

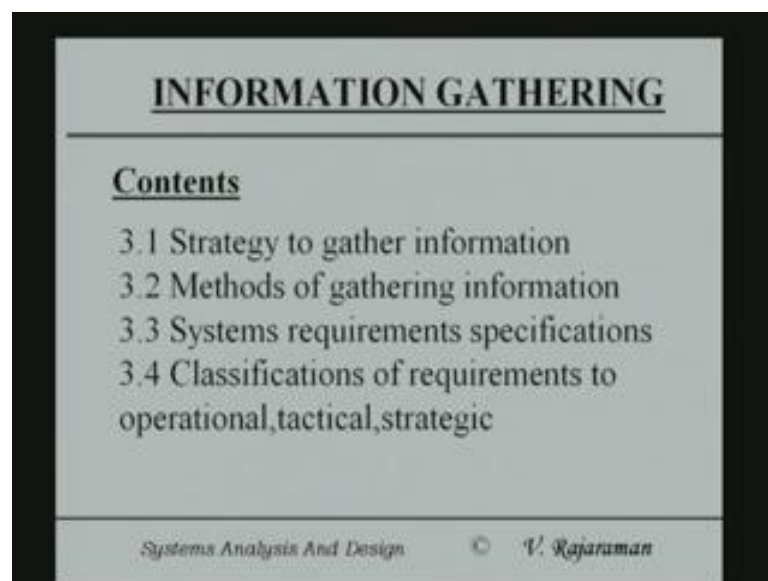
Systems Analysis and Design
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Lecture - 09

The lectures, which I will follow are primarily on information gathering. Information gathering is a very important part of any system analysis and design process. Because, you cannot actually arrive at a systems requirement statement or system requirement specification, that is called SRS document. Unless, you have all the information, which an organization has and primarily the reason why we look at it, is to make sure that the correct requirements are determined.

So, this particular talk will have a number of parts. First we will talk about strategy to gather information.

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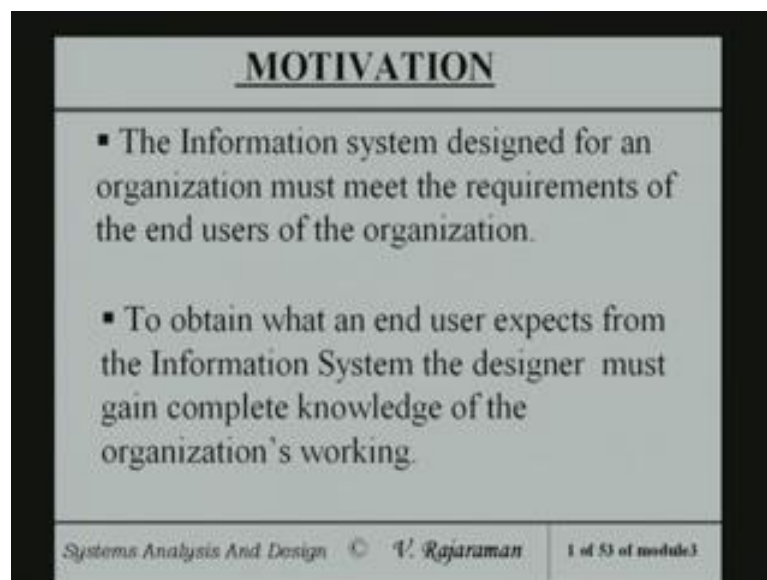
What are the methods, which will use to gather information. And using this, how will you arrive at system requirement specification. And classify these requirements into operational tactical and strategic information. Because, as we have been continuously pointing out. All the three are very important. And most organizations seem to be quite satisfied with arriving at operational system.

And they do not really look at very carefully, the use of that system for tactical and strategic operations. In other words, based on the operational information, you arrive with these types of information, which aids the middle and top management. And that effectively is the one which gives profit to the company. So, one should not really stop with the operational information system.

Because, that is unfortunately even today in many organizations, they seem to think. That, once they come up with the operational goal and have an operational system going. So, that day to day operations of the organizations go on, without interruption with the area of computers, they are satisfied. And they do not seem to think, what further use can be made of this.

And that is one of the reasons why I want to emphasize right at the system requirement specification stage. The these type of information also. So, that these goals are clear to you and clear also to the management. So, as you proceed you always make sure that at the end of the process of creating the SRS. These are also created and made known to the management.

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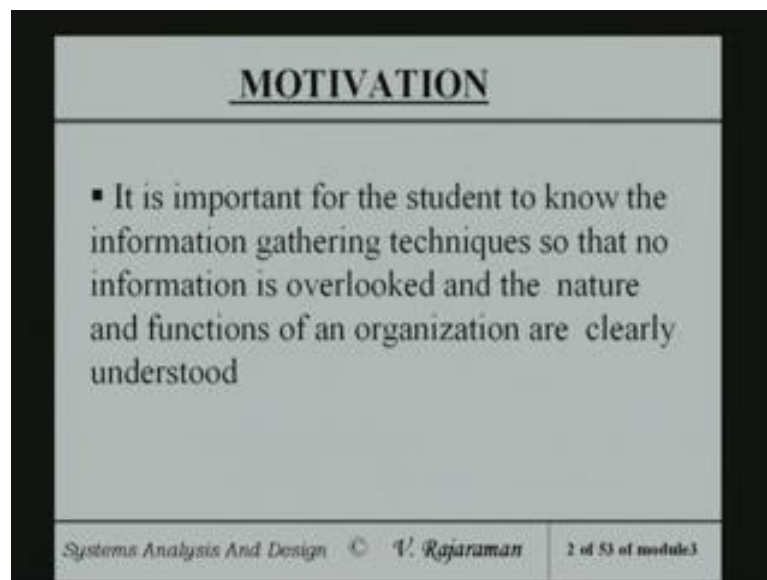
Why motivation mean why should we have no talk about this at all. The primary goal of information systems is to meet the certain requirements of the end user of the organization. So, end users requirements are the primary reasons, why the information

system is being designed. So, if that be the case, then the you have to make sure and obtain from the end user, what he thinks the information system will provide.

In other words to from the end user service expectation. And their expectation has to be fulfilled by the system, which you design. And in order to do that, the designer must gain complete knowledge of the organizations working. Unless you get a complete knowledge of organizations working, it will not be easy to come up with a proper system.

Like, suppose you are going to a hospital to create a information system for them. You have to know, what the hospital management expects at the end of this computerization phase. So, you have to be able to fulfill that expectation.

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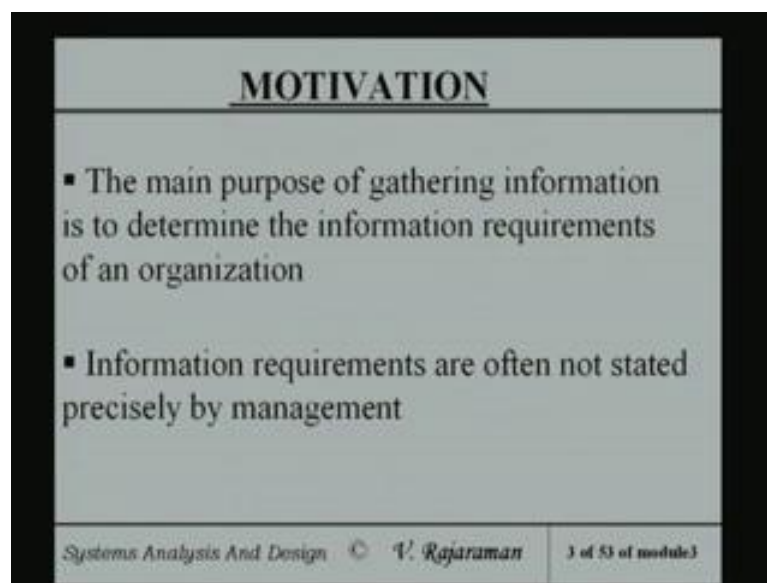
It is important for students to know, what is the techniques to gather information. So, that no information over looked and the nature and functions that an organization are clearly understood. In other words, what I really mean by that is the techniques must be such that, you do not miss certain aspects of the system requirements. And you also clearly understand the functions.

See, what really hurts system designers most is that, very often people who work in organizations regularly. Assume certain things, because they work with day in and day out. And they do not state back very clearly. They do not state it because they think that

everybody knows it. So, what hurts is unless most is what is assumed by the user to be known everybody, which you do not know. Because, you are new to the organization.

And unless you ask that question, have you left out something which is obvious to you. But, not necessarily obvious to me and get that. See, what hurts most is what is unstated, not what is stated. So, it is very important to be able to find out or what is called filleting out or mining out from the information gathering stage. All the aspects both which are stated and which are implied and which are not stated explicitly.

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So, as I said the main purpose is to determine the information requirements. And as I said it is not also not often précised state precisely. In other words there are two aspects. One is not stating at all assuming that you know it. The other is even when, they are stated they do not state it variable precisely. Like for instance, if you go and try to computerize a hospital, they say that it turns out that we have periods, where there is a lot of beds which do get vacated.

But, we do not have information the bed have been vacated. And so we cannot allot that bed to new patient who comes in. Because, we feel ((Refer Time: 09:04)) because we are not informed, we do not know those beds go vacant. And the person does not come there see and is a precisely saying all this very clearly. They say the our problem is that, there are always empty beds in the hospital.

The question why are the empty beds has to come out from whatever system you design. So, they will similarly in hotel they will say, we always find there are at the end of the day some days, we think that the hotel is full. But, you find that many rooms are vacant, which you could have actually allotted. And we did not allot, because we did not have that proper information with us.

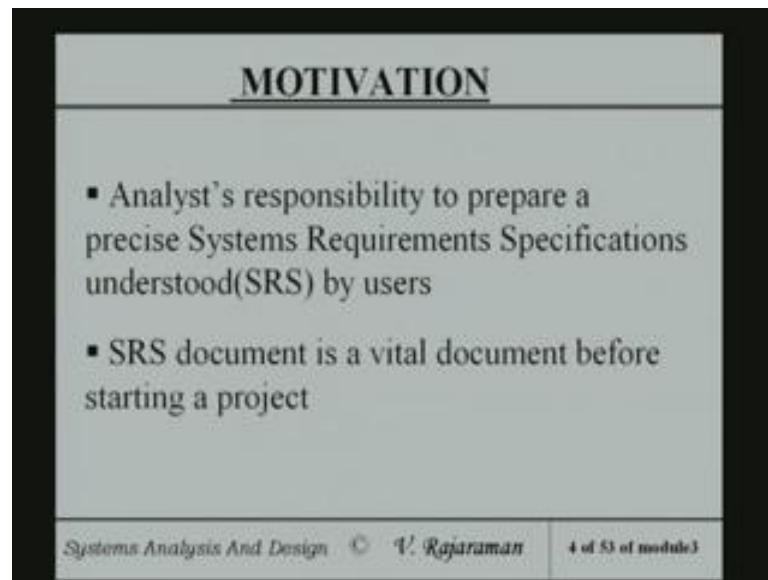
Because, many of the manual systems that are links, which are links by people. and one person is suppose to tell some other person and that person forgets to tell. He forgets to tell the person, who want to know does not know it. Whereas, in the computer based system all these things, there is no question of will get automatically transmitted. The information will not somebody will not forget.

Because, as soon as something happens he has to take some action. The action is forced by the computer. And ones it is forced by the computer then of course, it will flow to the appropriate place. So, that is the major problem. In fact, later on we will see it again, because very often people do not state very clearly. In fact, there is a case study even in this book which analysis and design of information systems.

The case study is about designing a information system for a student hostel. Again in a student hostel, the warden apparently wants that he computers are useful for actually running the hostel in a better way. Now, he when he call somebody to help him or assist him to computerize the operations. The only thing he will say is that I am told, that computer can help in many ways in making the hostel run efficiently.

When, you have to really get out from him, the what are the problems currently he is facing. So, once he we understand the problems he is facing currently. Then, you can explain that these are the ways in which machines will be able to help. So, that is the point, very often they do not state. So, that is brought out in the case study.

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Ultimately as I said at the end of the fact gathering space. The end product is the system requirement specification document. SRS document is a very, very important document. Because, that is the document which is signed by both the management, which ask for the system. And the designer who promise to deliver the system.

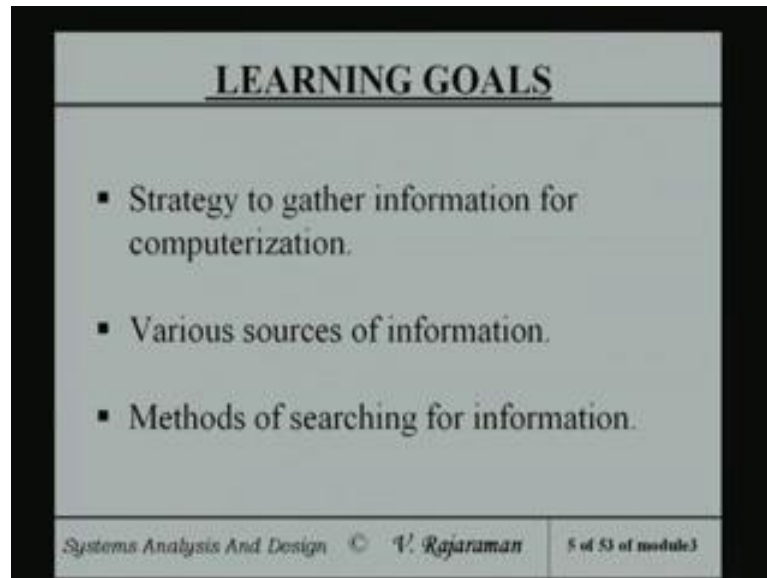
So, the SRS becomes you might say the basic contractual document on which the entire contract is drawn saying that, the arc the computerization of the company. These requirements, which is stated will be met. And so when you say, these requirements will be met, the person who give you the requirements, can then check. Whether indeed system meets it or does not meet it.

And you can that stage, he cannot talk about new requirement, which is never put into SRS. So, SRS must be complete in all aspects. So, as for as the analyst and the company, which is delivering then information system is concerned their responsibility is only to fulfill SRS. Something beyond that, which the user suddenly thinks about is not part of the contract.

So, that extend SRS should be tight. If it is kind of loose and things are left unstated. Then, there can be dispute at the end of the entire process. And there have been many, many situation, where the user thought something. And the system analysts thought something else. And so the two do not agree and it goes into even a arbitration stage.

That is one case 2 years ago, when one company from India had contracted for the bank in Indonesia. And when these people went there and those guys said that we are not fulfilled. And we have taken part of a money and so they put them in jail. And there is a big fear over. And other situations, where it can be very, very tricky unless you have a very clear SRS drawn up and contract drawn up. So, write a document.

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LEARNING GOALS

- Strategy to gather information for computerization.
- Various sources of information.
- Methods of searching for information.

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So, the main goals of learning goals which you have for this set of lectures is one of the strategy to gather information. What is the various sources from which you gather information, And how do you search for information. As I said you have to mine or ferit out information from people. Also not only from people other things also which I will talk about.

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LEARNING GOALS

- Interviewing techniques to gather information from line managers to top management.
- Methods of consensus for formulating requirements.

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Interviewing techniques to gather information from line managers to top management. That is in fact, we will one of the most important fact gathering methods is by personal interviewing. Personal interview is, where you spend time with the user talk to him or talk to her to find out what they need. And so this gathering of information is very important.

And the point which will be made, in talks is that this information is not obtained only from the top management. Top management is got certain kind of overall perspective of the company and what they require. But, then there are people down the line, in other words second level managers who are called line managers. And then, the lower level managers and also the workers.

The actual for instance in the hotel, it may be the desk clerk. Who ultimately has a terminal in front of him. And he enters various things on it or an accountant who creates a bill, with that machine. Or if you go to a hospital, it is ultimately the fund reception desk which finally, will give you the bill and things like that.

So, the person who is going to operate the system is really not in the managerial cadre. But, he is in the working cadre. And the person in the working cadre, because of lot of experience and work for the company for many years, they have a lot of things to tell you, which the manager may not know. Because, day to day this is the person who is in

the firing line, in the sense of getting all the wrath of customers and facing all that problems and so on.

So, he knows more about the problems of users or user ultimate users of the system, which you are going to design. So, he will have a lot of things to tell in terms of may be even not to do and what is to be done. So, one should not really ignore the lower level people, in the sense that working level people.

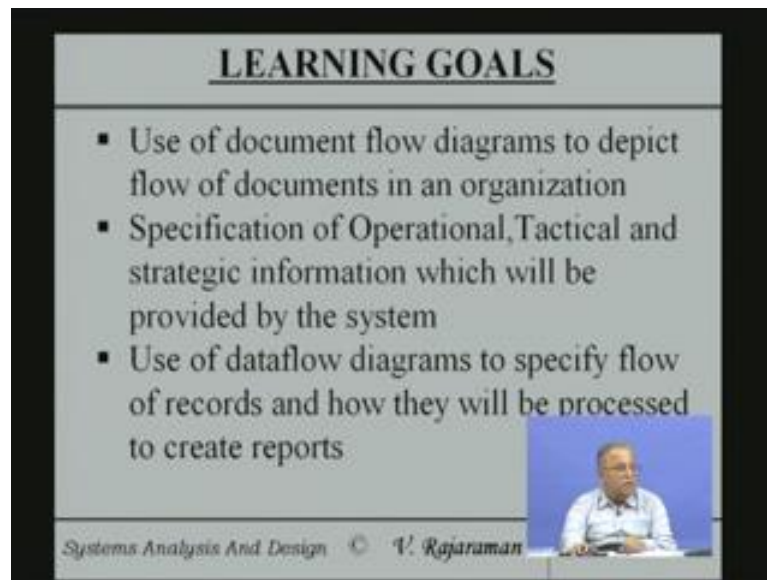
That is true everywhere, including banks. If you go to a bank today, every bank teller has a machine in front. In all ((Refer Time: 17:42)) teller is the one who operates the machines. And if the operational problem is difficult, the user inter phase are difficult or what the person cannot understand very clearly. Then, your system will fail, because the person does not know how to use it.

So, that is a need to look at the requirements particularly, the user use requirements of the people who are going to actually operate the machines. Now, what I mean by consensus for formulating requirements is that, in any organization there are conflicting requirement and conflicting goals. And one has to arrive at some kind of a fully agreed upon set of requirements, going back to my example of house building.

There are conflicting requirements, in terms of what a house should have. As I said the mother may require a large kitchen and some may require a good computer room. And the grandfather may require a good pooja room and so on. So, there are each person is got it is own priorities. And what that person considers as his requirement or her requirement.

And within the constraints of budget, time and what is feasible, you have got to arrive at the consensus. So, what is ultimately what can be done. So, each person has to do some give and take. And so, you really have to arrive at some compromise. That is, what is meant by consensus really implies, some compromise of the requirements to ultimately something kind which is which can be met.

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LEARNING GOALS

- Use of document flow diagrams to depict flow of documents in an organization
- Specification of Operational, Tactical and strategic information which will be provided by the system
- Use of dataflow diagrams to specify flow of records and how they will be processed to create reports

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Now, a day's there are number of tools which are used, in the development of in the during the course of information gathering. And also as a part of the SRS document. These tools are called document flow diagram, which depict the flow of documents in organization. Like in a what I mean by document organization is the if you go to a hospital, one of the documents will be the patients admission card.

But, the patients name, detail will be there and whatever the advance the person has paid will be there and so on. So, that is a document and that is the document cleared, when the person first comes. Similarly, in a hotel when a person registers to be resident a lot of information is taken from him. And that is really a document.

And now that document how does that flow. That is important to know, because very often documents flow from place to place to place. Like, particularly for instance if you take an organization, where which receives a lot of items, which goes to an inventory in the shop. Like for instance, if you take for a shop example of a food world or food market kind of a thing is a retail store.

And when the items are delivered, this delivery note comes along with it. This gives the quantity and price and stuff like that. And that has to go to the next level for processing and so on. So, documents are actually the many very often, manually written documents, which at physically flow from place. And of course, with the network to world, you try to minimize this what is called the use of paper.

But, also in done paper use has not gone down, gone has not vanished, paper is still used. So, very often documented signature is considered more secret or more important. Than a entry on a machine. This is of course, partly psychological, partly it is required for legal purposes. So, that is a document is also always there. So, that is document flow in the system.

And specification of operational tactical and strategic information, which will be provided. And there is another two called data flow diagrams, to specify the flow of computer records. That is, records generated by the computer and the processing. What processing takes place? What kind of data bases, the processing step refers to whether the data base it has to read from the data base or both read and write or update data base.

These are things which are specified in the data flow diagram. So, data flow diagram is at a level, which is more computer oriented. Then, a document flow diagram which is more at a level of the user oriented. In other words what really is currently happening in the company or organization.

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INFORMATION GATHERING STRATEGIES

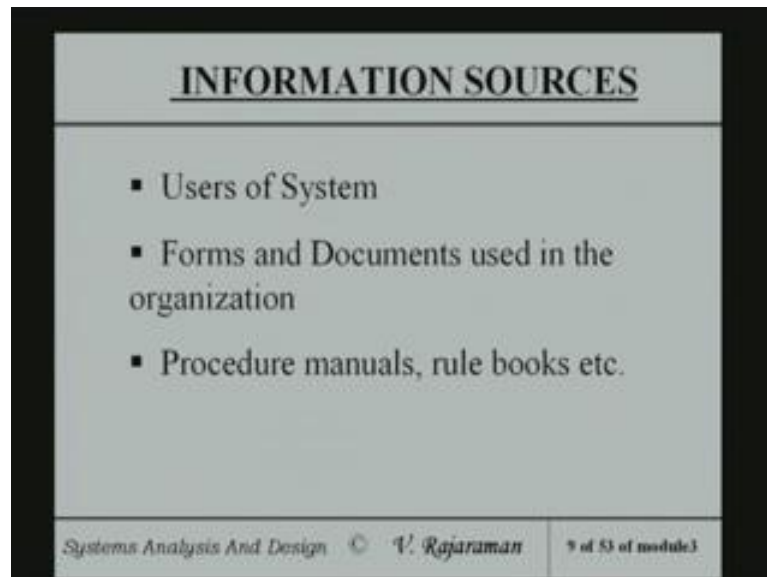
- Identify Information sources
- Evolve a method of obtaining information from the identified sources.
- Use Information flow model of organization.

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Now, the let us look at strategies for gathering information. First of all we have to identify information sources. What I mean by identifying information sources is there may be a multiple information sources, which may be there apart from the interviews. So, we have to look at identify these things. And evolve a method of obtaining information from the identified sources.

How do you, in other words information sources are what are the sources. And how do you get information from those sources. And there is something called information flow model of a organization, to get an idea of how information actually flows in organization. So, that can be used.

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The main source of information are users of a system, like in a organization or there are number of users of the particular system. There are two situations, which one may encounter in practice. One situation is the situation, where is already computer based system, which is operational. And the management fees that system, which is operational is out dated Is it requires changes and improvements, at the beginning of the it is all right for their purpose.

But, now they feel something can be done better. So, they want the system to be replaced with the new type of a system or abinitio. In other words nothing is there and you start from scratch. Starting from scratch is some times more easy. But, because you can use most modern technology. But, that is not always the case.

For instance what I mean by an existing system. And going to a new system is that, they may have the a system, where there are one or two computers, which are isolated there are not connected. And they may be using some old software like cobal and stuff like that. And that is probably fulfilling certain purposes.

Like for instance, they may be just doing it for creating the pay roll or creating the bills and so on. They are not talking about any other important requirements. So, now they hear there is a internet available. There is a local area network which can be made. So, every computer can be connected to every other computer. So, working multiple computers in the same organization. And the cost of the smaller computers has gone down considerably.

So, replacing the hardware may not be a expensive proposition. It may be a proposition which will more than pay for the advantages they get from a new system. So, they may say that, down of that we have this new internet line and stuff like that and e mail and what not. Now, you would like also to get into that state.

Like for instance a hotel, which you are routinely doing some work, primarily for with creating bills and some aspects of the hotel. May, say that I would like to now have a web presence. So, that you have web presence, then anybody from anywhere in the country or the world even. Can look into my site and book a room in my hotel, directly.

And so I would like to be able to provide the facility. And also confirm immediately and things like that, which previously was not there. So, these are kind of new requirements, which essentially is another dimension. You can look at the forms and documents used in the organization. Because, there are lot of forms and documents which every organization already uses.

Like you know, if you look at a if you want to computerize the process in a college. Like, attendance, like examination result processing and student admission and so on. We have already some documents, like when a student enters a comp college he or she has suppose to fill up and complete form.

That form has got a lot of details, starting with name, age, mothers name, fathers name, local guardian, address, phone number and umpteen things, sometimes you wonder why all they are required all these are required, but there is a form. This is actually a document, which is necessary for some purpose.

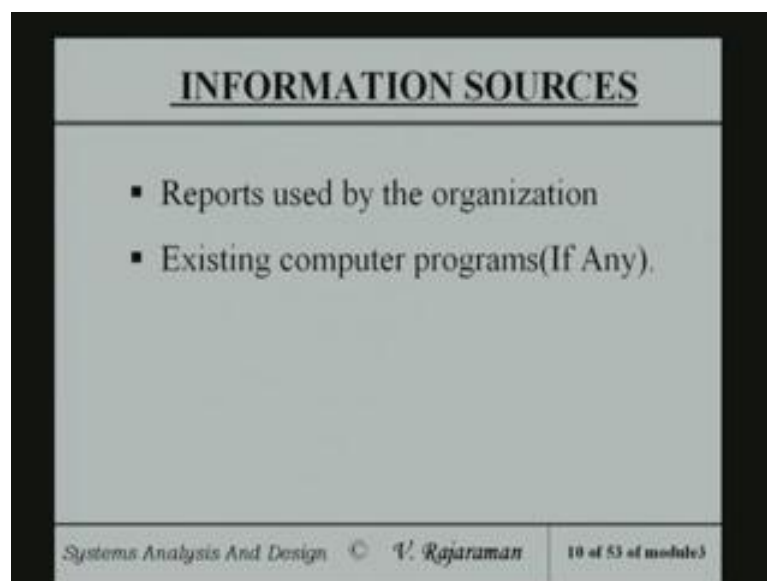
Sometimes they even do not know, why they have collected that all that data. But, that data is always very often there. So, that what data collected, how can that be used. There are also certain procedural manuals rule books and so on. What I mean by that, if you

have a if you look at an insurance company. When they go and ensure a person for life insurance.

Then, there are whole set of rules and regulations on what the premium to be charged. What are the restrictions on the policy. Similarly, if you want to go and insure a two wheeler. Two wheeler insurance company will have certain rules and regulations, including things like asking what is your age. If you are below 16 or something they may not insure you or you have for above 80 they might not insure you.

So, there is a certain rules and regulations. So, they are called rule books and there are certain manuals, which essentially are used as something which is got to be implemented in the computerized system. Computer based system has to implement many of these rules, which are currently implemented manually is that we automatically implemented by a machine.

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Reports used by organization. There are many reports, which are there like was there are by reports I do not really necessarily mean only long reports. Reports may be just a result card, that is at the end of every semester, they give you a card giving the grades, which you got in the examination. And the cumulative average you have gotten, so far.

So, that is the report which you report card you call it. Report has some information. So, now the report is got to be computerized. The computers generate that report, then over

and above what the report currently generates in a generate more. Because, it may be easy to generate more information.

So, you look at the existing reports. And organization always have many reports. And if as I said a computers already being used by the organization. There is a computer program. And of course, program are notorious, in terms of being really able to understand. Hopefully along with the program there will be some documentation.

Very often the documentation will be out of date. It will not be corresponding to the program, because somebody would have changed or debug the program. But, if the programs have got a number of comments and so on. Along with the document, you can also run with trial data and see what really happens.

Reading the program does not necessarily means, just going through a program and scanning it. But, you can create input data sets and see what the outputs are. What the format is like, in terms of the inputs? What kinds of reports does it generate in existing systems. And what aspects of that report, the current management is not satisfied with. So, what improvement are required in the report.

So, this existing system has got to be looked at if there is any. As I said interviews are very, very, very important.

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INFORMATION SOURCES

- Interviews are very important
- Use organization chart
- Understand the importance of the people who operate the system-Clerks, Line managers.

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I emphasize that, because interviews bring out a lot of information. Because, everything is not written up. No company will write up everything in terms of procedures, rules, regulations and so on. And people who have been working know a lot of things, which they do not put on paper. And they kind of know that see and everybody knows it kind of.

But then, you have to gather that. Use organization chart of the to see who does what. So, that you can get the right information from the right person. Understand the importance of people who operate the system. Otherwise as does not you know I am emphasizing it again, clerks lower level people and so on. The example, the case study example which is given in the book, have been looking at the example of a hostel, where the hostel chief warden ask the system people.

In this case may be a company, which is doing work for him or it may be even their own Information Technology department, IT department which may try to do it for the as a exercise may be further student saver. Whatever, the point is the example which I have taken. The warden is the person who ask for computerization.

Now, the first person to go and talk to is the warden. He is the person, who is in the top level in this case, top level management. Now, when you talk to that person, you can get an idea of why does you want computerization. And then, what is the priority also within his own mind. In the case study, as I said the warden has number of problems he faces.

What are the problems he faces is that? The mess is that essentially run in this case by the students. It is not contracted out to the contractor. Because, very often organizations, you know not colleges, some of the better places like IIM for instance and IITs and so on. The student themselves, run the mess to make sure that, they get the best meal from the mess.

So, when the students when the mess. Then, there are issues in terms of the fact that, they have to create a menu. They have to actually collect the bills. And they have to also make sure of the right amount of raw materials available for the cooks to cook for the specified menu. And also they do not depending upon the number of people, there they should not cook more than required or less than required. There are lots of constraints like that.

So, one of the problem is states is that, we are at this time do not know which students are not paid their mess bill. You know, they may be delaying their mess bill payment by more than 15 days. But, then you know the mess bill is delayed. That means, there is always a financial crunch. So, I would like the system to bring out, whenever the student has not paid 5 days beyond the dead line. Immediately, that list of students should be brought to my notice.

So, that I can call the student and make sure the payment is made or find out the reason, why the payment is not made. So, that is one of the priorities which he has. And then, he talks about also the problems in terms of ordering an items. See ordering item for a mess is reasonably complex. In the sense there are certain items, which are ordered in a monthly basis.

Like for instance, if you order rice or dhal or wheat flour and so on oil and stuff like that. They are all on a almost monthly basis. Because, they may order in bulk and you get a cheaper rate, if you order in bulk. But, certain things like milk, vegetables and so on had to be ordered had to come every day. And some of them are perishable. So, you cannot over order or under order. So, the other question which he another point, he wants to make is that the currently our system is not able to control the inventory.

What is meant by control inventory is I must have both perishables and non perishables, the correct amount and not over stocks. Particularly perishables, the over stock or under stock I get to a problem. So, there must be some methods of working backwards. In other words knowing, how many members are going to be taking food on a given day. And based on that work backwards and find out, basing the menu, what vegetables have to be ordered and how much we have ordered?

And how much ahead has to be ordered, things like that. So, the point is that chief warden gives overall perspective. When, you ask his room booking, that is allotment of rooms to students. And keeping track is that priority say no, no, no. That is not very great priority at this time. Because, that is going on manually is going reasonably alright.

Because, there is no big turn over from one the student joins the hostel, almost the whole year the rooms are not changed. You have certain rules, saying that rooms cannot be changed easily. So, the person is in that room, so it is very easy to keep track of that.

So, that is not really at this time priority for a computerization. So, the point is you get a lot of these things from the chief warden. And then of course, you have to ask chief warden, who is in charge of each. There may be an assistant warden who is in charge of the mess. Another assistant warden in charge of the room allotments and so on.

As another assistant warden may be in charge of discipline and stuff like that. And then, the assistant warden will be assisting in turn by the people in the hostel office. Like the person who order, order the items. The person who kind of creates the bills, the accountant and the person who pays the bills, whenever something is ordered. So, these are lower level people.

And of course, in this case I have said students, students run the mess. So, there are what in these organizations, there are student mess committee. And there is a mess committee which decides about the nature of the menu. And the kind of daily rate, what they normally do is at the end of the month. They compute the total amount of expenses, which are being entered in ordering all the items. And for the towards the payment to employees and so on.

And find out the total expenses for the month. They find out the total number of students who have been members of mess. And divide the expenses by the number of students. And also the students, some students may not be there for the entire month. Because, they may have taken 3 or 4, 5 days leave. And those 5 days rebate is given, normally in a student run mess.

So, 5 days rebate, so in other words he had to get a daily rates. So, that based on the number of days in a person aid in the mess, you create the bill. So, the daily rate is something, which is known to every student. If the daily rate suddenly goes up to 50 rupees from normal of 40 rupees. Then, there will be some kind of a dissatisfaction among the students.

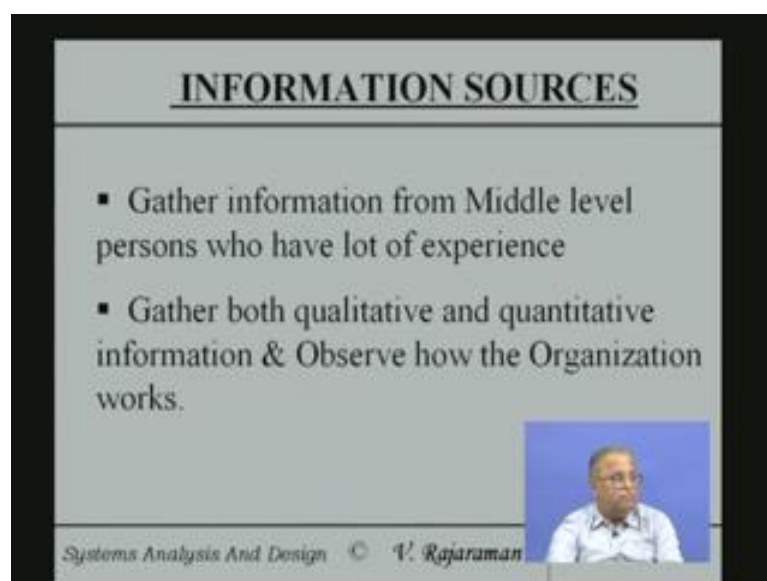
So, one of the purpose of the mess committee is to keep the daily rate, reasonably constant within plus minus 1 or 2 rupees. But, at the same time, there would be complaint mess rate are too low, they will be giving potatoes every day or things like that. So, they also have to make sure that, the menu is balanced and so on. And then, the bills are made.

So, the mess committee has got to be interviewed to find out, you know what is the way in which they compute daily rate. What way can they essentially, in what way can a computer help for them to kind of even plan a menu. Plan a menu, which is not a monotonous menu, day after day. And also it is not a menu, which is repeated every week. So, that everybody knows if it is Monday, then it is masala dosa things like that say.

So, there is a certain rotation. So, these are things which can a computer help. These are questions, which the mess committee was interested with. So, these kind of information gathering, you talk to variety of people. In this case, the students, the clerks who are doing all this ordering and payment and so on. And the some kind of mess supervisor will be there, who is in charge of all the workers. And make sure the workers work properly, there is no prefer age and things like that.

Because, these are important problems, as for as supervision is concerned. And then, there is the wardens and then the chief wardens. So, all these levels have got to be looked at. So, the organization chart really means, starting with the chief warden. The assistant wardens and then, the mess committees. And then, the actual office staff and then, the working staff. So, these are chart you look at. And at each level, you try to kind of look at talk to persons to find out, the their perception of what a machine can do.

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INFORMATION SOURCES

- Gather information from Middle level persons who have lot of experience
- Gather both qualitative and quantitative information & Observe how the Organization works.

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So, middle level people have lot of experience. Like, because assistant warden may be there for many, many years. Similarly, in a hotel or hospital there may be person in the office for 30 years and so on say. So, gather both qualitative and quantitative information, what I mean by qualitative and quantitative? See, quantitative information is numbers. See, like for instance you can say, how many students are there in the hostel, that is quantitative.

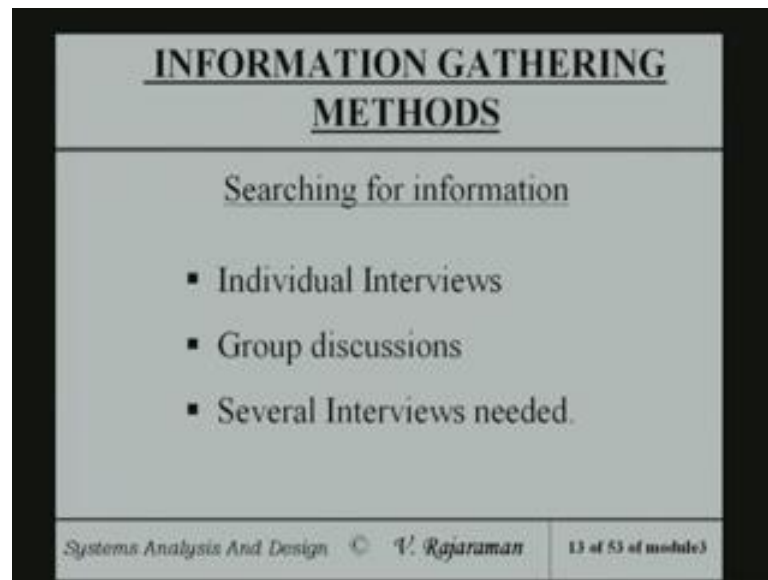
You can say, there are 150 students in this hostel. The qualitative may be in terms saying, what is the kind of normal optimization or how many people normally do not eat in the mess regularly. That is the kind of qualitative. Because, you do not know exactly. But, certain kind of a ideas you will have and also it is important to observe the organization work.

In other words, just by talking to people and gathering information, you do not get everything out. Because, people as I said there are two problems with talking to people interviewing. One problem is certain things, which they assume you know and they do not tell you. Certain other things, which they are not very frank. Because, they always try to hide some inefficiencies will be there, this is human nature.

So, there is certain amount of thing, which may be happening which is not stated in so many words. So, there is important for the unless to observe, what is going on. Of course, you do not spy. But, you get permission, you effectively see, what is the actual flow of documents, how it is being handled today, who handles what, how much time is taken at each level and things like that.

So, that is kind of observation. So, you will get from the observation, you get certain types of doubts, which will clarify by asking the person, who are suppose to provide these information. So, observations are important.

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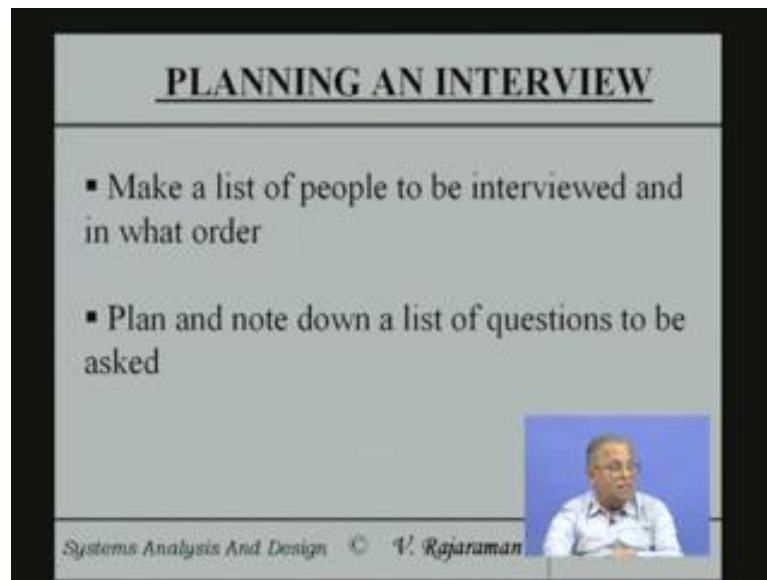


Individual interviews as I talked about group discussions, very often. Group discussions bring about more than individuals interviews do. Because, the group each person has got some perspective. Some body may say something and somebody else may even contradict, either is not really so. So, the group discussion a lot of you also find out, what are the conflux or the conflicting requirements which people say like a house I talked about.

Group discussions in this case is that entire family gets together. And in a group you find out, what really is the priority. What really is their requirement. So, group discussions help and several interviews are needed, single interview will never do. Because, first time around you get some basic ideas. But, second time around you can polish it and ask questions. In other words at the end of first time around, you may have lot of doubts, which you can kind of clarify in the later round.

Because, normally interviews cannot be too long. So, you got to keep the interview short and so you can go more often. But, keep them always short.

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PLANNING AN INTERVIEW

- Make a list of people to be interviewed and in what order
- Plan and note down a list of questions to be asked

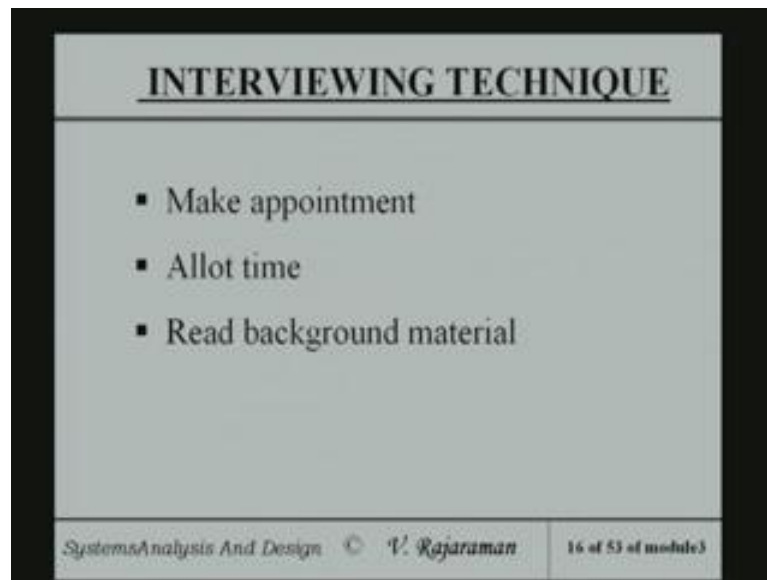
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So, plan what is a planned interview make a list of people to be interviewed. And what order, like a you go to the chief warden first and assistant wardens. And then, go to mess students, mess committee, secretary. And other students in the mess committee and then the accountants and all that. So, there is a certain look at all the order.

Plan and note down list of questions to be asked. That is before you go to any person, you try to find list all the questions, you want to ask. Because, but then you may not know the you know all of it, but at least some basic questions. Because, it is existing system, which you already looked up. And you knew, what the system is doing. Then, some of the questions you may ask is what are you not satisfied with this.

What are the parts which are really not really working very well. So, these are the questions you may like to ask. So, as I said several interviews to clarify doubts and interview groups as it is appropriate.

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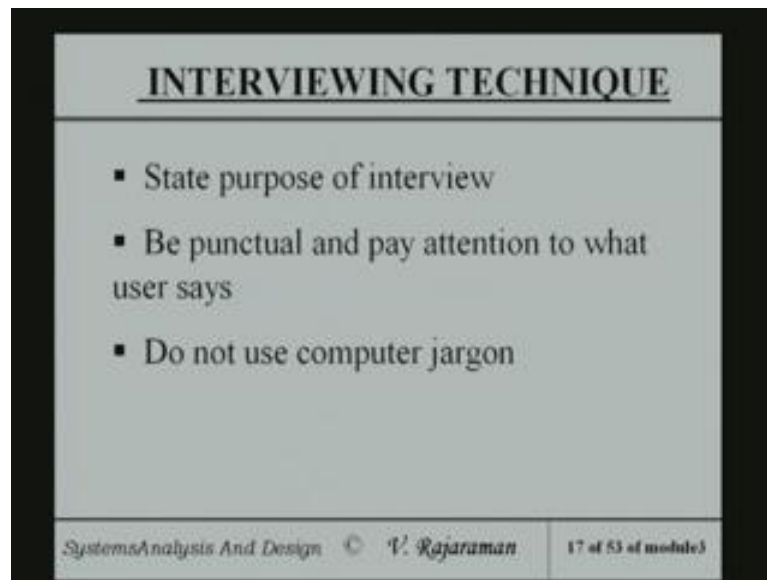
The technique these are all what I would say common sense. And one does not have to say that again and again. But, the reason I am stating that is many of you, when you go out of college are new to the field. You are not really done this kind of interviewing, when you are in college. So, you have to really understand what is interview process really means in real life.

And so in real life people expect you to make appointments. That is that you want to meet some body at 130. You tell the person can I come at 130. And you also tell the person may ask how long do I have to give you. Particularly, if it is a top manager he may not have lot of time. And if you say one hour, he might say no it is not possible or put you off.

If you say 20 minutes or 15 minutes, the person may say alright you know 15 20 minutes is. So, you really have to kind of allot a time, those in level of person in the organization. The higher the level, shorter is the time and the more the precise the question should be. Read the back ground material before you go about the company, about the organization and so on.

Because, what I mean by back ground material is, if you are going to kind of computerize a hospital or hotel or say a manufacturing company or retail company and so on. They have a lot of information about their company. And that information is in documented form. And that should be read. So, you get some kind of a idea.

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When you go for a interview state the purpose, what is it that you want from the person. And be punctual and very often it turns out, that people are not punctual particularly in our country. And you know, they have not accepted. Particularly, if you are going to be a you see many companies in India out source. What their outsource implies, neither in other words many of the contracts for Indian companies, come from outside India. Like, Japan, like USA and Europe and so on.

There people are much more punctual. Particularly, Japanese, they are very, very, very punctual. Even the trains if it says 10, 15, 30 seconds it will leave at 30 seconds exactly. Not one second late one second early . They are very, very concerned about their punctuality. That is also true about most European and American companies. So, punctuality is important.

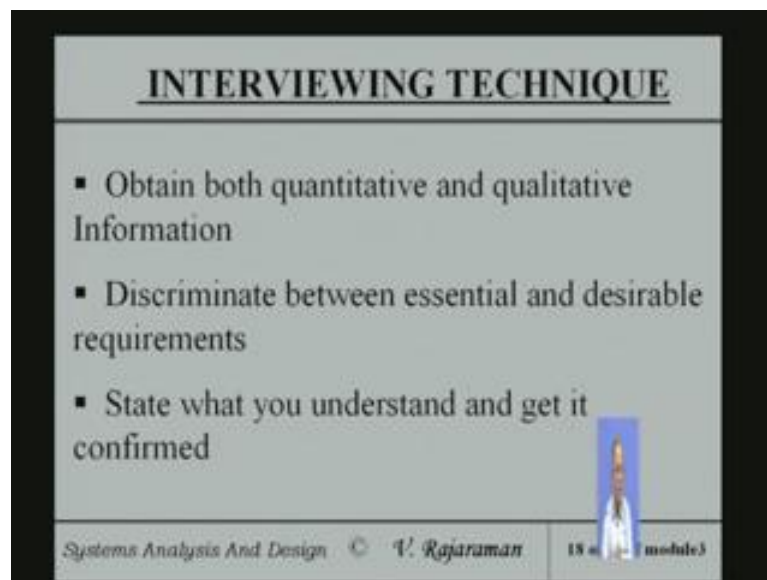
And you got to pay attention of course, that is obvious, when somebody is talking to you, you cannot let your mind wonder and not attend ((Refer Time: 51:33)) and do not use computer jargon. In other words, those people are not computer people. Do not use the what I mean by jargon is the you say I use java script. Say what is java script? It is does not mean nothing to him.

And so or use a acronym. So, you are saying that I am going to use ((Refer Time: 51:57)) model. What is ((Refer Time: 52:00)) model. What does it many people do not even know what the expansion of ((Refer Time: 52:05)) is, they just use it mechanically. So,

the point really is do not use such jargon. Even the jargon like modem, you know many people may not understand what a modem is say.

And so you have to really say that, you know it is a method of connecting a machine, machine to the internet some box black box is required to connect the computer to the internet. And so I am only the black box I will provide things like that. And you do not use jargon.

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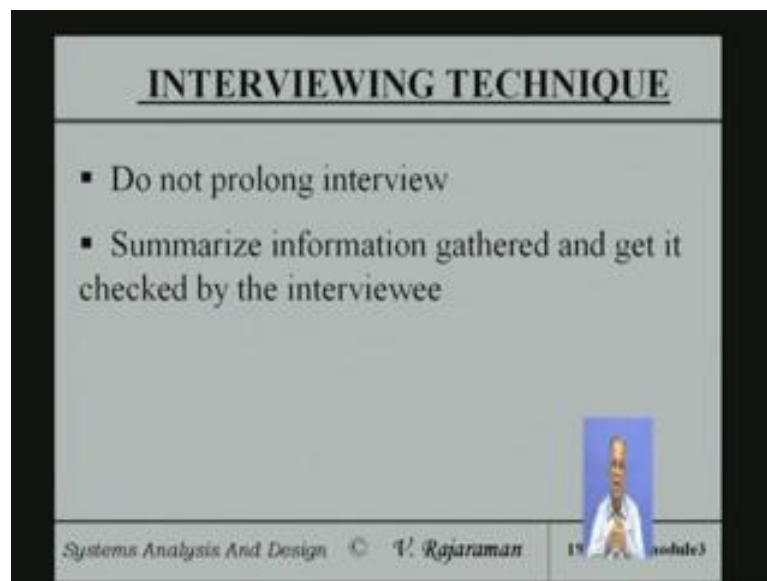


And as I said quantitative and qualitative information. Discriminate between essential and desirable requirements. Very often, what is considered essential, what is considered desirable is not very clearly stated. Like, in the case of a hostel essential requirement is that I have to collect the bills in time. Desirable requirement may be that, I would like to kind of at the same time by doing this I would like to be able to save some money or things like that or interest and so on.

But, then there is primarily objective. Primary advantages to look at the meet the essential requirements. And if you meet the desirable requirements, you can meet the desirable requirements. That is something which is, but then essential is got to be met first. Essential requirement in this case may be that, on the fifth day, if he is delaying his bill payment, on the fifth day precisely exception report should come to me, saying that these people have not paid.

A desirable may be I would like to get a less of habitual offenders. People who month after month after month are giving late clearing the bills late. That is desirable to that in case, that information may be used to try to find out, why this person is a habitual offender may be a reason. But, it is a desirable thing. But, essential thing is to get this report month after month. And state what you understand by what you said and getting confirmation.

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Do not unnecessarily prolong interview. See, if you plan interview people ((Refer Time: 54:46)) you can actually see, that interview is getting prolonged by this guy suddenly getting into phone or trying to phone or you know loosing attention and stuff like that. And summarize the information gathered and get it checked by the interviewee. In other words, the two ways in which you can summarize.

At the end of that half an hour, you can kind of summarize what you understood. And there is agreement or you can just keep notes. But, very often when you keep notes, you have to take permission of the person. And keeping notes. And now a day's even keep a tape recorder, portable tape recorder and record the interview.

Some people do not like to be recorded. But, you have to once you get permission of tape recording interview. The tape record the interview, in which both your questions and answers will be there. And you go back and review this tape recorder interview. And

create a summary of what you understood or what is the information gathered, during that interview process.

And that can be send as a typed document to the person being interviewed, with requesting his comments or commands. So, they if they say everything is fine, they can sign and return it to you, you also have a documentation. That what you understood is also they thought they said.

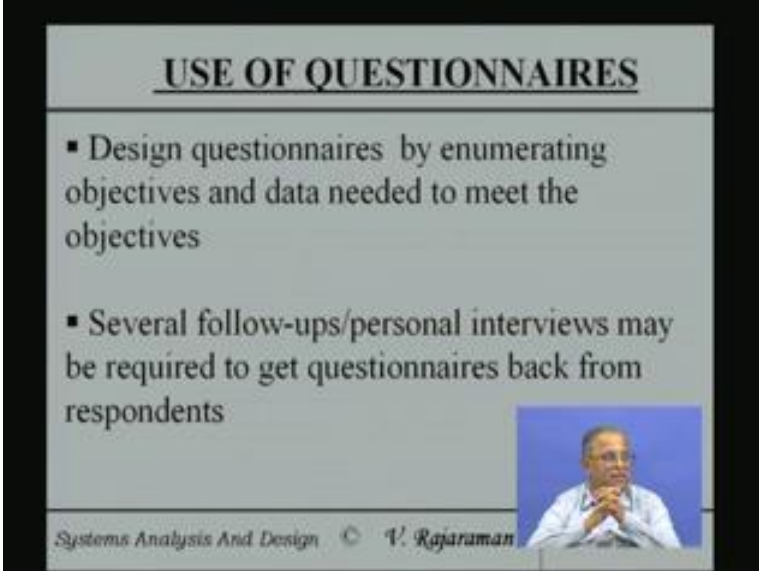
But, if they disagree they can scratch off some other things. And then, again say they will not what I said, this is something else. So, you can kind of add a note. So, this is important to have some kind of a, if possible written agreement from about what you understood. And most people may give it I mean they are not, because it is important at that stage.

Because, it is always good to clear doubts early in the game, than later in the game. See, one of the point which is made again and again and again, in the design of information systems, computer based information system is later you make an error. Or the later you understand the error is being made. In earlier phase, the more expensive is to fix that error. And more time consuming is that fixation.

So, the point is it is better to find the errors, when they occur. Rather than, wait and later on find a made an error. So, it is at every stage you really have to kind of remove the errors, which may be there. In fact, this so called spiral method which you talk about, the primary aim of this spiral method is to go back to try find out any error made at each step.

So, you can correct it rather than the so called water fall method, which will you work till the end, wait till the end before you correct. So, this only two different ways of looking at the same thing. In other words, in the method I gave method is primarily is that step by step. Each at the end of each step you review. And second step also you review second step. But, you do not stop there, you also go back and review the first step. So, that is the essential point. Second at each stage is important.

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USE OF QUESTIONNAIRES

- Design questionnaires by enumerating objectives and data needed to meet the objectives
- Several follow-ups/personal interviews may be required to get questionnaires back from respondents

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Questionnaires are useful for data collection. That is you create a questionnaire and then, give this questionnaire to give it to fill up. But, people do not like to you know Questionnaires. Some questionnaires come to you by mail, you will never fill it up, even if they give gift and things like that. If it is very short 10 questions you will fill it up. But, by in large you will not fill it up.

Very difficult to get question as filled up. Also questionnaires give only the quantitative information, they do not give you qualitative information. So, there are several follow ups personal interviews required. So, the questionnaire is only may be a preliminary kind of thing, where you eliminate the objectives of the data and need to be and how to meet these objectives. So, I will say little bit more about questionnaires next time. And also continue with this discussion of information gathering techniques in the next lecture.

Thank you.