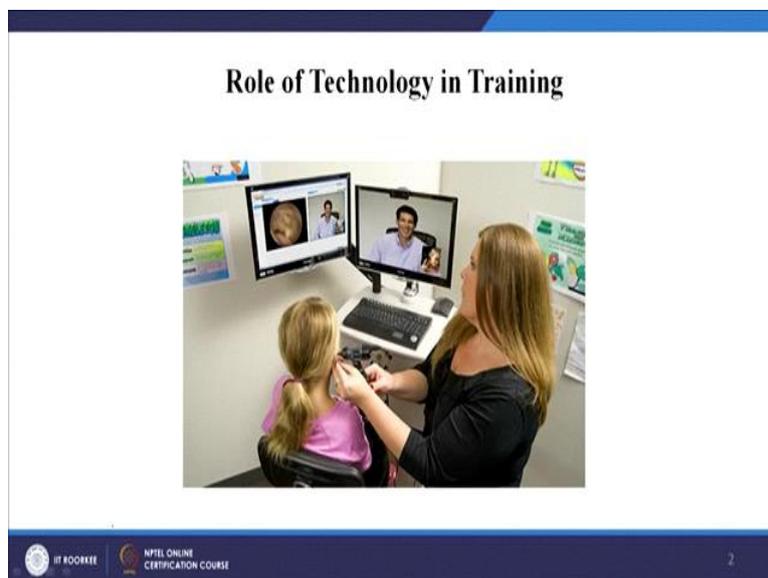


Training of Trainers
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Lec14
Role of Technology - I

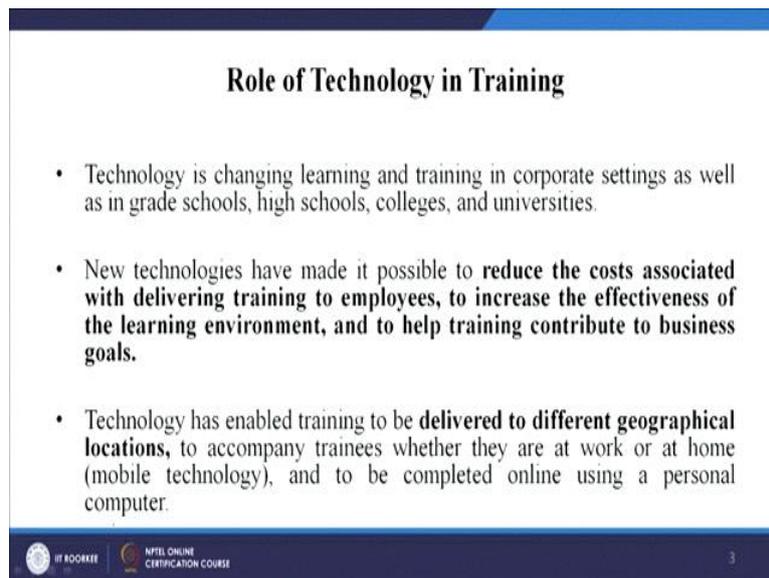
Today we will discuss the Role of Technology in training. With the period of time, the mode of training is also has change, I remember that is Professor Shri Rangnekar when he has started training programs and that time, he has made the audio and video for the training programs and he was the known for the use of technology in training, with the period of time, the trainings, the role of technology has change.

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Now, here we can see the picture and in this picture we find it is one doctor is, a lady doctor is showing the this picture of the patient and is report to the another doctor who may sitting at the long-distance, so it means that we also kept on reading that is the nowadays, these training to the junior doctors and all they are also possible through the video conferencing and visual aids, this type of training can be provided, so we will try to see that is the how we can use the role of technology in training.

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Role of Technology in Training

- Technology is changing learning and training in corporate settings as well as in grade schools, high schools, colleges, and universities.
- New technologies have made it possible to **reduce the costs associated with delivering training to employees, to increase the effectiveness of the learning environment, and to help training contribute to business goals.**
- Technology has enabled training to be **delivered to different geographical locations**, to accompany trainees whether they are at work or at home (mobile technology), and to be completed online using a personal computer.

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So with the as I mention, with the changing learning and training in corporate settings as well as in grade schools, high schools, colleges, universities like this, this particular training program, this NPTEL program is definitely an example, that is the how we are using the technology in training. Then new technologies have made it possible to reduce the cost associated with delivering training to employees.

Now, every time it is not possible for the organization to spare their employees and asked them to go, so one side their requirement is here at the workplace, other side is that is the cost of the training that is also to be reduce and therefore in that context, we see that it is these technology is helping a lot, this technology that the delivery to the employees is possible.

Another important point is this that is, it can be with their flexing working hours. So they can learn this online training programs during their, maybe the breaks, during the intervals or from the home and therefore they are the productive time that increases, simultaneously cost reduces. To increase the effectiveness of the learning environment and the trainer, if they physically also, when he is conducting the training program than that time he can use this type of this technological tools which I will further discussing and then they can create the learning environment in the classroom also.

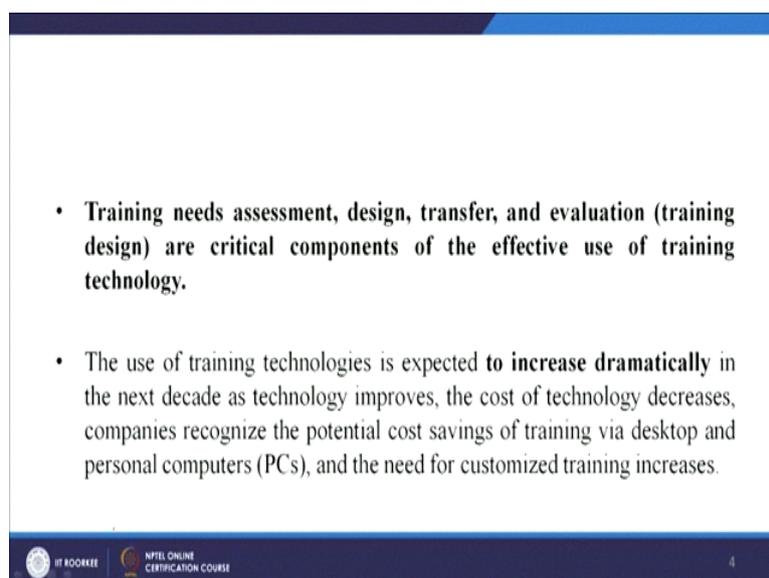
And to this all this refers in the corporate sector, they are leading to achieve the organization to their business goals, so therefore we see that is one side the effectiveness of the training is increasing, other side the cost is reducing and simultaneously at the same time, we are able to achieve our business goals. Technology has enable training to be delivered to different

geographical locations, that is across the globe, which is become very, very common and popular and in sometimes it can be the direct telecast and sometimes it can be the recordings also.

And therefore we find it is the You Tube is the another example, where the people are becoming very familiar to get training for different programs like many students they learn all the in a softwares for their analytical tools, in the executives they are learning, the many software is for their efficient managerial effectiveness and as a result of which, they are working from the home, mobile technology, then that becomes another important example and to be completed online using a personal computer also, that is also possible to conduct that particular training program.

In the other models I have discussed the needs assessment and therefore the technology can also play a very, very important role in the need assessments and when they are able to do this need assessments with the help of the technology, for example, they get the reports, the get the mails, they get the job evaluation or the performance appraisals or the potential appraisals and then on basis of that through the reports on there, through emails, then on basis of those reports they can make the need assessments and with the help of the different softwares the design of the training program can be done.

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- **Training needs assessment, design, transfer, and evaluation (training design) are critical components of the effective use of training technology.**
- The use of training technologies is expected to **increase dramatically** in the next decade as technology improves, the cost of technology decreases, companies recognize the potential cost savings of training via desktop and personal computers (PCs), and the need for customized training increases.

A simple example I am using here, the PowerPoint with the help of PowerPoint also we can make the use of the designing the program, we can make the use of the excel sheets, statistical and analytical skills, we can make the use of these different word files also, PDF

files also, different types of the files, different types of the videos and these can be possible to design and transfer the knowledge from the one person to the another person and from the one place to the another place, irrespective of the distance and therefore in that case we can conduct this type of the training programmes.

Then we talk about the evaluation that is a training design and this particular training design with the help of the technology, it is taking less time and more communicating and in better way communicating because with the help of technology, we create the pictures, graphs, tables and they are getting the more reflections on the learning environment, so therefore this becomes very, very critical components for the effective use of the training technology.

The use of the training technologies expected to increase dramatically in the next decade, now you see it is not the saturation, for example in the architecture today there is new-car has been invented and this new-car which will be having the tyres working on the robotics and through artificial intelligence, and as a result of which that car will be able to ride on the hills also, even hills also.

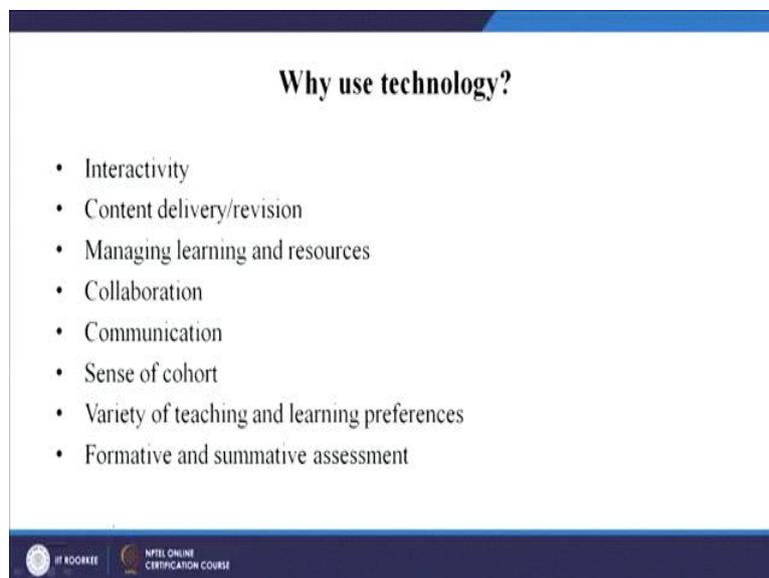
So, therefore if this driving skills for this particular car has to be given, that car, even that trying to make it use and in the space also, transportation in the space also, now if this type of the very high targeted goals are there, then definitely that is use of the technology that becomes very, very important, for example when we talk about the robotics in artificial intelligence, then they are becoming the mechanisms for the this type of the training programmes. And in the next decade, there will be more and more improvement in this type of the tools and techniques for use for the training programmes.

The cost of technology decreases, companies recognize the potential cost, now this is also very, very important, it is not only that is the in this particular financial year, the cost will be reduced but it is will also that is the we are saving the potential cost, so what will be the cost in future and that type of the cost will be reduced, cost saving of training via desktop and personal computer, PCs and then now the sharing of this personal computers and desktops that is becoming the very, very common feature and the one can share personal desktop, personal computer to the his professional on the office computer and therefore in that case the need for the customized training needs, that is going to be the increase and as a result of which the training is becoming more convenient, more effective, more economic.

So technology is becoming a very great support to the use of mechanism for the training programs. So normally another important aspect is that is the, it is not necessary that is the this type of the use of technology that will be one-sided, for example, the recordings are there, but like in this program, there will be the interaction on this particular recording, the learner learns and after that he can help the questions and then that can be also used in a interactive way, when we are talking about the videoconferencing, when we are talking about the conferencing in WhatsApp, when we are talking about the conference with the number of the trainees at the same time.

Then definitely this type of this studios they help to be more and more interactive and when there is more interactivity is there, the learner first goes through the lessons and then he interacts with the source person on the basis of the whatever doubts he is having, then he can clarify, so that interaction at this particular place that becomes very, very common and therefore when the making the use of technology, so it will be more and more interactive also and not like in the old technology that is your having just the videos and then you are not able to interact at the same time with the resource person, so here the interaction is also possible.

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Now, when we are using the technology, so you can cover the large canvas and therefore in that case you will find that is the contents which we are using that will be more, the training will get the more input which he may not get into the classroom training and therefore in that case, in the short period of time more learning and therefore the use of technology that is becoming more and more efficient.

Simultaneously, that is a person is not very clear, then he can repeat that particular video or that particular source of technology and by revision he will learn that is, the more and more content, more and more utilization of content, revision of the content and then wherever he can pause and he can ask the question, he can also understand in detail, so therefore that revision is there, but if it is the one to one training, direct training in the classroom training is there, then the revision is possible when also but it will taking more time, more costly and maybe there can be the some doubts, so therefore, in that case its content delivery are revision, is very, very much possible with the use of the technology.

Now managing learning, a learner how a learner learns? So, now we know the social cognitive theories of the learning and therefore with the help of the social theories the learner learns, so here, he will be able to manage his learning for example, the timings, so he can in the resources, we know the resources are manpowers, so with the help of the manpower when the manpower is not available in a given time with this technology, he can use the manpower.

Second is machinery, machinery, the use of machinery, use of technology that is also possible, third is money, so financially it will be for a learner managing his financial resources that will be more economic, then there will be the materials, so whatever the materials he is using he can have the revision, the study material for example, he can have the revision of the study material, he can get the soft copies of the study material and as a result of which this, he will be able to manage the material.

So in addition to the man, machine, material and money, nowadays you talk about the methods, I will be discussing the many training methods and demonstrating the training programs, so therefore in that case, this type of the resources that can be managed with the help of technology and therefore the methods can be also used and the finally it is a minutes that is a time management.

So, therefore we are making, here when we say that is the managing, then in managing we talk about the resources, the resources are that man, machine, material, money, methods and minutes, so this six resources can be managed with the use of the technology, but not only this management, we can talk about the functions of the technology, then the functions of the technology like in planning, so role of technology in managerial function of the planning, the scheduling, the session plans that can be planned by the learner himself and he can organised. The second function of the management that he can organise with the help of this particular

technology that is when he has to learn? How he has to learn? What he has to learn and where he has to learn?

So this type of organising he can decide, then there will be the control techniques, so therefore he will be able to take the pause, revision, understanding again, then interaction and therefore he will have a wonderful control techniques, but for these, for more effective it is require coordination, so a training will be also getting the training, if to be have effective coordinator because he has to manage the resources, he has to implement the managerial functions of coordination and controlling and finally that is a leadership, leading.

So all this functions of the manage, planning, organising, leading, coordinating and controlling, when a person is using the technology, this managerial functions that will be more effective. If we talk about this managerial functions in the classroom or the manual training, then in that case definitely the planning and organising that will be fixed. It cannot be flexible and if it is not flexible then that may be the question of adoptability and therefore in that case, it becomes very important that is when we use the technology. We get the flexibility and adoptability and ultimately our productivity is going to increase.

So that is Modz concept only, that is whenever we are talking the effectiveness, then managerial effectiveness is talking about the productivity, adoptability and flexibility. So, therefore with the help of technology we can use this managerial effectiveness of training, the training management can be done with the help of flexibility, adoptability and productivity, so this is possible.

I was mentioning about the one of the functions of the manager is the coordination or collaboration, so therefore, in that case we will have this collaboration. So collaboration will be that will be the context in, in which the different resources collaboration, collaboration with the organization, collaboration with the trainees, collaboration amongst the peers, so therefore and other stakeholders right. So therefore, in that case this particular collaboration that will be very, very effective whenever we are talking about the use of technology for the training purpose.

Then mode of communication, so mode of communication, so we can have the verbal communication, we can have the non-verbal communication and in the non-verbal communication we are depicting the, this particular type of the figures, pictures, tables, graphs, so then that will be the more clarity will be there, more concise will be there, so all

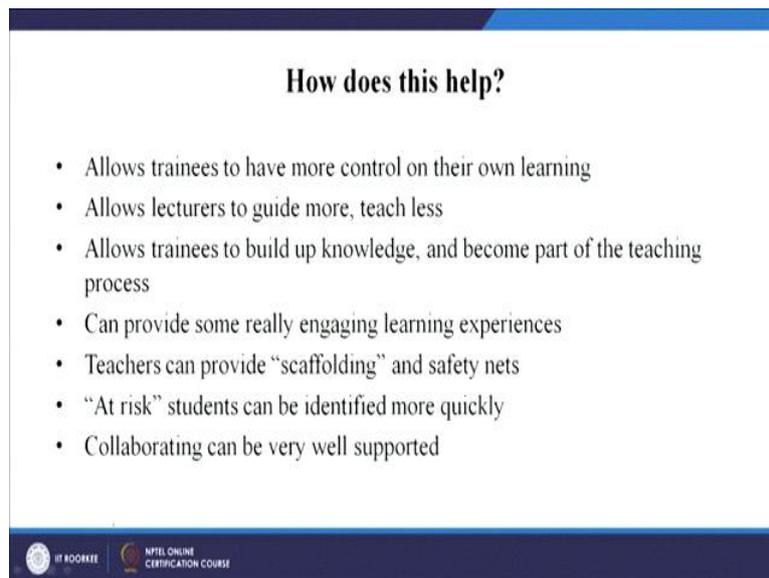
six Cs of the communication that will be followed into the communication here and therefore, in that case when we use the technology communication also becomes more effective.

Now sense of cohort is there, so therefore naturally if this type of the use are there, then definitely the training and the trainer that they will have this particular sense of the cohort and as a result of which the learning process that will create the variety of teaching and the learning preferences are there, so this is also a very, very important role of the use of the technology, that is whenever we are using the technology the variety of teaching.

So, it is not necessary that is the from one resource person the learner has to get trained, but he will have the different videos and therefore he will have the choice easily, otherwise also he will have the choice, but here, that is why remaining at home, remaining at the workplace, remaining at the one place that he will have the variety of teaching and as per his requirement he can identify segment that is what are his requirements and which videos are able to deliver those requirements and then he will prefer accordingly, so that is preference will also he will get the more preferences.

Now, whenever we are talking about the use of technology, then we talk about the formative summative assessment and whenever we talk about the formative and summative assessment it becomes very, very important, that is the how we are going to format that particular training program, because in the use of technology, there has to be a very strong formative and the given guidelines, as per the given guidelines, as per the formative the training program will be design, at the same time, that is the summative assessment, so therefore, how you have conducted the training program? What is the evaluation of the training program that all can be done with the help of technology.

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How does this help?

- Allows trainees to have more control on their own learning
- Allows lecturers to guide more, teach less
- Allows trainees to build up knowledge, and become part of the teaching process
- Can provide some really engaging learning experiences
- Teachers can provide “scaffolding” and safety nets
- “At risk” students can be identified more quickly
- Collaborating can be very well supported

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Now, for the trainees how it helps, it allows trainees to have more control on their own learning, so it is wonderful the blessings to the training that is the he has the choice, he will have the different trainers and then he will have that is the what he wants to learn and therefore not only this choices what he, he will control on his own, in own learning that is the better his efficiently learning or he is not efficiently learning or whatever he wants to learn, whether he is able to get those components or not, a relevant components and therefore in that case that allows a trainee to have more control on their own learning.

Now, this type of the training programmes allows lecturers to guide more, teach less, now that is also one of the limitation of the pedagogy system, so whenever we are teaching more many times absorption right and then if the absorption and the adoptability is less in classroom training, then definitely the effectiveness of the training will low, so to increase the effectiveness of the training here we find that is the teaching is less, examples are more, demonstrations are more and as a result of which the active learning principle which have talked earlier also and in inactive learning this type of the programs, they allow lecturers to guide the more and more to the trainee and very specific training will be there.

Here when we talk about the levels of knowledge, there are five levels of knowledge and this knowledge levels are the knowledge 1, knowledge 2, knowledge 3, knowledge 4 and knowledge 5. Now if this type of the training programmes are there which are the customized training programs and there are many preferences and when it is the convenient and there is the flexi-timing and therefore, the specific knowledge, specific gain is there, so definitely in that case it becomes a very, very effectiving in terms of the building of the knowledge

because the training he has the choice and then he can go from the knowledge 1 to the level to the knowledge 5 became 5.

So that is about the becoming the part of the teaching process and in the teaching process, the different level of the knowledge a trainee easily can get. Now it also have some really engaging learning experiences, especially online projects, so therefore when we talk about the doing the online projects that is possible only through the help of technology, so if this type of the online projects are done or this type of the clients, assignments are done, then definitely they will provide engaging the learning experiences and different type because it will be across the globe, because now the global village that can set is there.

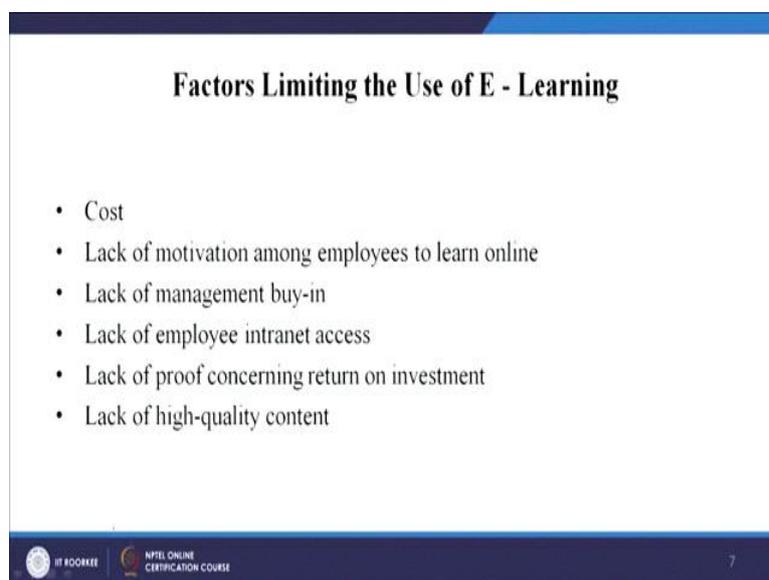
So therefore you can access to any village, any part of the corner of the globe and therefore in that case they can provide some really engaging and learning experiences and that will enhance there, this particular activity and they will learn, learning will be more and then they themselves this will be an example of doing and learning, so therefore whenever there is an example of the doing and learning, so the employees are engaged and employee engagement right.

Then again, especially it will depend on the three factors that is vigour, absorption and dedication, that is what energy level they have, how they can spend the time for the learning and for the help of technology, then there is absorption capability as I mentioned earlier that is knowledge levels will increase, if knowledge level will increase, definitely if the absorption facility will also increase and when we talk about that is the productivity or the commitment, of course, it has to go high, very high and then employee engagement that can result into the higher side, so this type of the training programs they can increase the employee engagement also.

Now, here the teachers can provide the scaffolding and the safety nets and therefore in that case, if there any chance that is the person is not able to understand or misunderstood, then in that case, this type of the training program they provide then the support and guidance, and as a result of which it will not be difficult, it will not be a danger, rather than it will be supportive, it will be more guiding and it will be facilitator, so role of technology will be facilitator and making them less mistakes because they have learned through the help of this process, that is the how they can be more smart.

And now in every group of the trainees there are certain students, those who are at risk and if they are at the risk, then definitely we have to identify and then minimize the risk right, but in the classroom management there be less time but when you are making the use of the technology and interactive and then submissions and then interaction, then feedback, so therefore this risk that will be minimized then lower will be the risk and higher will be the productivity, earlier also it has been mentioned, it is the collaborating can be very well supported, so this type of the functions when we are using the technology, the collaboration become more and more possible.

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Now, what are the factors we stopped to use of the e-learning, the first and foremost factor is, that is the cost, that if there is a cost is involved, then it becomes very, very problematic that is the how to make the use of technology? But with the period of time, what I feel personally that is now cost has reduced because you to make an investment, but when we talk about ROI, return on investment and then that will be high.

So, but we have to ensure that the technology which we are using then they are two principles, either you can make the technology or you can buy the technology, it depends on the number of factors, sometimes it is better to make the technologies, sometimes it is to buy the technology, like for example this type of the training programmes, so making the training programmes that will have a different cost and the buying the training programs that will be have the much lower cost.

So therefore, in that case, it depends on the resource person that is the, what is affordable? And whatever the affordable cost is there with the use of technology, you can make the minimize the cost is there, but if you understand the technology is costly, then what to do? If the technology itself is costly, then definitely that is the use of e-learning through that particular equipments, instruments, software, hardware, so then it will increase in the cost and it becomes costly.

Then there will be the lack of motivation among employees to learn online, so therefore, in that case people are used to classroom training, people are used to have a classroom for the learning and then in that case the many, especially maybe the, middle and senior level executives they may not feel comfortable and if they are not comfortable, the motivation level will be low and if it is the motivation level is low, then of course the learning process will be affected, so what is required, so what is important, most important is that is the, the learner ship should be motivated, if learner is not motivated there is no point.

So that willingness right, sometimes the learners want technology is not able to motivate the learner, if the learner is not that tech savvy. Simple example many old people still they are not using the mobile because they do not find high motivation to learn mobile because they feel that is the ohh this is a technology which will be difficult, so that, by imaging the difficulty level of the technology many learners they are not self-motivated and as a result of which the employees will not learn.

Then lack of management buy-in, so therefore as I mention it is either to make it or buy it, but it is the money management they will not prefer to buy and if they will not prefer to buy the technology or these videos or this type 1of the resources, this type of the sources, then in that case it will be very, very difficult to have the this type of the technology for training program and because management is not interested to buy-in, if the management is not interested to buy-in, they will not be, I do not think that there will be possibility of the this type of the training programs, so what is important? Important is that, that is the management should go for it.

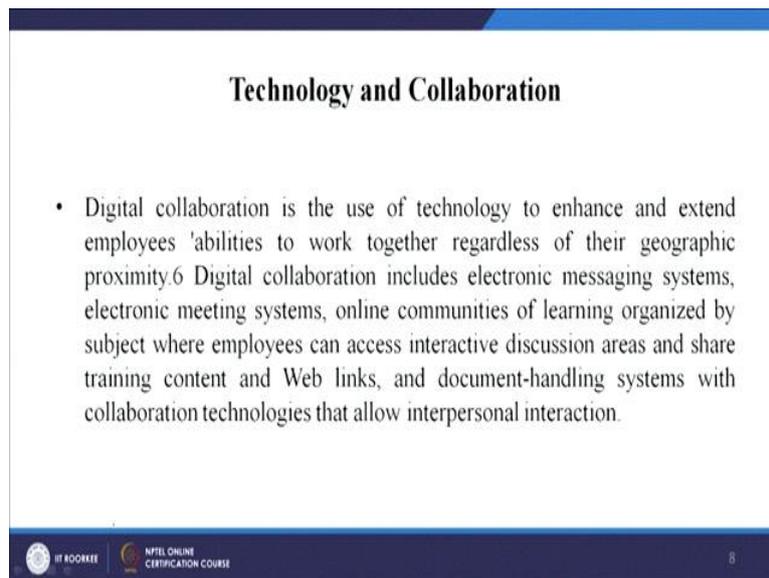
Lack of employees internet access, very few percentage in India are able to access the Internet, otherwise it is a still a challenge, especially in the rural village, rural areas, villages and into the very interior locations in India, so and if this type of the minimum facility, if is not available, there is no point while saying that is the technology will be having the effective for the training program, so we have to also see the geographical location and we also have to

see whether the internet resource is available or not, if internet resources not available the employees will not be able to do it.

Lack of proof concerning return on investment and then many times the biggest criticism for a training is and that is about ROI, return on investment and if there is an know, if lack of proof is there, simple example, I would like to give of the interpersonal relationship, whenever we talk about the interpersonal relationships, then in that case it becomes very, very important that is the how will you measure the output? If relationship has increase, a better relationship is there, but the question will arise that is how to measure it and therefore in that case, if there is a lack of proof concerning return on investment, it will be difficult to find out whether they really that the investment in the technology is correct or not.

Then lack of high quality content, so sometimes the expectation of the trainee that might be very high and if we are making the use of technology and then in the technology, it is not necessary that is only the technology will make a difference, the trainer will make a difference, so therefore if there is not a high quality content, but there is a beautiful video, it will not give the output, so we should not forget that is core competence of any training program is knowledge that is a content, it is what contains are there? Communication, technology all these are the supportive components which are making the training more effective.

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Technology and Collaboration

- Digital collaboration is the use of technology to enhance and extend employees' abilities to work together regardless of their geographic proximity.⁶ Digital collaboration includes electronic messaging systems, electronic meeting systems, online communities of learning organized by subject where employees can access interactive discussion areas and share training content and Web links, and document-handling systems with collaboration technologies that allow interpersonal interaction.

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Now, the next part will talk about the technology and collaboration, digital collaboration is the use of technology right, so these when we are talking about the digital era, this is the use of technology to enhance and extend the employees' abilities to work together, regardless of their geographic proximity and this digital collaborative includes, so therefore, in that case, this will be including the electronic messaging systems, I had a one project into the IP long back in the intellectual property creation and then I have done the survey of the Ph.D. scholars in the Uttarakhand and ask them and at that time, they said that is the intranet, Intranet problem is there, but the messaging is not a problem.

So therefore, in that case through the SMS like any workshop is to be conducted and training program for the scholars is to be conducted in the IP, then the messaging specially in the hills areas that was becoming very, very popular, so therefore the electronic messaging system was more and more effective, then the electronic meeting systems, when we talk about the E-Choupal and then this type of the programs, so are in corporate sector, it is becoming very, very important and common that is, they are doing the electronic meeting at the, sitting at the different countries and then they can have the electronic meeting systems and the juniors can learn from the seniors and they can, the colleagues can interact.

Online communities of learning organized by the subjects where employees can access interactive discussion, now this is also a very, very popular platform that is online communities, if online communities are created, then this type of the learning right, they are organized with the, more and more interactive discussions are there, so this type of the online

communities they are interacting more, comments are there, and this sphere, sphere is increasing, and as a result of which there are the interactive discussion areas are there.

Now we are share in the training content and a wave links and documents and link systems and therefore this type of the discussions online communities and all they are sharing the training content and therefore the access, access to trainees in the training area that is increasing and wave links are there and through wave links also the learners they want to learn and they learn very fast and easily, then there other documents handling systems.

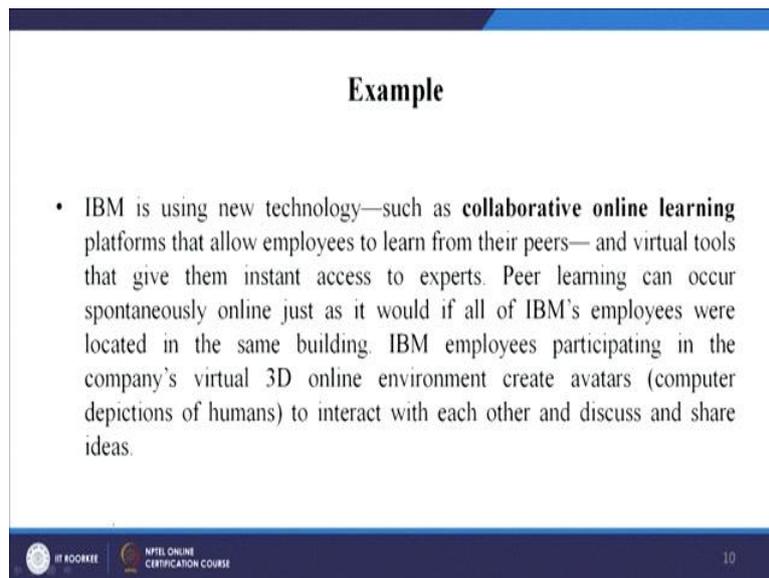
This is becoming very, very important, as I mention it is the whenever we are talking about the study material, online study material or e-learning then this document handling system that is to be learn and if it is the properly managed, than with that collaboration technologies that allow interpersonal interaction, more and more and better if we had a document handling systems are there, then the collaboration technologies that will be allowing the interpersonal interactions.

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So this is just a picture is there shows about that is the people are at the different places and how the trainer is giving them the training, here I would like to add, imagine her that is the different type of the employees are working at a different places and there from the one place, the trainer or the supervisor or whoever is the facilitator, his interacting with the number of persons at the different places.

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The slide features a blue header and footer. The main content area is white with a blue border. The title 'Example' is centered at the top. A single bullet point describes IBM's use of collaborative online learning platforms and virtual tools for peer learning. The footer contains logos for IIT Kharagpur and NPTEL Online Certification Course, along with the page number 10.

Example

- IBM is using new technology—such as **collaborative online learning** platforms that allow employees to learn from their peers— and virtual tools that give them instant access to experts. Peer learning can occur spontaneously online just as it would if all of IBM's employees were located in the same building. IBM employees participating in the company's virtual 3D online environment create avatars (computer depictions of humans) to interact with each other and discuss and share ideas.

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Finally, I would like to take the example, IBM is using new technology such as collaborative online learning platforms that allow employees to learn from their peers and virtual tools that give them instant access to experts and therefore this type of the collaborative online learning that is becoming very, very popular and these virtual tools that give them the instant access to experts and the peer learning can occur spontaneously online just it would be of all of IBM's employees were located in the same building.

So therefore, if they are into the same building and working at the different floors and this type of the collaborative online learning that definitely that will be more supportive. IBM employees participating in the company's virtual 3-D online environment, create the avatars that is a computer, depiction of humans and this is a wonderful contribution, that is the companies virtual 3-D online that is creating the avatars and therefore they are the different computers which are working.

Now, there is to interact with each other and discuss and share ideas, so this is where the large organisation LEs are there, so these LEs large enterprises they will work on the basis of whatever they are interacting and then they are doing the jobs and they can learn in the same building while sitting at the different places.

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Common Ways of Collaboration in Online Learning

- **Chat rooms** : Trainees communicate at the same time by text or audio. Chat rooms may be moderated by a facilitator.
- **Online conferencing** : Trainees are online with a moderator. They can hear comments, send messages, display visuals, vote, or work together on a project.
- **Social networking** : Trainees can share information through connections with other trainees, trainers, friends, and family through online communities and message services such as MySpace, Facebook, and Twitter.
- **E-mail** : Trainees communicate at different times. Communications are received and managed at each trainee's mail site.

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Now, there are the common ways of the collaboration in online learning the finally, so what are the different common ways of collaboration in online learning, there are the chat rooms are there, the trainees communicate at the same time by text or audio, the chat rooms may be the moderated by a facilitators, then online conferencing, which is a very common practice that is the trainees are online with a moderator, they can hear comments, send messages, display visuals, vote or work together on a project.

Then the social networking which is becoming very, very popular, especially into the young generation also, trainees can share information through connections with other trainees, trainers, friends and family through online communities and message services such as the MySpace, Facebook and the Twitter. And the last I would like to mention which is very, very common and simple that is email.

So trainee communicate at different times, communications are received and managed at each trainees mail site and therefore these are the very, very common ways of collaboration in online learning and by the use of this type of these mechanisms and techniques the organizations can conduct more and more effective training programs and number of training programs will also increase, the cost saving will be there and the productivity will be high, so this is all about the role of technology in training. Thank you.