives you some kind of signals to identify the point of leverage that where you should hit your silver bullet so, that you get maximum return on your investment. So, it gives you an idea to understand the natural phenomena. So, you can read this book and you will have more insight in identifying the point of leverage.

The other important concept which is available from the book of Goldratt, the Goal in this book Goal Goldratt has given a concept known as Theory Of Constraints; TOC which stands for Theory Of Constraints. Now in this concept of theory of constraints; again the idea is to identify point of leverage in your organization and hit this silver bullet on that point of leverage. And as soon as you improve this point of leverage, you will find another point of leverage in your organization.

So, this exercise keeps going; you improve today this point, you are today hitting this point number 2; the point of leverage tomorrow it can be point number 3 because now you have improved point number 2. So, you see the only point which is restricting, only subsystem which is pulling down the performance of your organization is point number 3.

So, now you will work to improve the point number 3; once your point three is also improved, maybe tomorrow point 1 will become the point of leverage. So, in this way you will always have points of leverage and you keep on working from one point to another point. So, this is the concept of systems thinking.

The next is lateral thinking the third concept is lateral thinking; in this lateral thinking the idea is very simple that you create new idea, you create new idea from known ideas. The meaning is you have some idea which is already implemented in a particular context.

Now you are taking this idea from one context to other context. For me to some extent the IPL from Soccer the Soccer in Europe is played in the franchisee mode. So, this idea known idea is there and with the help of this known idea; we started the game of cricket as a franchisee in India that is the IPL.

So, this is the lateral thinking and a very popular technique which we can imply to implement the lateral thinking is this 6 thinking hats, where you see there are 6 people in a group in a brainstorming session kind of thing and they wear different types of hats different colors of their hats white, black, red, yellow, green and blue.

The white hat person gives you the basic information, facts about the problem. The green hat person gives new idea on the basis of those information, he is a very creative person , but black person creates barriers , he asks questions, he is a kind of negative person you can say simply. And red person is a kind of intuitive person, things on the basis of emotions. And yellow person evaluates the new ideas proposed by a green person and the blue hat person he is kind of a moderator of the group, he manages the entire process.

So, here what happens the white hat person and the red hat person; they keep on giving you information and their emotions. And on the basis of that other persons develop the ideas, evaluate those ideas and black person always help the negative person helps in getting those ideas more clear, getting the clarity about the ideas by raising different types of question.

So, it warns you against possible dangers so, but in our normal language we say that he is a kind of negative person, but he helps the group about future potential dangers which may be there. So, this is one type of tool technique which is available to us so, that you can implement the idea which is there in a particular context like if there is an idea of solid waste management in the European countries. So, how can you take that idea to implement the solid waste in our country like India?

So, those types of things are possible with the help of lateral thinking. So, this is another school of innovation where the focus is more on implementation, the idea is old, but with the that old idea how we are implementing it into a different setting that is the lateral thinking. So, we discussed in this session about three important a schools of innovation these are design thinking, systems thinking and lateral thinking.

So, depending upon the kind of situations; you may use a particular type of school of innovation. And in our rest of the sessions, we will be taking clue from these different a schools of innovation as and when required.

Thank you very much you.