Knowledge Management
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Lecture 09
Capturing Tacit Knowledge

Ok, so in the last lecture we had seen that what is Knowledge Management cycle and in that we have seen that it starts with capturing and creating knowledge. And then, we go for storage dissemination and use. Now, as a part of ongoing discussion, I am going to discuss that out how to capture tacit knowledge.

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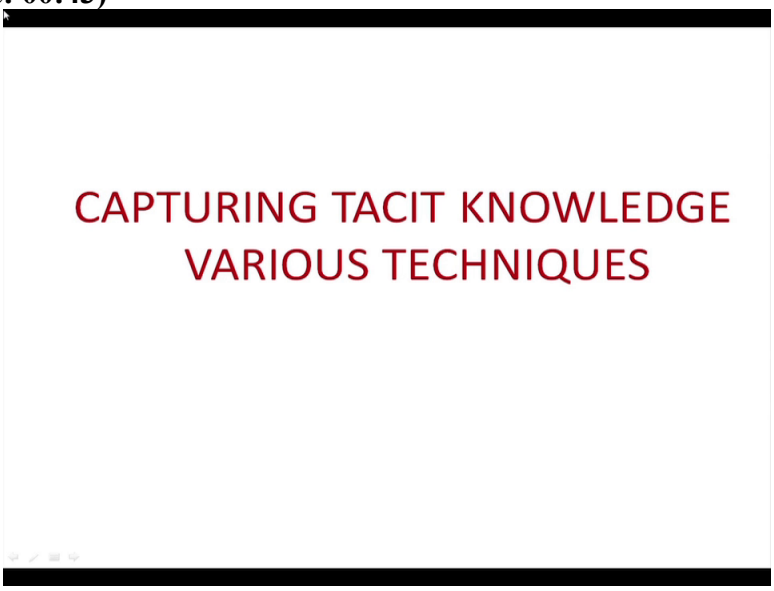

We will also discuss about various tools, techniques and methodologies that is used for capturing tacit knowledge.

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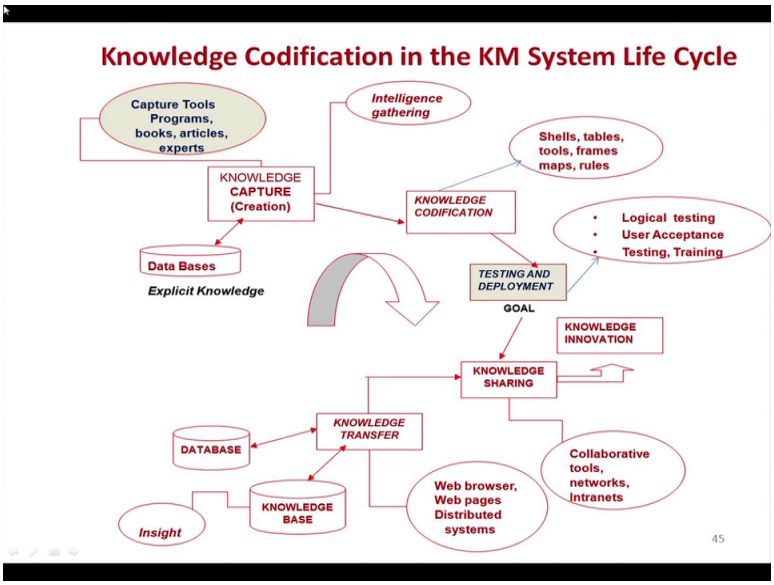

Now, if you look at this figure, the most important thing is, when you are, when you are going to capture tacit knowledge, that is when you want to transform tacit knowledge into explicit knowledge, then, you need to codify it, right, okay. So, in order to codify this knowledge, you need to capture it. And this capturing process basically gives importance to how to create knowledge.

And then, how you are going to capture it in some form, so, that this knowledge is codified from tacit to explicit knowledge. Now, if you look at this booklet sorry, this flowchart, it shows that there are tools, programs and other things and the experts through which knowledge capture is done. Almost knowledge capture is done then it is codified using certain programs.

Now, and then, we move to the next stage. That is testing and development. And for the other stages which will discuss at the later stage. So, mine my main focus here is when I am talking about knowledge codification is that how to go about the knowledge capturing part; that is very, very important in this process. And then, later on, we discuss about knowledge codification.

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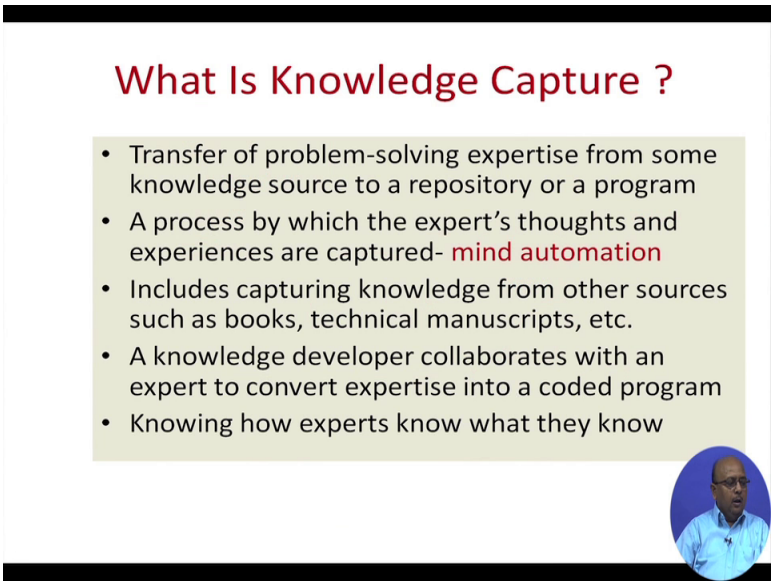

Now when I am talking about knowledge capturing, what does it mean? It means somewhere the knowledge is available. So, you need to identify the source. And see that how it can be captured; Knowledge is available where? Knowledge could be available in either tacit form or explicit form. So, explicit form means that knowledge is available in books, manuscript, guidelines.

Or if it is available in tacit form, it means it is available with people who have the knowledge or who are the experts. Now, when I am talking about knowledge capturing, that is nothing is that how to transfer expertise from knowledge source to the repository and that is what we are going to discuss.

Basically, the idea here is, that how you can convert that tacit knowledge which is here, with that experts into explicit knowledge, okay. That is how; if you look at the process it is defined as how we are going to capture the thoughts, experiences which are there with the experts. and this is what you call mind automation. Mind automation is that nothing but how we are going to automate what is there in mind in some form which is available for others to use.

And this knowledge capturing sources are many. It could be books, manuscripts etcetera or it could be also be the people who are having the expertise and the knowledge. So, what is the role of a knowledge developer? What is he going to do? He is going to collaborate with the experts okay, so, that you can convert them into a program.

So, in order to codify knowledge, you are going to use certain tools and techniques to write it. And that is what you call it as program. So, when a knowledge developer is a person whose basic

task is to capture the knowledge from the experts. And then, he is going to put them into a code which can be easily accessed with the help of the technology.

The most important job of the knowledge developer is what? How experts know what it is? So, he is basically going to capture the processes through which the experts are doing their work, okay.

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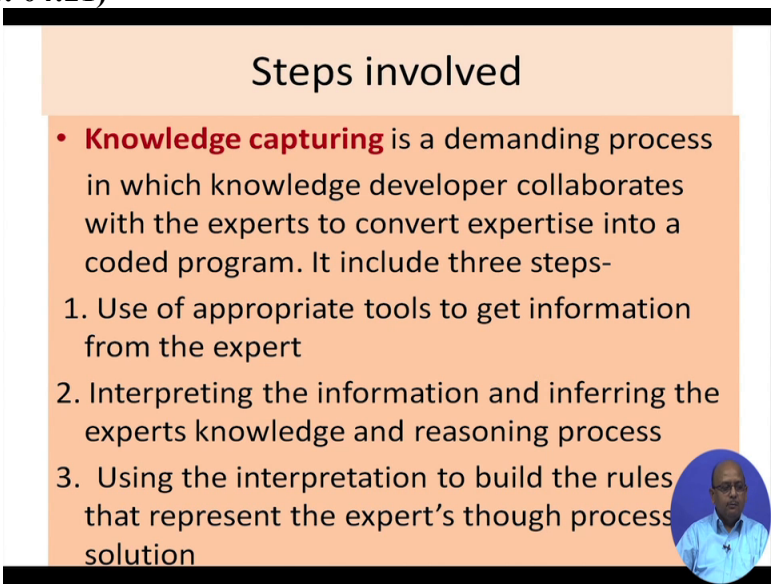

We will discuss lot of techniques of knowledge capturing. Now, if you look at some of steps that are involved in knowledge capturing because knowledge capturing is not that easy. Getting the knowledge which is there with somebody, okay, it is very, very important. What you need to do? You have to look at the process of knowledge capturing.

How to capture the knowledge which is residing either with it experts or with or available in the explicit form? So, it is a demanding process. And experts have major role to play because they should understand the process clearly explicitly, how they are doing the things; and at the same time the knowledge developers should also be in a position to understand the processes which is being used by the experts.

Because ultimately the knowledge developers collaborate with the experts to convert your expertise into a coded program, into a coded program, right. So that it is codified, the knowledge is codified in explicit form. Now he is going to use certain tools to get the information from the experts. We will discuss the issues, what are issues we will talk about it.

Then, he is going to interpret the information, the info, and the expert's knowledge using certain reasoning processes. And ultimately interpret to build the rules that represents from the experts thought process, now this people offices or very, very important so you have to see that how to get information, how to interpret or infer that using certain reasoning processes.

And then how are you going to build the rules so that you can codify it which could be understood by others.

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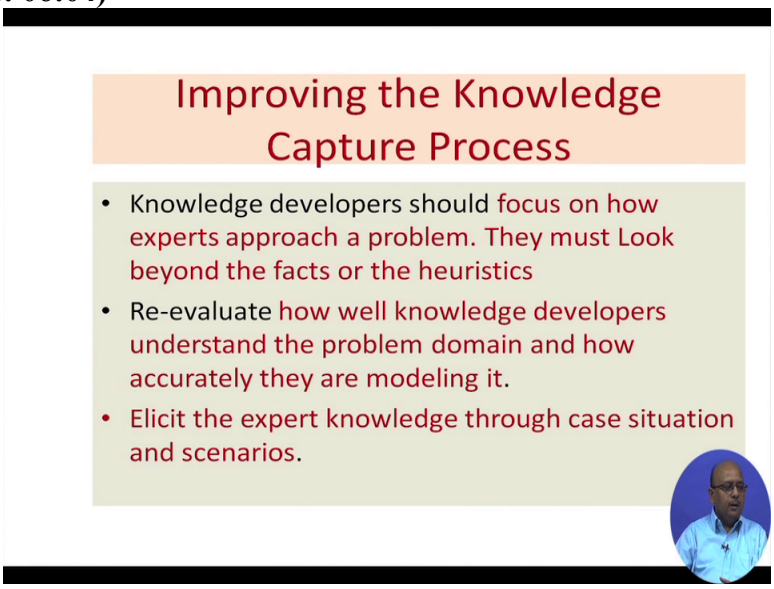

So, moving further, the idea is that when you are going to capture knowledge, how to go about it okay, what they should do? So you have to see that how and expert is doing with each other and if, you are not able to understand how a person is doing a job apart from manuals and guidelines that is available, okay. So, they have to look beyond the facts and written guidelines that is available.

Because it is there for everyone; but the expert person will use or approach the problem in a different way. I give an example, suppose you have a problem, okay. And then, you are looking for a solution, right. If you go to a person who is not well known or novice he would give his suggestion based on facts and figures and that is what is known as common sense knowledge.

But if you go to an expert, he will give you advice which could be very, very useful. Now, this advice is not coming from say tools or algorithms. But it is coming from diverse approach which is being used by the expert who defines the problem and to find out a solution. So, you have to see that how experts are approaching to a particular problem.

Now then, once you have to able to focus on that the next stage is that whether you really understand problem domain and how it is going to be modeled, okay. Then, for example the process is clearly defined the knowledge developer should be equally competent to understand the process that is being followed by the experts. Otherwise he will not be able to codify it, okay.

And then, you can use a situation scenario, for example in a particular context certain a problem happens. Now, how the expert is going to solve this problem? If this kind of situation comes out arises in the future, then, how you are going to solve this problem. To develop cases of scenarios or build it and see that how expert is coming out to the solution of this problems.

And then, you must understand it in order to see that you are able to understand so that the processes could be applied to situations which might arise In future. So, it is very important to understand the role of knowledge developers.

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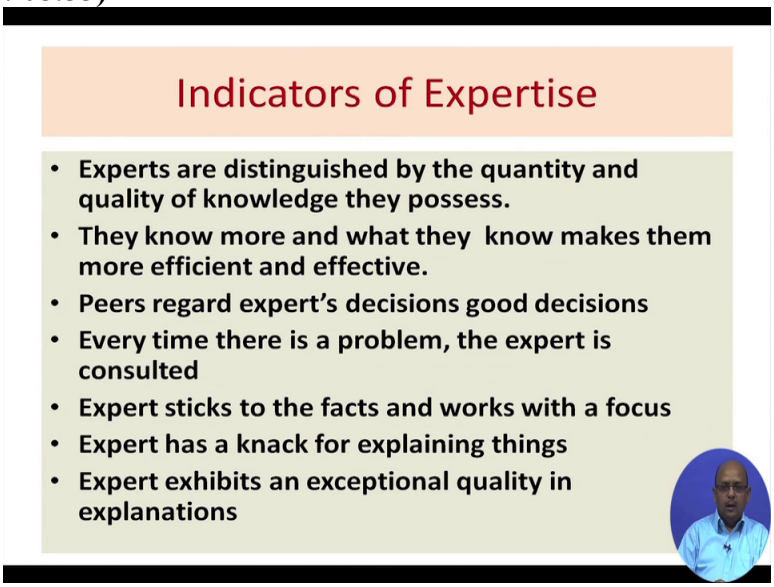

Now, the knowledge developer is one thing because they must be able to understand the process and should be able to codify it. It means that what a expert understand as a process in the similar fashion; the knowledge developer should also understand the process; right. Now, coming to the expertise, expertise of whom?

The experts because we have to see, how to identify and try to get knowledge of the experts not from everybody because it is the experts who have quality of tacit knowledge; so, that is why, we need to differentiate them from normal persons, other persons who follow straight direct

thinking. Because experts are distinguished by quantity and quality of knowledge about the process, if you have problem you go to an expert, right.

And this expert should be well known in the field, the kind of knowledge and the amount of knowledge that they should have should be used, ok. And that is why it is very important to identify expert from whom you can get better knowledge. Definitely they know more and what they know make them more efficient element.

Because it is this the experts who will give you better advise; they will tell you that how things can be done in more efficient and productive way. And you can also look at the peers, who think that yes, he is an expert because he has always been taking good decisions, he is, he knows the process well, he understands the job, he comes out of with a solution of the problem, ok.

So, whenever we have problem we need to consult him because he is the expert who knows how to solve the problem. And experts not only stick to the fact also that provides them a base but also they are very, very focused to a problem. Since they understand the things, they will be in a very say, in a state manner, they would be very focused to the problem. They understand, okay this is how you need to approach the problem.

Because the kind of experience and the learning that have gone them to make an expert, will enable them to be more focused with the problem, okay. And they would be in a better position explain things; it is not that ok why this is how, why this is happening, why this is not happening. Except in some cases expert are not able to explain things.

But in most cases, expert must be able to explain things so that they can they could explain the processes which must be understood by the knowledge developers, okay. And if experts are not able to explain the processes then knowledge developer will not be able to codify it. And that is why it is expected that they have very good quality when it comes to explaining the things and processes to solve the problems.

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Now, some of the qualifications that is expected from experts or that the case, they know, the things in a better way, they would be able to visualise the better picture or they would not only concentrate on the problem that is happening but they would also be able to see that why this problem is happening. What needs to be done so that this kind of problem does not happen in the future?

In what contest this problem has happened, they only, they do not only look into the symptoms of the problem but they try to find out the cause of the problem, so they will see a big picture. And it is always better to see the big picture because in that case you would able to solve the problem in the long run, okay. They have good communication skills; these are the personal traits of the experts I am talking about.

The experts because unless you have good communications what will happen? We will not be able to explain things. And then, you must have patients, as an expert you must have patience because you does not become expert overnight. It needs lot of work, learning, insight and experience on the part of the experts. So, experts do have lot of patience. So, they can tolerate a stress at a higher level.

Because otherwise, they will not be coming as an expert, okay. And they are more divergent thinker it means they are more innovative in their approach; do not look at the problem solution in a very straight jacketed fashion. What they do? They try to see that how problem can be solved, okay. And they are very, very stable.

It means the way they solve the problem very, very stable, persistent that is how they maintain the credibility. And they operate between the schema driven orientation. What is schema driven orientation is that whenever there is a problem they try to figure out what are the things, what are the factors, what are the causes through which this is related. And they try to come out with a scheme that this is how we move to solve the problem, okay.

And then they use junk knowledge. The junk knowledge is the knowledge that is collected from different sources, different places and put them together for use and that is what is called junk knowledge, right. Like, memory has junk knowledge, so they also use lot of information from the memory.

Basically there is a collective information is known as junked information, okay. And they are really motivated and enthusiastic because experts are always enthusiastic to be creative and to be innovative, okay. And these people are not holding information. What they do? They try to share the information to the extent possible, okay. And they have a good quality of a teacher; that is, as a teacher you know they are all always ready to share their knowledge.

They are not holders of the knowledge; they are always to spread the knowledge. And that is why they emulate a good teacher habits; that is why they say yes, they are going to share their knowledge.

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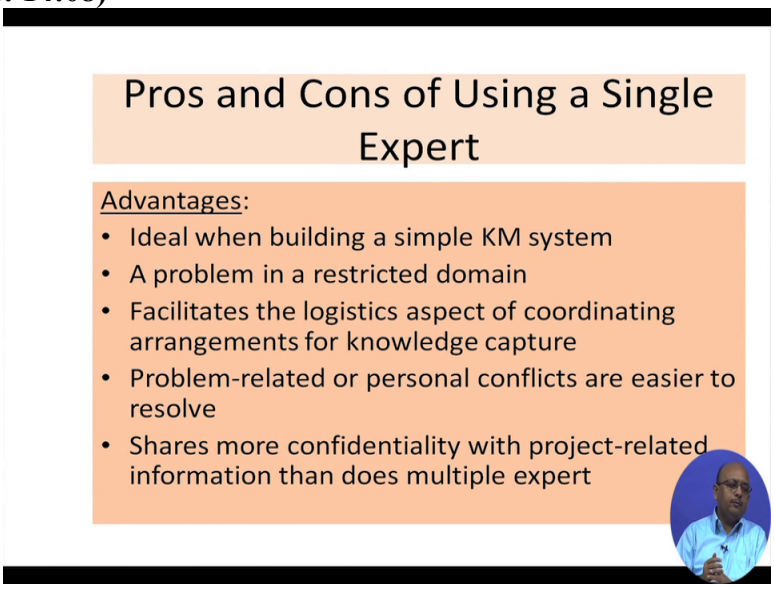

Now, coming to talking about different kind of experts; now, the question is whether you are going to use single experts or multiple experts ok, now we will discuss about what is of using a

single expert or multiple experts, both and in many cases, especially in case of R and D, okay, in case of diagnosis and treatment of critical illness.

These kinds of methodology are used because those who are in critical illness or a problem, you will go to a single expert. So he will be giving you some advice ok based on his knowledge and expertise. And he whatever is possible he will do based on knowledge and experience that is the advantage of single experience, sorry, single expert.

But when you go to multiple experts, what happen? The same problem can be approached from diverse persons. In medical camp system it has been found that it is always better to use multiple expert systems. But before we talk about the multiple expert systems, let us see and discuss the advantage and disadvantages of a single expert system.

Single experts system, there is only one expert for a problem, okay. In many cases, you will find they are only one expert's, right. In many organisations, there is only one person doing only one job. So, they can get expertise, right. And the idea is to used to build a simple knowledge management system based on the expert of expert advice of the person who is having a solution to the problem.

Now, but this is going to be in a restrictive domain in the sense because of his specialization, he cannot approach the problem from different situations, right. Suppose you have a problem you go to a doctor. Doctor is a specialising in a particular thing; suppose he is a Neurologist, okay. But he also knew to say clinical psychologist, he also need to look at other doctors who are having different specialization.

If you put them together you form a multiple expert. But if you go only to one expert he is going to advise you in his domain that could be in the area of Neuro-psychologist. Suppose you have certain problem, okay and you go for a checkup. And you are referred to a Neuro-psychologist he is an expert in the field because that is his of, he is specialised in that.

But he is going to offer you advice in a restricted domain, okay. And you can make all kind of advice since he is specialised in that, he can do everything related to that, okay. But here, what actually happens? That, that single expert is going to provide you advice in a restricted domain and that is where the problem comes.

Though the problem is related to personal conflict are easier to resolve, there is only one person to going to him and whatever is saying you are going to accept it. There is no conflict with other advice or other things and at the same time you can share more confidentiality because you know that go to single expert he is going to keep it confidential with him.

But if you go to multiple experts what is a possibility of sharing that information is there and in the process the confidentiality is lost.

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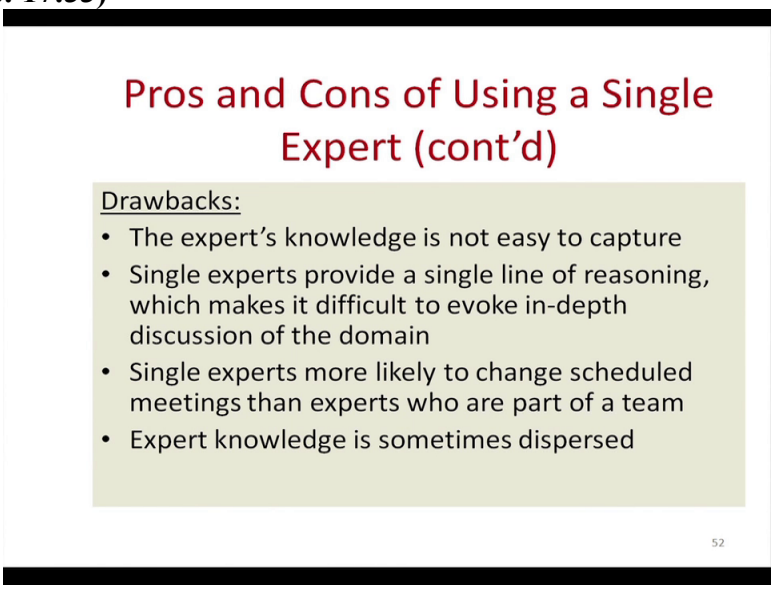

Now if you are going to single expert, there also drawbacks because it is not very easy to capture knowledge that is there with the single expert. Because the line is single of reasoning, he does not get; you do not get basically in-depth discussion on that particular domain, okay. Though you get in-depth discussion in the restricted domain, in the area of expertise, but that may not be of sometime okay.

And sometime since they are alone they may available to you, okay. And then, it is disturbed you if do not any one expert who is going to very good in that particular area. So, these are some of the problems because of some times which do not you go for single expert.

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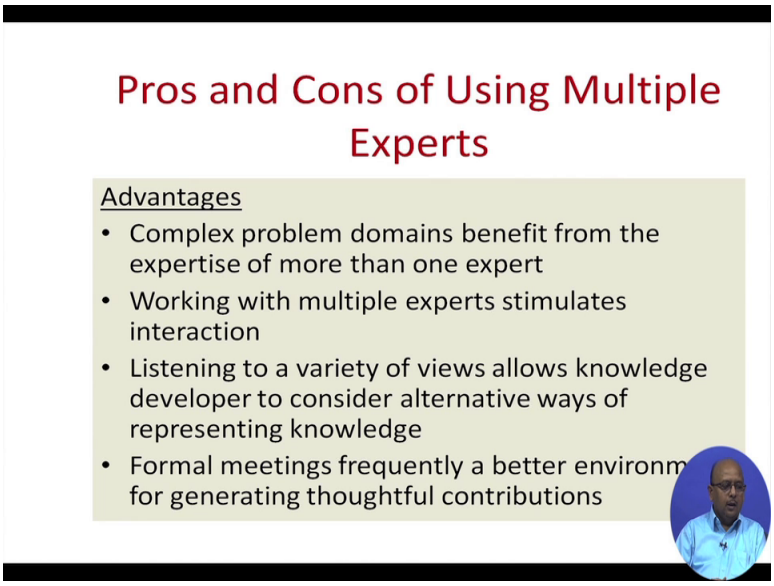

The solution is going to be multiple experts; where the multiple experts are located either at the similar places or at different places, okay. And multiple experts could be used in cases of complex problems because you get better advice if you are going to pool the expertise or the knowledge resources from the different experts.

So, they interact and they try to come out with their advice on a problem, ok. Say, for example in case of medical systems, medical knowledge management system what happened if you go to an expert for a particular problem ok that may not be done; because you need to look at other experts and also their advice because problem, the nature of problem may be very complex, okay.

It is always good to consult multiple experts because they create better interaction among themselves and then try to arrive at problem. And then the idea is to get a variety of knowledge across experts you can develop alternative ways to represent knowledge. Suppose, if you go to for a particular problem, so related to brain, you will go to a person, who is a neurosurgeon.

Now neurosurgeon alone, though he is going to work with brain, may not be enough. So, the other possibilities are consulting a neuro clinical surgeon or it could be a brain surgeon, okay or there could be another physician also. So, it could be a part of it. So you are getting, the representation of knowledge is coming from different sources, okay.

And then, make sure that okay, these different experts meet together in a cordial environment; and then they contribute to the solution of the problem. Is not there is a conflict of interest among them. If there is a conflict of interest, then, it is not good in that case. The knowledge that is

represented may be contradictory and that may not be very useful and that is basically the disadvantages.

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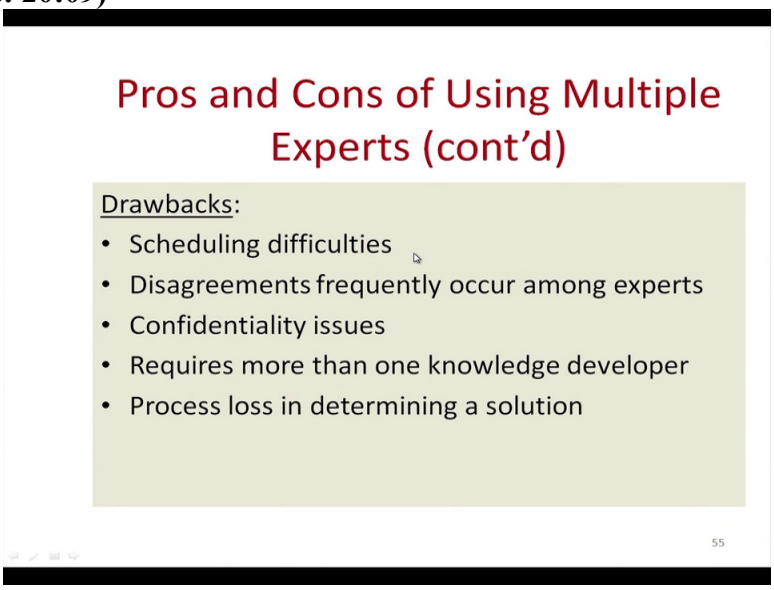

Some of the other disadvantages finding these experts, multiple experts and scheduling a meeting for them at the same time because since all of them are experts and they are working in their own domain, so they may not be free. Scheduling is a problem, okay. And then, another problem is disagreements; the neuropsychologist may be seeing something else, the clinical psychologist maybe something else. The brain surgeon might be saying something else.

So, that is why, there could be disagreement among the experts because each one of us is approaching the problem from their perspective. And that is where this disagreement may occur. And there could be a confidentiality because if they are going to share and interact with their with the X-ray, records of a person then, the confidentiality issues may be there, they may not be keep it themselves, okay.

Then, in that case, you do not require one knowledge developer because one knowledge developer people cannot handle all the experts. So, you require as many as knowledge developers as number of experts, so, that each knowledge developers is going to capture the knowledge that is represented by that domain expert and codified, okay.

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And moving to the next one is that this is very important that how you are going to develop relationship with the experts because unless you develop good relationship with the experts, you will not be able to get anything out of it; because expert will not be ready or willing to tell you the processes. As knowledge developer relationship is department for you to show your enthusiasm, motivation.

And you must develop very cordial and good relationship with the experts so that actually helps you to capture the knowledge. So, these are some of the points that it helps you to develop good relationship with experts as a knowledge developer, so that you can capture the knowledge. Let me discuss, some of the issues related to like creating the right impression.

In front of the expert as a knowledge developer you must make sure that you have all those skills ok, so that you get his attention and respect. If the knowledge developer is not paying due attention to you probably you will not be in a position to elicit any information out of it. So, what is required is set of behavioral and technical skills on your part to understand the process and understand the person, both.

Behaviour skills are required to understand the person better and a technical skills to understand the process through which problem of the solution is arrived, okay. So, these characteristics actually behavioural and technical skills are very, very important on the part of the developer and that gets gives you respect and attention so that you will be able to create very good impression in the front of the expert and probably will be willing to share.

And never underestimate the expert's experience, okay because it is very, very important to understand kind of style that is used by experts. I will talk about it later like procedure type or stereotype or a storyteller type or a godfather type or a salesperson type. There could be of, experts could be of different types.

So, you must know what kind of expert he is. Whether he is narrating the processes or he is telling you or more concerned about the content, that is the story or then is acting like a father figure or he is trying to market it, so whatever he has done. So, you have to understand the experts and what kind of style is being used, okay.

And when you are trying to elicit information from the expert and you go to him and talk to him, you must know everything about the experts. So, you go for a verification chapter, or you also looking to the background in terms of his knowledge is experience, background where he has worked because that will give you an idea about his expertise and knowledge, right.

And then, when you are going to hold sessions for capturing the knowledge. Location and meeting places are very, very important; make sure that it is noise free, all kind of interactions like voice mail, personal message, telephone calls all these avoided so that you have a peaceful and quite session. And that is where you will be able to elicit more information, okay.

So, far we have been talking about how knowledge developer is going to capture the knowledge that is lying with the experts whether you are going to use single expert or double or multiple experts.

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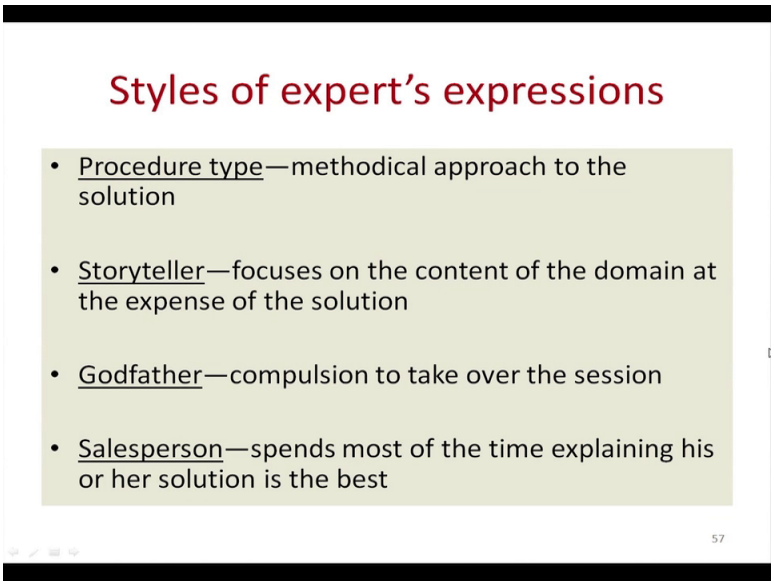

Look at some of the expert expression. The procedure type is whether you follow the processes, it is very, very methodical in doing that things. A storyteller it means that he is focusing on the content of the domain, right. These are the important thing that has to be done, right; or there is a godfather, there is a compulsion to take over the session means he dominates over the session and he dictates you that this is how it is to be done.

And basically it is treating you like godfather means he knows everything and you do not know everything, okay. And salesperson is basically those kinds of experts, okay and where they are trying to explain things, okay. See, this is how it is happening, okay. So, they are more concerned about the solution, okay of the problem.

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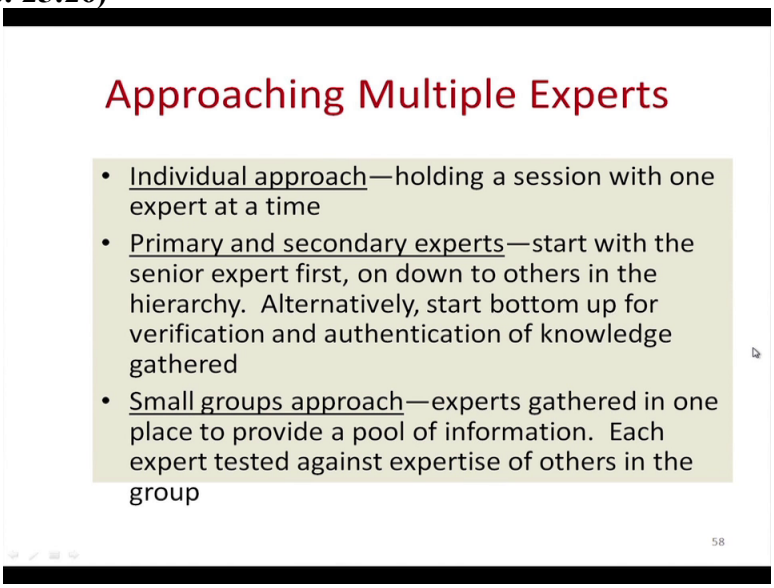

Then you are going to approach multiple experts ok you can have one to one meeting or you meet senior experts first like primary and secondary experts. Primary experts are senior experts first. And then, you talk to people down the line and you talk to the juniors and then verify and certificate the knowledge that you are get from the experts, so that it is correct and that is valid or not.

Or you can have team also ok whether you are going to collect information from the teams or small groups. And then you can see the kind of expertise coming out you can validate it and take it.

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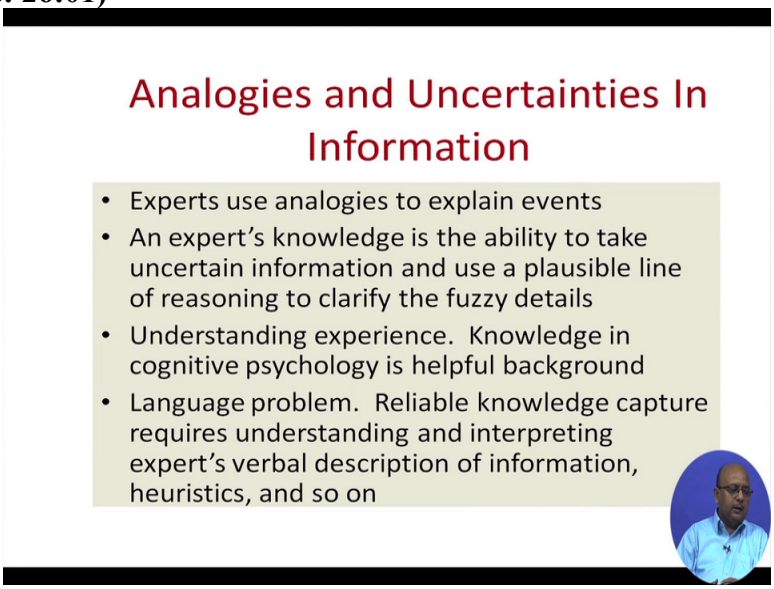

Now, some of the issues that actually we discuss is that in eliciting information is the analogy and uncertainties'. What does it is mean, what do you by analogy? Analogy is mean that you try to give similar statements or similar things talk about the similar things which closely resembles with what you are doing, okay.

Sometimes you use analogy to explain. See this is related to this, see these, these things happens in that particular thing. And this is very similar to what we are doing. So, you are giving an analogy of the event that has happened to you and how you are identifying a particular solution, okay. And then, expert knowledge is basically the ability to take uncertain information.

And it is a possible line of reasoning, okay to clarify the possibilities; because see when you are going to solve the problem, as an expert, things may not be cleared to you. It may be very, very fussy, okay based on your knowledge and experience as a expert you try to clarify it. And try to

come out, to make sure that how to bring clarity, to understand the problem, so that you can come out with a solution, okay.

And that is where it is very, very important to understand the role of experience. So, you must, as an expert basically the cognitive knowledge I mean is very, very important. Cognitive knowledge is the thing that how you are going to perceive the event or the object or the phenomena? And that is related to what you call the cognitive psychology. So, cognitive psychology basically refers to certain processes of the mind that is how you are going to perceive.

How you are going to learn, how you are going to process the information, how you are going to conceptualize, okay and then solve the problem. So, these are known as cognitive processes related to psychology. That is perception, thinking, information processing and learning and memory. So, you use these perception, thinking, learning and memory.

And these are known as cognitive process in psychology that could be used to understand experience. And then, you also make sure that that kind of language that you are using similar, ok because that helps you to understand and interpret information, right.

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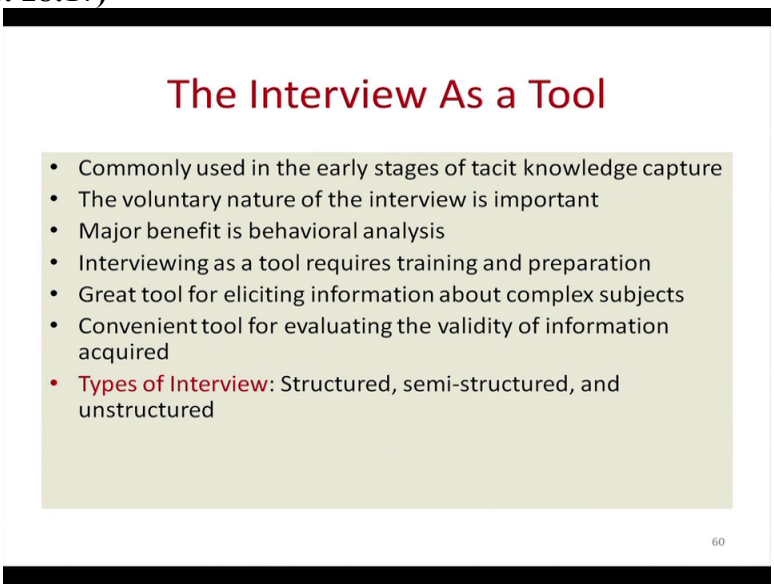

Then, what are the various tools that could be used to capture the information? And interview is most sought after that, okay. Because in order to capture the tacit knowledge, okay it is very, very important that you connect to the people, you talk to them, you interview them, okay. It is very, very important and through this interviewing, you can get lot of information from the experts.

So, interviewing is a very good technique actually. And you must prepare how to conduct interviews, what are the kind of things that you require for conducting interviews, okay. And once you conduct the interview to get the required information. Then, you make sure that how you are going to validate the information that you have collected through the interview.

Because many times that many things that is said during the interview may not be authentic or valid. And it may not be related to the problem itself through which it is solved. And different types of interviews could be done like structured, semi structured and unstructured. Semi-structured where you come out from prepared with the set of questions that question that you are going to ask.

Where in semi structured you ask you questions and then the lead is given by the interviewee and then based on that lead you ask for the questions. It is not fully structured but semi-structured in the sense you come out with some questions, then, ask can probe the person and then he comes out of that.

And unstructured interview, it is very, very unstructured in the sense that you do not go prepared with a set of questions that is going to be asked, okay. You start with the question; okay what are the problems that you solved and then, if he says this was the problem; then you ask next question how did you solve this problem?

Then, what is the process that you are done, what are the tools and techniques that you have used, what are the equipments, what are the processes that you have gone. That is how it is proceeds, right. So, in this case we use both, all kind of interviews like semi-structured, structure and unstructured. And at the same time you can ask different varieties of questions like we can give you multiple choice questions, subjective questions, objective questions.

You can ask question in yes or no form also. So, there are different forms of interviews that could be adopted as a interview tool, okay. Like multiple choice and yes, no questions, ranking the scales, rank, okay on the particular scale that how did it happen, okay. That is how you are going to proceed to ask different kind of the questions.

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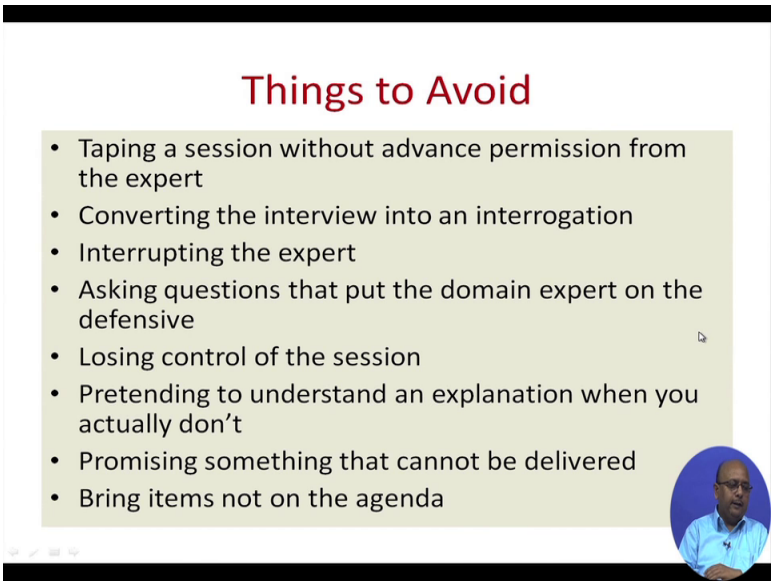

And these are all the things that you need to avoid. It is very, very important ok. Get the permission in advance from the expert, ok. Convert the interview into integration, do not interrupt the experts, and let him speak out or ask question related to domain, okay and make sure that is not going to defensive.

Do not lose control over the session that is very, very important. And then pretend to understand an explanation, when you are actually do not. If it is trying to explain if you are not able to understand try to see a reason that I am trying to understand if it always looks good. Then if you have any questions, you can ask again you probably tried to explain in a better way and in a different way, ok.

Do not promise anything that cannot be delivered it is very, very important for the knowledge developer to ensure that he is not going to say anything which is not correct or validated ok. And then you tell him in advance ok this is what is we need to discuss with the expert in order to elicit information.

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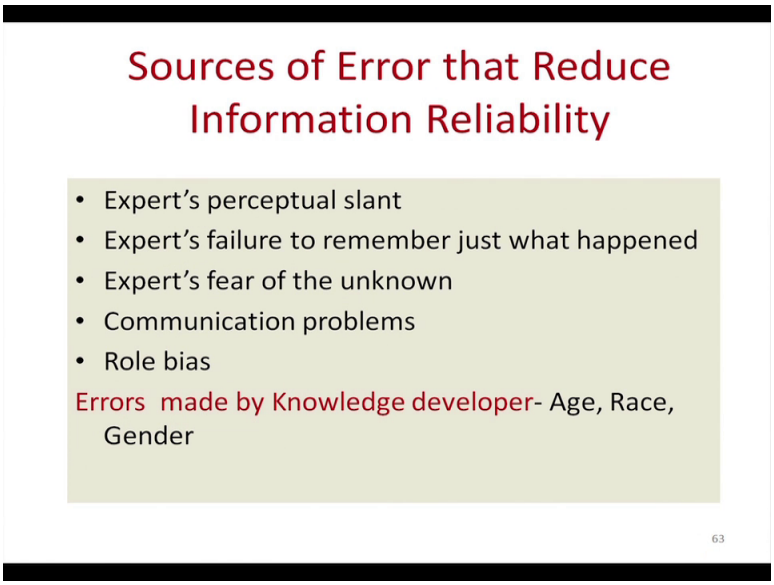

It is very, very important that that will help you to reduce information reliability, ok and that you make sure that you are not going to use certain slang that is used by experts and sometimes you may not be able to remember, that is always possible. And sometimes experts think that you will come to know what will happen. So make him confident that this information will be used for a particular purpose or objective so that he comes out with the information, right.

And make sure that there are no communication problems. Role biases, you as the interviewer or the person as an expert make sure that you are playing, level playing field, nobody is going to dominate others, okay. And make sure that you are not going to discriminate based on age, race or gender that is very, very important and that would help you to reduce the information reliability. That is okay. Thank you.