Six Sigma
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Lecture – 07
Quality Management: Basics and Key Concepts

Hello friends, let us go ahead in our journey of Six Sigma. I welcome you to the 7th lecture of this online course on Six Sigma and this lecture-7 will have basically deal with Quality Management Basics and Key Concepts. If you recall, then repeatedly I told you that you cannot just implement any continuous improvement program whether it is Six Sigma or any other unless you fulfill and satisfy certain prerequisites.

If your organization and people are not open to change, they do not have an adequate attitude for adopting the improvement practices, then any kind of continuous improvement program will miserably fail and you will unnecessarily lose lot of money, effort, investment, in implementing such program. So, this lecture will basically try to explain that what are such prerequisites what kind of outlook an organization should create before they really implement the continuous improvement programs.

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So, broadly I will try to say emphasize on quality, imperatives of quality, learning organization, total quality management which is an enabler for implementing six sigma and lean kind of initiatives and we will see that many a times people they confused

between TQM and the ISO which is more certification requirement and documentation. So, what is the difference and how we can really take the advantage of both?
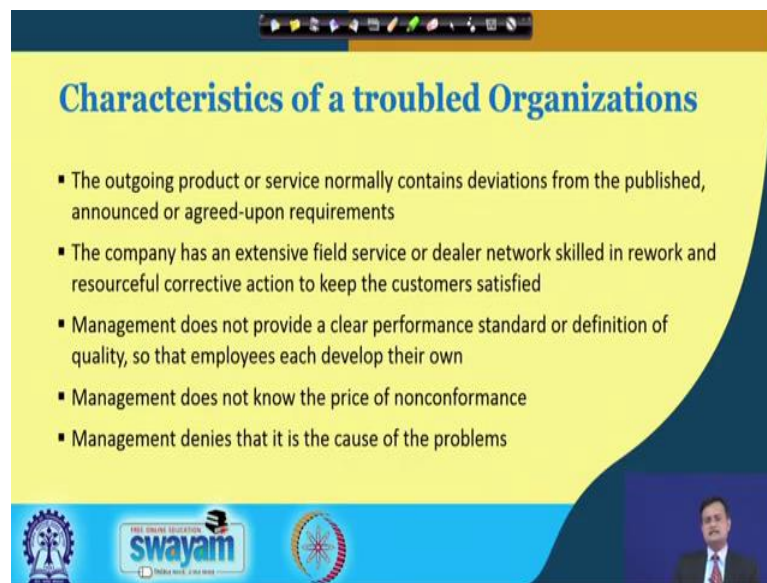
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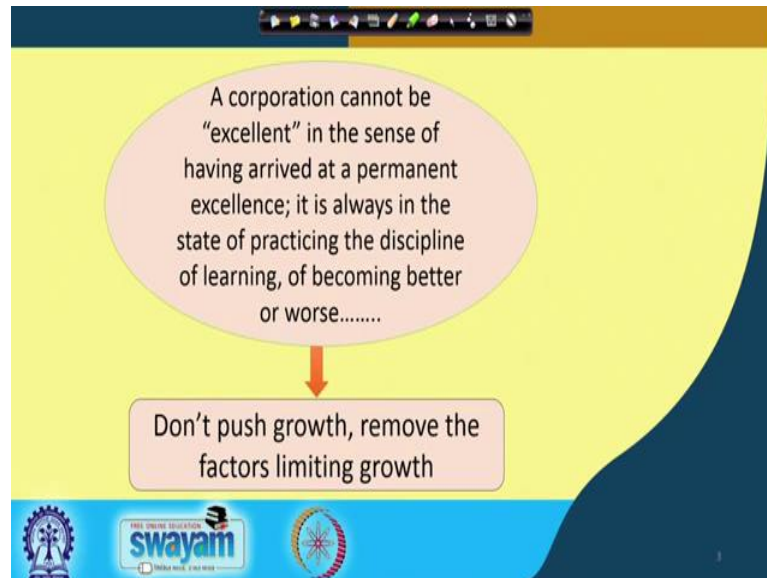
Let us just see that a corporation cannot be excellent in the sense of having arrived at a permanent excellence. Many a times we say that excellence is a journey and we can never say that I have reached to the point where this is the ultimate and no further improvement no further achievement is remaining. So, a corporation exactly is like a body cannot be excellent in the sense of having arrived at a permanent excellence, there is no other thing to achieve; it is always in the state of practicing the discipline of learning, of becoming better or worse there is another negative impact also.

So, either it is improving, it is becoming better; or sometimes if the attitude prevailing in the organization are highly negative, then the performance will go down. So, here we should say that do not push growth remove the factors limiting growth and that is where Peter Senge the leading author 5th discipline and advocate of learning organization says that you cannot push growth.

We always say that I may take the horse to a river, but I cannot force it to drink the water. Similar is the case you may implement one after another many continuous improvement programs and many organizations people they have wasted huge amount of money, paid hefty charges to the consultants and finally, they found that this program is not working let me off for another program. Another program is also not giving me the

desired result, they keep on implementing various jargons of management, and finally they improvement realize is either marginal or negative. So, you cannot put the growth you must create the conditions in which the organization, people, system automatically they look for the better state and improvement.

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So, let us see that when I say the organization has resistance, organization has an inertia, organization is not open to change, then what are the characteristics of a troubled organization. So, the outgoing let us say product or service normally say contains deviation from the published, announced or agreed-upon requirements. So, either to your final customer or the manufacturer in the supply chain, whatever commitments you have given, you are too much deviating. It is something like a teacher will declare a course outline at the beginning and finally a student may find that whatever topics were committed at the beginning hardly 30 percent is covered. So, anywhere whether it is a service organization, your promises must be met and if an organization continually fall behind in this, then it is an indication of trouble.

Second is, the company has an extensive field service or dealer network skilled in rework and resourceful corrective action to keep the customer satisfied. I am asking you a very simple question, would you like to have a product which is robust enough to give you the service for an intended period of time and you need not to bother about service after

purchase or you want a product in which lot many services after sales services would be required and company would offer you the services timely.

So, if you just give a thought, you will realize that I want a product which is robust and must give me satisfactory services. I will replace the product, change the product after 10 years, 15 years and I may go for the better version of the product, but I would not like to be troubled with so many service request and then waiting for the service person and correcting it every time, I may have to pay the money and so on.

3rd point, management does not provide a clear performance standard or definition of quality and employee they develop their own. Now, you see the organization where everyone is a CEO, how do you like. So, here it is a situation where company they do not have the standard for quality, vision or even if they have it is not properly internalized by the people in their work practices. And this is another indication of a troubled organization.

Management denies that it is the cause of the problem, it is a very, very dangerous and serious issue. Management altogether denies it is a cause that it is the cause of the problems so, when you do not introspect and accept, the problem is the problem, you will realize that even the best doctor, best medicine cannot help you. So, there are some of the characteristics of the troubled organization.

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It is again a time to review some of the definitions of quality value or worthiness for money. Why should I pay, why should I purchase the product, when today I have huge amount of products available on internet as well as in the market physical market. Fitness for use of purpose, if a product is not fit for use or the purpose and giving me trouble, I am not able to say communicate properly with my mobile handset, I am not able to perform the necessary operations on my laptop, what is it utility?

To do a right thing at first time and at the right time. So, do it right is the spirit that is always advocated by six sigma. Find and know what customer wants, I might be offering excellent product in my view as a designer loaded with so many features, customer do not want it. Customer says you give me something which I want and I am ready to pay for that only and then features that customer needs and satisfy them and conformance to standards.

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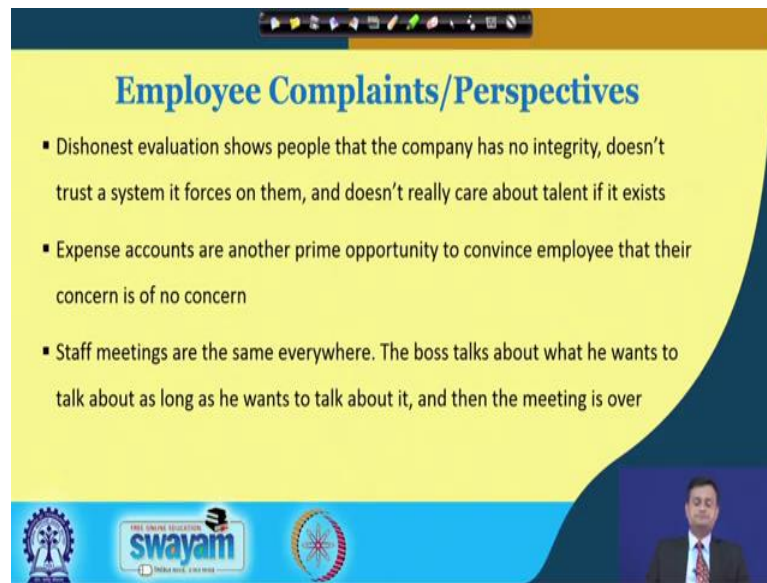
So, various imperative we have seen that missing the quality means missing the market not indigenously, but the global. There are economic interpretation and sustainability issues. Intensified competitions and improving competitiveness is the utmost imperative.

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Now, you see employee complaints and perspectives. When your organization they do not believe in following certain system procedure which leads to the quality and good practices, it is also reflected in the voice of the internal customer. So, internal customer is my employee. Let us see what do what do they express. They will say dishonest evaluation shows people that the company has no integrity, does not trust a system it forces on them and does not really care about talent if it exists, I will just quote one or two example.
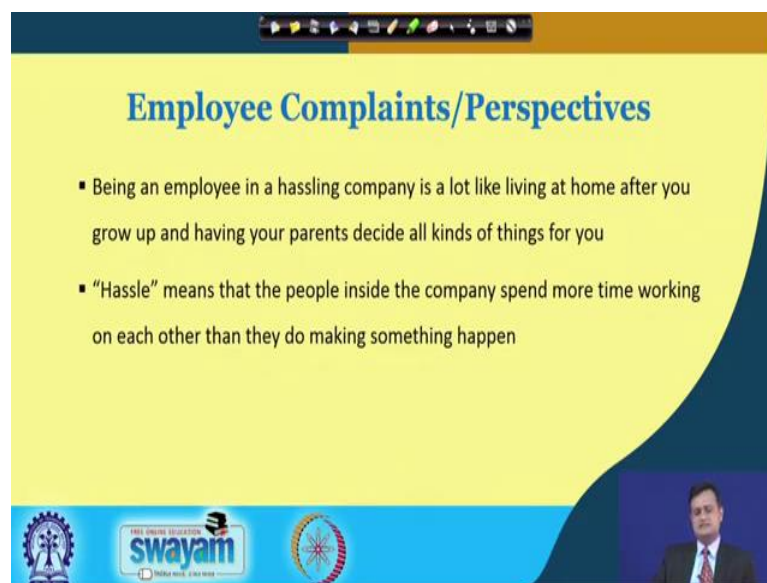
For example, let us say you have an excellent employee, highly skilled in the let us say financial area and now instead of utilizing is education, training, skill experience you are just putting him in this stores for very limited amount of work financial aspect, then this is the 8th waste we always say in lean is the underutilization of the person.

2nd, company says we guarantee 5 sigma, we cannot supply the product if the quality rate is so high and then one day to satisfy the customer and meet the shipment requirement, they convince the quality manager and production manager to pass the inferior quality product to the customers. Now, in both the cases you will see that employee will lose their confidence in the policies of the company. They cannot see the transparency, they will see the duality in their behaviour and that will not motivate them to commit for the best practices.

Expense accounts are another prime opportunity you can see to convince employee that their concern is of no concern. So, how much money is spent on various aspects on prevention, or appraisal, training, education. So, all these again will help the employee to understand that to what extend companies committed to quality.

3rd point, staff meetings are the same everywhere. The boss talks about what he wants to talk about as long as he wants to talk and then meeting is over. This is not a quality culture. If somebody will act as a dictator and does not allow the other people to share their views express their experiences, then this is not a quality culture. In such kind of environment, people will come to meeting they will listen under compulsion, but you cannot expect them to be creative and to be proactive in handing over in delivering their ideas, their experiences which can really benefit the company.

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Another symptom we can see that being an employee in a hassling company is a lot like living at home after you grow up and having your parents decide all kinds of things for you. So, many a times, when you cross a particular age you want to take your decisions, you want that you should be empowered, you should be given financial freedom and you can really operate with your own choice. So, typical when you are working in hassling company, where you do not have any autonomy, empowerment and every day you have to worry about your job, then again your moral and motivation for quality will go down.

Hassle means, the people inside the company spend more time working on each other. Politics I mean is not a bad word, but many a times we use it to explain the situation that people are working on each other. It means they are not interested in improving their own portfolio; they are more in the blame game and try to justify their stand by coating the poor performance or inferior performance of the others.

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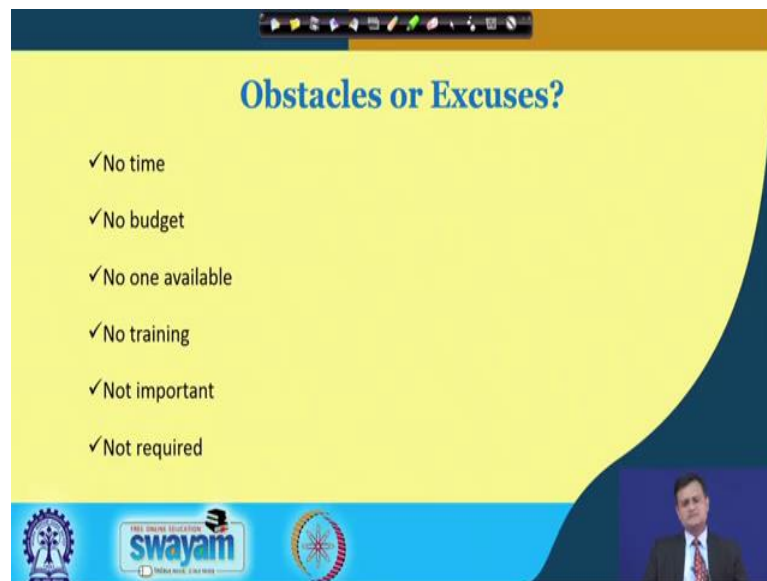
There are various obstacles and excuses we often say seen the hassling company no time. If you go to a person, he will say I do not have any time, I am busy, I am loaded. The desk or the table is always loaded with lots of papers just sitting there since last 2 years, never open, never worked on it. No budget, no one is available to attend. I am I am going to restaurant and waiting for a waiter, but nobody is coming and I just feel extremely bad. No training, people they do not know how to give the service, how to manufacture the product and this poor skill level ultimately have very severe effect on your quality. Not important, not required and they always try to shadow the problems shadow the causes and this leads to say poor sigma level, poor quality level in the organization.

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There is one very important concept as a part of quality culture we must appreciate there is something call quality ownership. So, who is responsible for quality? The great question. What is your answer? Is it the inspection department, who puts red tag, yellow tag, green tag? Is it the manufacturing department, who manufacturers? Is it the marketing department, you just see who brings the various customer requirements, conduct the market survey, gives the plan for the production and say manufacturing or it is a dispatch. Various people various internal organizations functions they are involved, and it is very difficult to say that quality is an ownership of whom? So, quality is not just the province of the QA personnel, quality inspector quality assurance cannot just put a tag of quality on the manufacture bare products and it will be ok.

So, everyone is responsible for quality and quality may get deteriorated for example, you are purchasing manager had not taken care and either let us say he has purchased inferior quality raw material when the good quality is available, you are at loss. Suppose he has purchased good quality material, but this is quite expensive compared to the same quality material available maybe indigenous or maybe in other country then again it is a loss.

So, is quality a necessary evil? So, there is nothing evil about quality, it benefits everyone. And in the organization, it is the responsibility of the top management to convey this message that it is not the quality which is the responsibility of top management or quality department, we all will grow and progress if the quality is there.

Just to share a very interesting example and we nowadays we receive many good examples, quotes on over Whatsapp. So, I would just like to share one once there was a meeting of CEO Tata and Ratan Tata. And he was interacting with the workers and managers, and executives all level. So, then first he ask that workers, what is your problem? So, then they were feeling very shy, but then they opened up, they said sir our toilets are not as good as or maintained as good as the toilets of the executives. Fine, Ratan Tata gave a thought for 1 second, 2 second, then he looked at the executives he said how much time you need to sort out this issue, they said give us 1 month and we will improve the quality of those toilets.

So, fine he said you just give me carpenter and I will do it within half an hour. So, fine, one carpenter was send and a very simple solution, you will be surprised to know Ratan Tata suggested that you just change the name plates. It means you just put toilet for executives, this plate on the toilet of workers and same way toilets for worker on the toilets of executives and within no time, the result was fantastic the moment ownership has change quality has improved. So, ownership is a very very important issue in improving the quality or sustaining the quality.

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So, quality comes at the end of the products right? No, it is big no. Your product is going through various, various phases and processes and unless you ensure right from the purchase, design, manufacturers, shipping everywhere then your quality is not ensured.

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There are certain learning requirements for the organization interested in implementing Six Sigma and such kind of initiatives. They must create condition for organizations to learn and develop. See, organizations they must have the mechanism to learn and gradually advanced. Taking action based on past experience and memory. Open, questioning environment; people should not fear, let there be open questioning, let there be unbiased say discussion and if you operate with the negativity, this leads to bitterness, resentment, purposeless life, ill health, high stress levels. So, you just see if your human being, if your employee is coming to the organization with all such kind of problems, do you really think that he can feel motivated to participate in the quality improvement programmes. So, this is absolutely not possible.
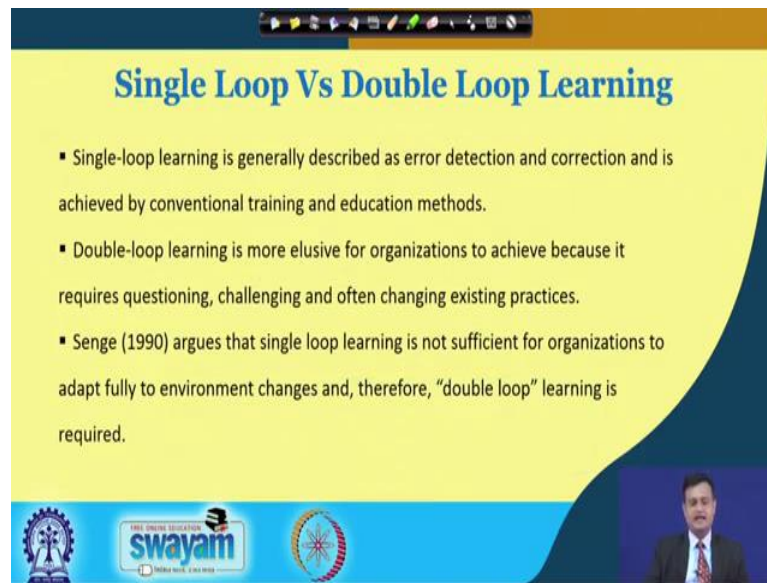
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And it is the responsibility of the organization to see that a good conducive open-ended, open-minded environment is created. Now, when we talk about learning that is the very important thing to discuss single-loop versus double-loop learning. Both have it is own advantages, but if you see the characteristic then single-loop learning typically described as error detection, correction and is achieved by conventional training and education method. So, you find the error you train the operator or you correct it by setting whatever that is one way.
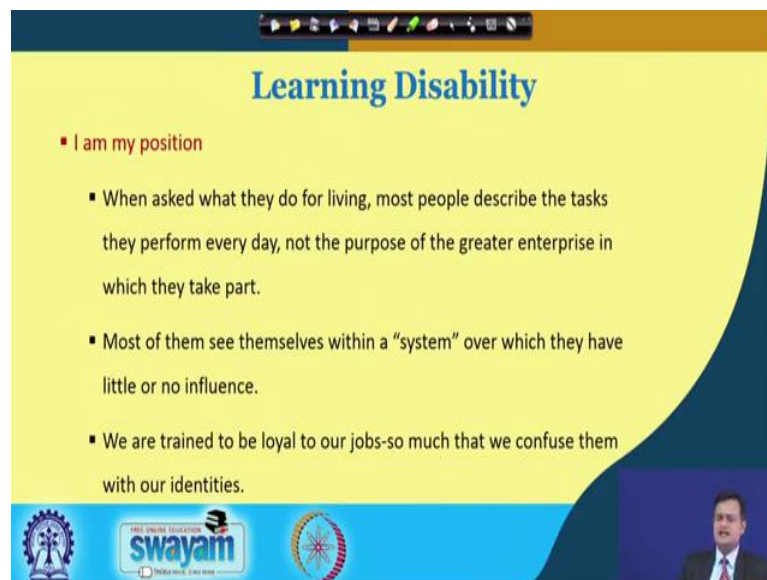
But this is not sufficient when you are talking about improving sigma from two sigma to three sigma to Six sigma. What is important is double-loop learning? And typically in this organization achieve higher and higher standard, because this requires questioning challenging often changing existing practices. For example, if I just say that your say there is a leakage of oil from the machine. Let us say this is the situation now, fine you will call an operator and say that change the ceiling or maybe some other component and leakage will be stop, once again that will happen.

If you go deeper and apply why-why technique you will find there could be many other causes for example, ceiling is not fitted properly. So, there is an issue related to training you may find that the ceiling purchase is of poor quality so, supplier quality is not good. If you further go deeper, you may find that the location of ceiling itself is a problematic area or the pressure apply it is a problematic area. Many reasons you will find you can

really dig out if you are working operating in a challenging questioning kind of environment. So, in double-loop learning, it is not only about accepting some conventional solution, but challenging the situation looking for the better alternative and when you really implement such kind of better alternative that leads to drastic improvement in your quality and the problems.

So, Peter Senge I mentioned he is a leader in the learning organization 5th Discipline is the classical book he has written and basically he argues that single-loop learning is not sufficient for the organization to add up fully to environment changes and therefore, double-loop learning is necessary. So, with this such small discussion on single-loop and double-loop, I will mention and emphasize strongly that if you want to really reap the advantages of six sigma, then your organization must satisfy the requirement of having double-loop learning at across the organization, across the functions even with the suppliers many a times. You do not give spoke to suppliers they have many good solutions, but you do not give them the scope and that is where you are not able to improve the quality right at the design stage.

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There are learning disability, I am my position is an ego problem. Most of them see themselves within a system over which they have little or no influence, you feel handicapped and if such kind of environment prevails, then your learning disability will get magnified.
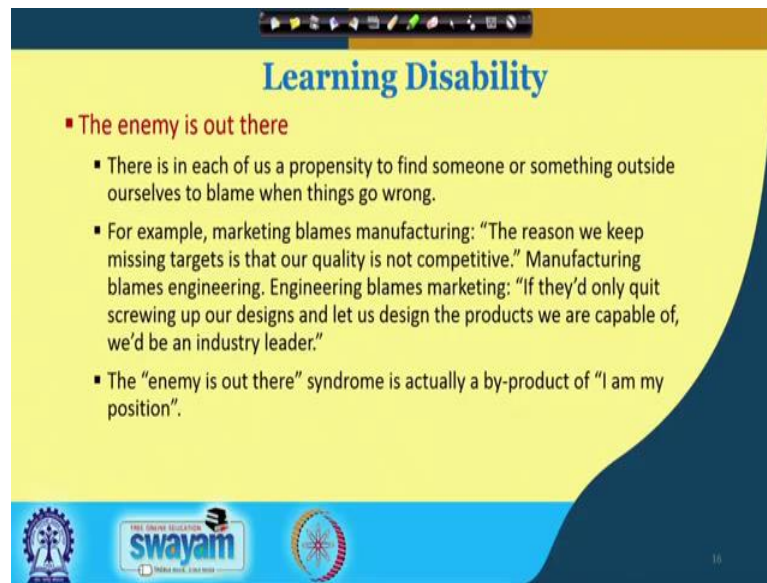
There is an interesting case of American steel Company and basically they were closing the plants in 1980's and it offered say some training to displaced steel workers for new jobs. But training never took; the workers drilled into unemployment and odd jobs and the crises was created so, it is a societal loss. When you are closing the company, your people they are losing the employment and it is not only one person, but three-four other members family members associated with these employee are also at the risk.

So, when they investigated looked into the root cause they found that the attitude of worker was like this I am a lathe worker; I am a milling worker. And they were never trained for cross functional area and over a period of time as inventory becomes obsolete, these workers they became obsolete. And finally, when they were removed from the job, it was extremely difficult for them to get the employment at other place. So, this is the problem if you are working in an organization which has a strong resistance for learning and improvement.

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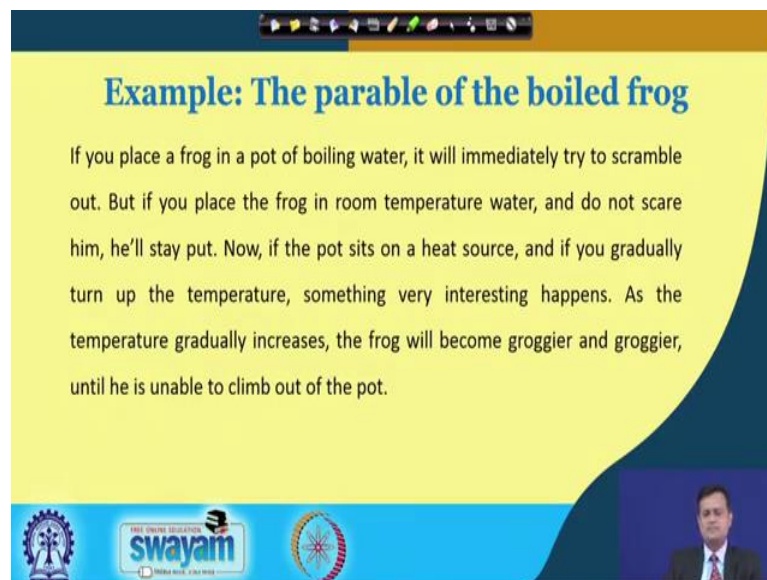
So, there are learning disabilities we may discuss the enemy is out there and syndrome is actually a byproduct I am my position.

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I will like to share one more interesting story on the parable of the boiled frog. So, the story is like this; once the frog was put in a vessel and gradually this vessel was heated and vessel in fact, initially say was kept at a very low flame. And gradually the temperature has gone high, frog experienced lukewarm environment felt groggier and groggier just to tell you that this vessel was not closed, so that was the scope for the frog
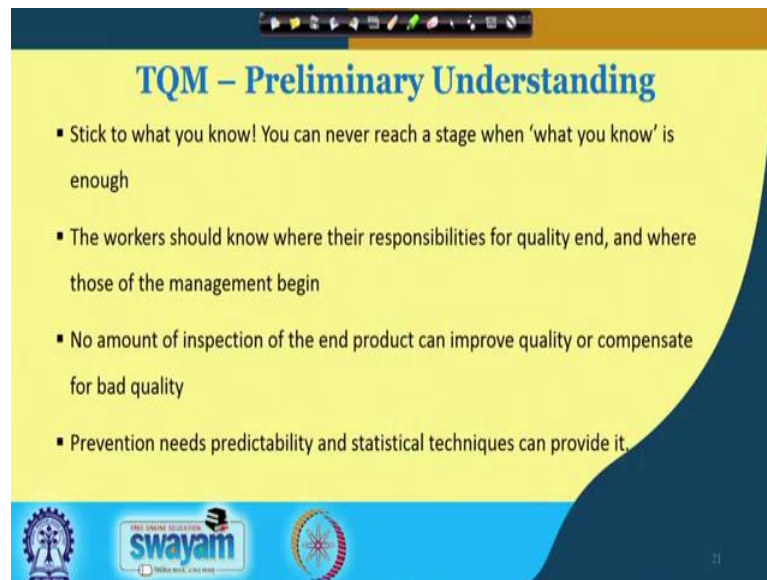
to jump and escape from these environment. But, this frog felt grogginess enjoyed really the lukewarm water. But, gradually the temperature increase and it reach to the boiling point 100 degree centigrade, can you believe this experiment had shown that frog did not jump even though there was a scope and it died. So, this is the example that when you are working in an environment organization not ready to change open have huge resistance, you finally die out and you do not look for the change or the better opportunity.

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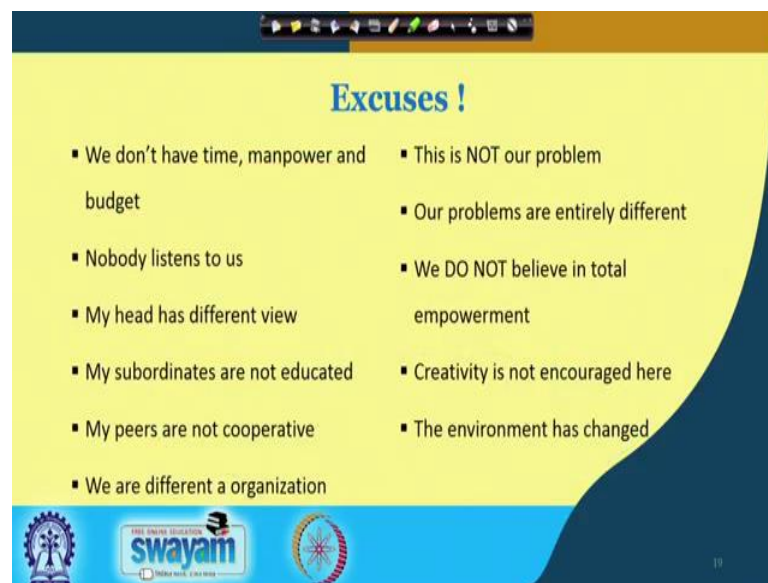
So, this is what we can say that there are thousands of excuses, we do not have time, manpower, budget, nobody listens us top management, they never ever concern for us, my head has a different view. We do not believe in empowerment, we want dictator kind of environment, creativity is not encouraged and so on. So, these all are the detrimental say issues when you are thinking about the six sigma.
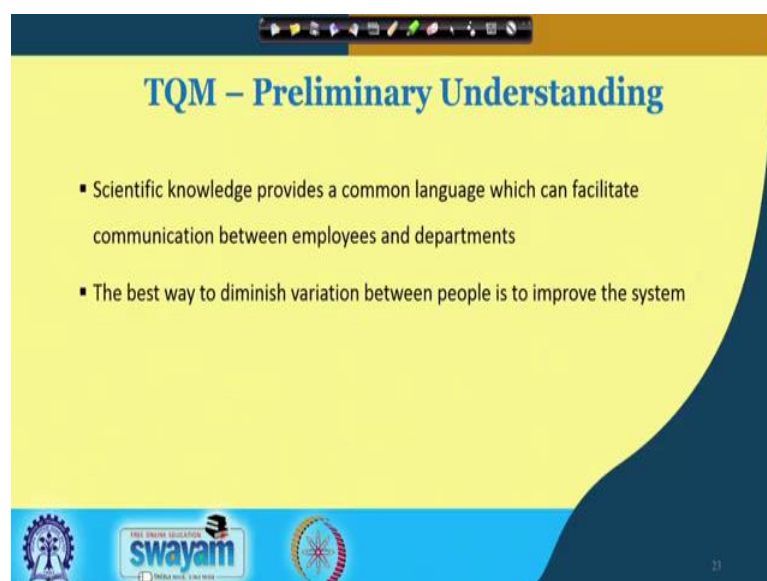
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So, here the crux lies in implementing something called TQM. So, total quality management in nutshell if I say it believes in empowerment of the people and it wants commitment from the people to see that they take the ownership of their own process. If somebody is working in a manufacturing department has an operator, then he must take the responsibility of maintenance of this machine also. So, TQM creates an environment of empowerment, where people they feel motivated to meet the final requirement of the customer. So, it is more customer centric, customer driven, processes empowerment of the people everything is put in to see that ultimate satisfaction of the customer is ensured.
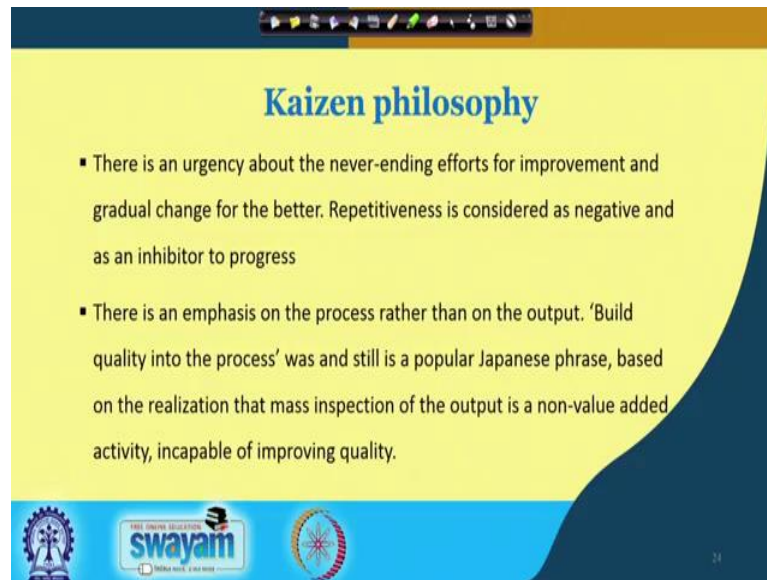
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So, you can see couple of things as I put and explained that the best way to diminish variation between people is to improve the system. You put the people in the right system, automatically they will try to achieve the desired standard and variability in performance skill level attitude will go down and your organization will improve.

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Kaizen philosophy

- There is an urgency about the never-ending efforts for improvement and gradual change for the better. Repetitiveness is considered as negative and as an inhibitor to progress

- There is an emphasis on the process rather than on the output. 'Build quality into the process' was and still is a popular Japanese phrase, based on the realization that mass inspection of the output is a non-value added activity, incapable of improving quality.

There is an interesting philosophy as a part of TQM or lean, this is called Kaizen. Many a times we ignore the importance of small, small improvements. Please remember if I invested 1000 crores rupees in the new technology, maybe 5 years back I have to recover the investment all of a sudden after 1 year or 2 year, I cannot simply sell it out and opt for the new technology. So, many a times drastic improvements are not possible that does not mean, we cannot improve the performance through small, small improvements. So, Kaizen basically talks about continuous improvement small, small improvements which can help you to build quality into the process and sustained your process is over a long period of time.

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So, Kaizen basically it is a Japanese word as you know, KAI means to modify to change; ZEN means think make good make better. So, Kaizen stands for make it easier by studying it making the improvement through elimination of waste.

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A small comparison I would just like to present between the ISO which is the certification and it helps to standardize the processes and hence the better assurance and control over the quality. TQM is a customer centric approach like ISO, but the philosophy tools and techniques little bit they are more oriented towards people

development training empowerment and that is the main focus. In case of ISO people involvement, empowerment these issues are not well addressed. So, this is the little difference between TQM and ISO. And TQM is organization wide varying, ISO typically is for a particular process function or the area and you get the ISO for that particular function.

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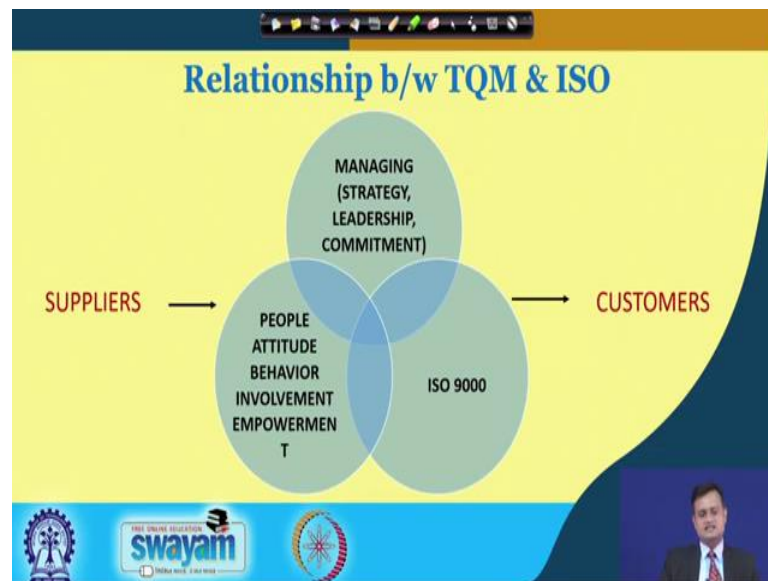
If you see the relationship between TQM and ISO in the form of Venn diagram, you have a supplier at upstream side and you have a customer at the downstream side. Now, you have three typical blocks managing strategy, leadership and commitment, people attitude. Second, behavior, involvement and empowerment and ISO 9000. So, when you really integrate this three, you can say that your organization is ready for adopting the challenge of six sigma and gradually whatever investment in terms of time and money you will do, it will definitely reap huge advantage in terms of quality improvement and profitability.

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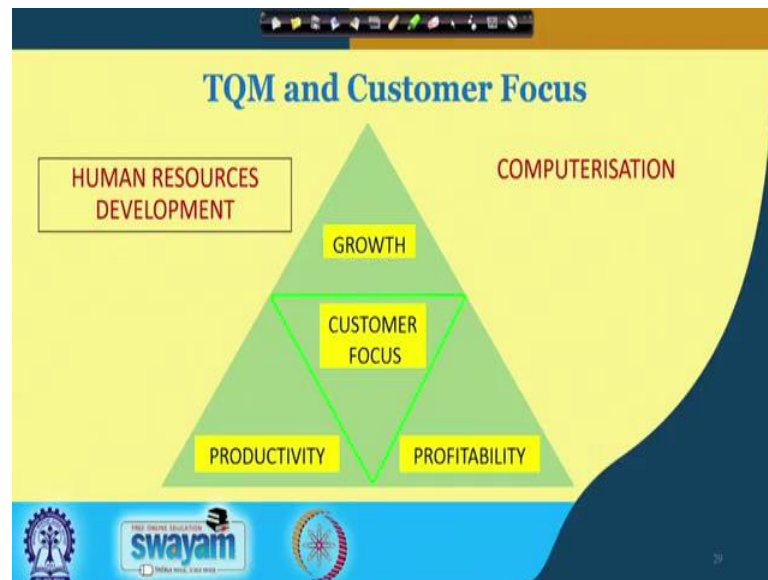
So, TQM and customer focus is in terms of growth, productivity, profitability and you target computerization as well as human development.

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To say before I end this session, I would just like to pose couple of questions for critical thinking at your end and this will also help you to have the recap of the entire session. So, the 1st question from my side what are the characteristics of a learning organization, and how it helps the organization to be competitive? Just to extend this question can you make a checklist of just 10 points and visit a company make the observations and rate

each particular learning has say attribute on a scale of 0 to 10 and identify what is the score of that organization on the part of learning.
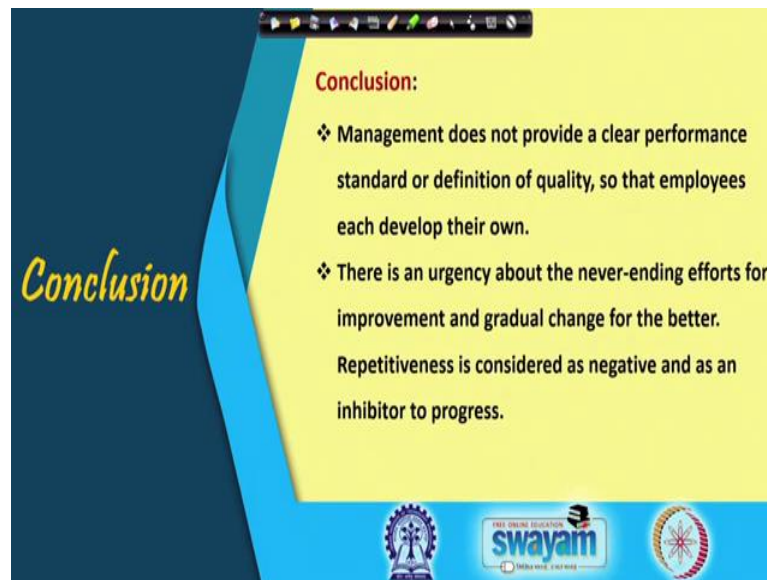
2nd what is the philosophy behind TQM? And how this helps the organization to be more dynamic in adopting the business environment changing the business environment and the standards? And what could be a suitable TQM model for the Indian organization looking to our own conditions, looking to our own skills at levels, attitude, culture, belief and how based it can benefit the organization?

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You can use couple of references for TQM. Logothetis N. Managing Total Quality is a very good reference. You can also refer the other books like Roderick for this Certified Six Sigma and Howard Gitlow for Green belts and so on.

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So, conclusion is that management does not provide a clear performance standard or definition of quality and hence the employees develop their own and quality gets deteriorated. It is an urgency about the never-ending efforts for improvement and gradually change for the better over a period of time.

So, with this note I thank you very much, I hope you enjoyed learning the various concepts on TQM, Kaizen, Quality, ISO, learning organization as a part of this session. We will keep discussing few more interesting issues in the next session. Thank you very much, be with me.