Indian Institute of Technology Kanpur
National Programme on Technology Enhanced Learning (NPTEL)
Course Title
Marketing Management – 1

Lecture: W4-L4
Capturing Marketing Insights

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Dr. Shashi Shekhar Mishra: Hello, and welcome to our, yet another session of our course marketing management part 1, we are in module 3 of this course.

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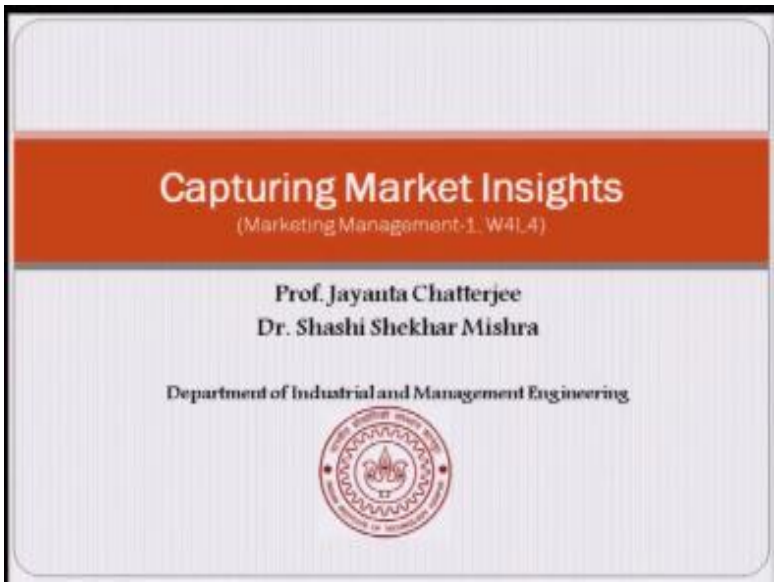

Dr. Shashi Shekhar Mishra: And we are discussing about capturing market insight which is module 3 of this course, we are in week 4, this is lecture 4. So what we were discussing in the last class, the role of the measurement and scaling and that can be understood, I will just give you a quick recap what is the role of measurement in scaling was, that first you conceptualize your marketing problem, you decide what your decision-making situation is.

Based on that you come out with your marketing research problem and as you can recall there is a cause and effect relationship between marketing research problem and the management decision problem. So you basically first conceptualized the problem, then create your research objectives, create your research design and then you basically decide how you are going to capture that information through that research design.

And then you have to go for empirical evidence gathering part, however this bridge is being fulfilled by this measurement in scaling which enables you to test your hypotheses, test your theories.

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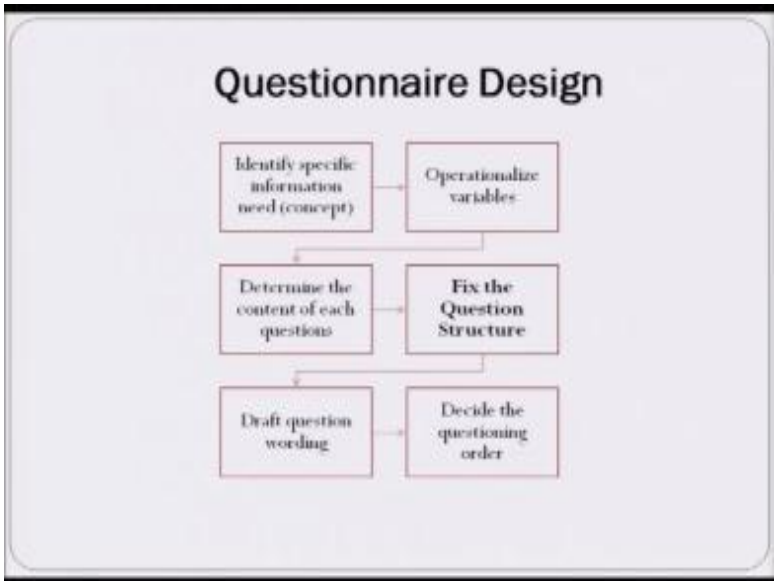

Dr. Shashi Shekhar Mishra: So in the last session we discussed about the questionnaire design part in detail wherein we have looked into the various steps of this questionnaire design process as illustrated in this slide, that you first start with your – by identifying the specific information needs, then you decide like which variables to be measured, and then you come out with the operational definition of that -- those variables, then you determine the content of each of those variables and you frame your – the questions that will be required to measure those questions.

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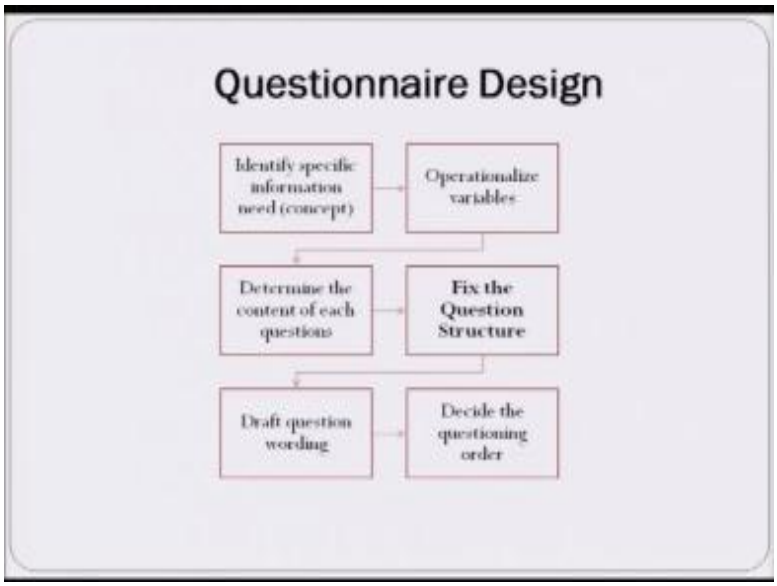

Dr. Shashi Shekhar Mishra: Then you draft your question wordings; decide the questioning order and this is how you design your questionnaire.

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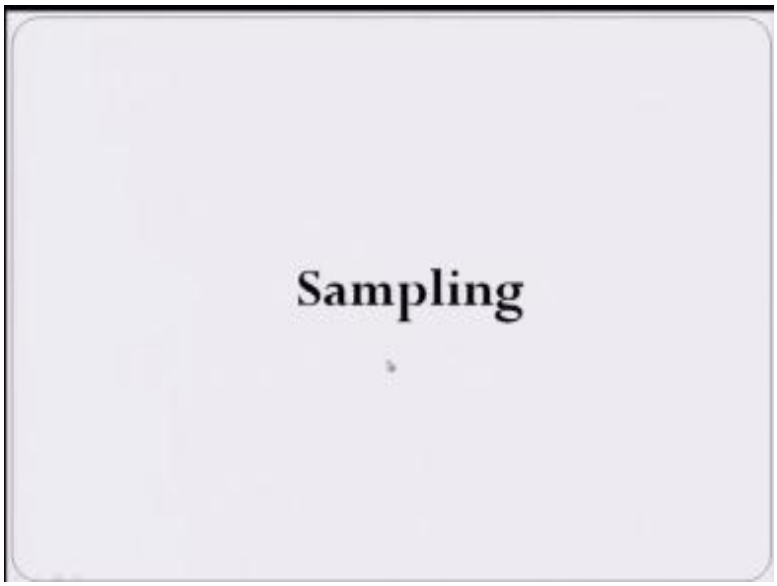

Dr. Shashi Shekhar Mishra: After that we just started discussing about the next thing which relates to this empirical testing or evidence gathering part which is like sampling process. So I have told you what is sample.

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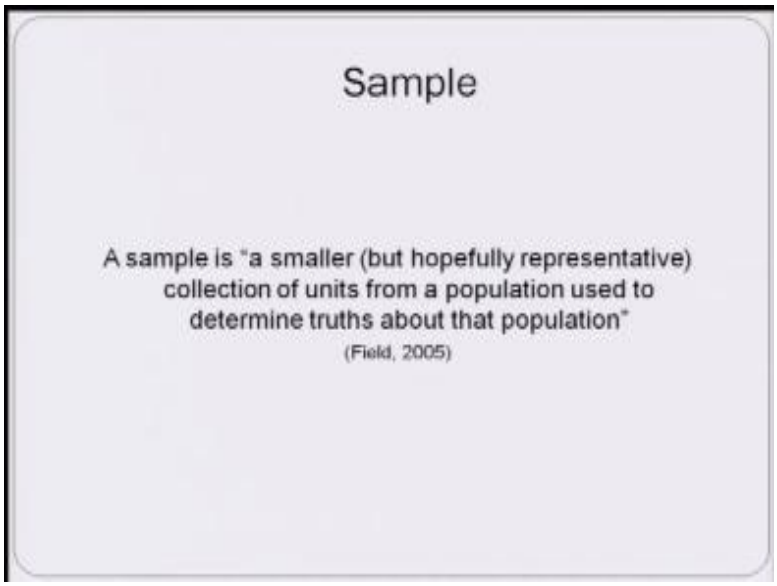

Dr. Shashi Shekhar Mishra: A sample is a smaller collection of units from a population used to determine the information or the facts about that population. So in many cases it is not possible to conduct the – to get the data from the entire population, because of the resource constraint or could be, because of the other reasons you will find out, then marketing – we will be dealing with the sample drawing, representative samples of the population, and then drawing inferences about the population, based on the sample estimates.

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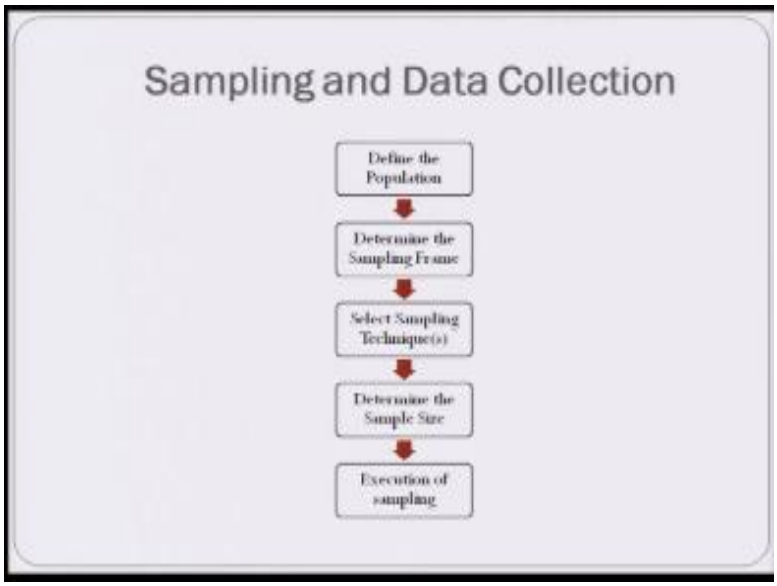

Dr. Shashi Shekhar Mishra: So this sampling in data collection process is illustrated in this slide as you can see that first you define the population.

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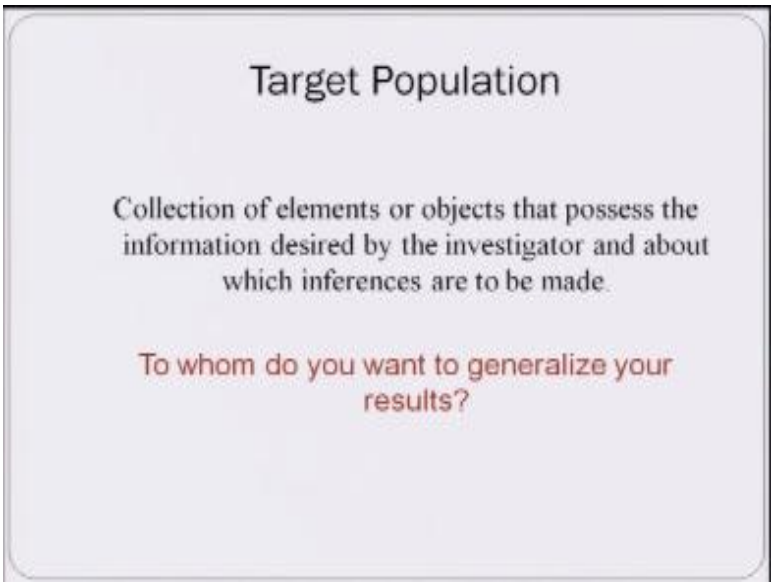

Dr. Shashi Shekhar Mishra: So I discussed about what is basically target population. So the very easy way to understand what your target population is, you ask the question to yourself like to whom do you want to generalize your result, that will give you the answer or the definition of your target population and which are the units or the elements of that population.

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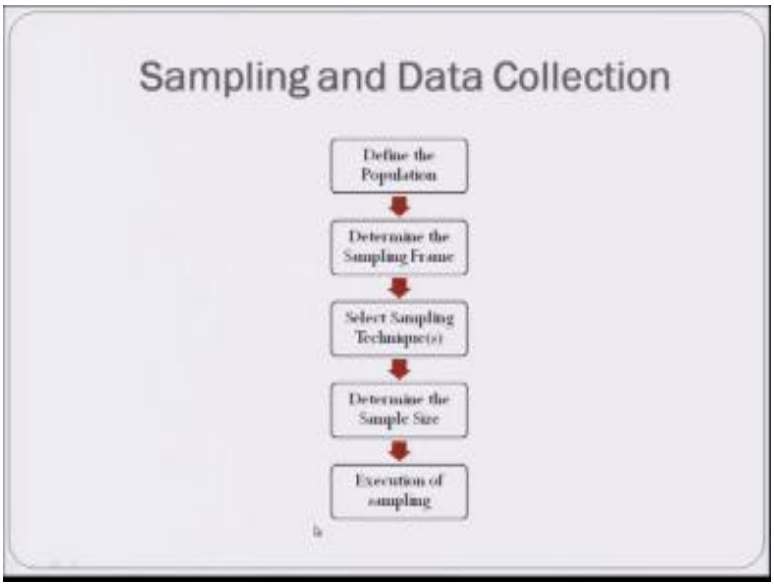

Dr. Shashi Shekhar Mishra: So once you have decided that the next thing is that you need to decide the sampling frame.

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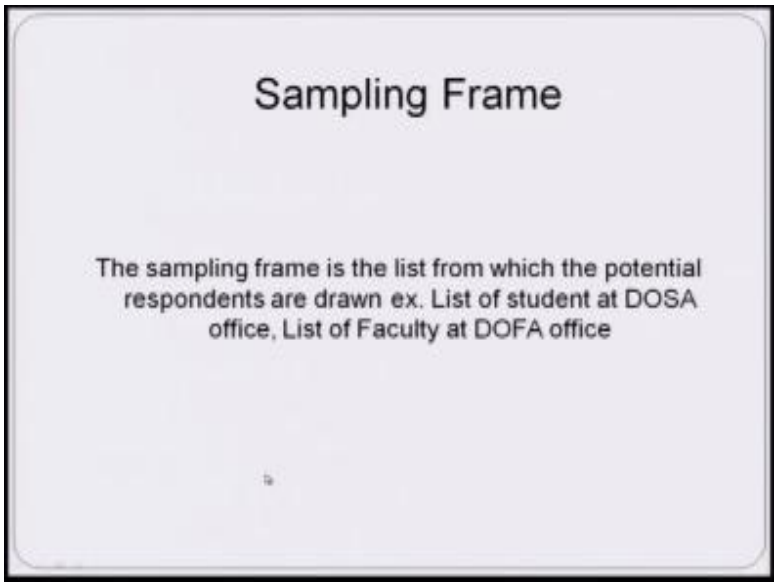

Dr. Shashi Shekhar Mishra: So sampling frame is basically, is the list from which the potential respondents are drawn. So you will find out to basically -- to collect the data through sampling process for the first thing that you do after defining your target population is, you need to have a list from which the potential respondents are drawn in this, this sampling frame should be represented of the target populations like a couple of examples I have given.

Supposedly I want to basically do a study in IIT Kanpur on some study on the student. So whom to, I mean how to -- what is the target population in the institute, the target population is the all the registered student in this institute. Now the next thing is what will be the sampling frame, the sampling frame will be -- I can go to the dean of a student affairs office and then I will ask them give me the list of these student.

And that will work for me as basically a sampling frame, very easy example to understand is that I want to basically conduct a study on the resident of a city. So one sampling frame for that target population could be I can just pick up the telephone directory of the resident of that city and that will give me the basically the sampling frame.

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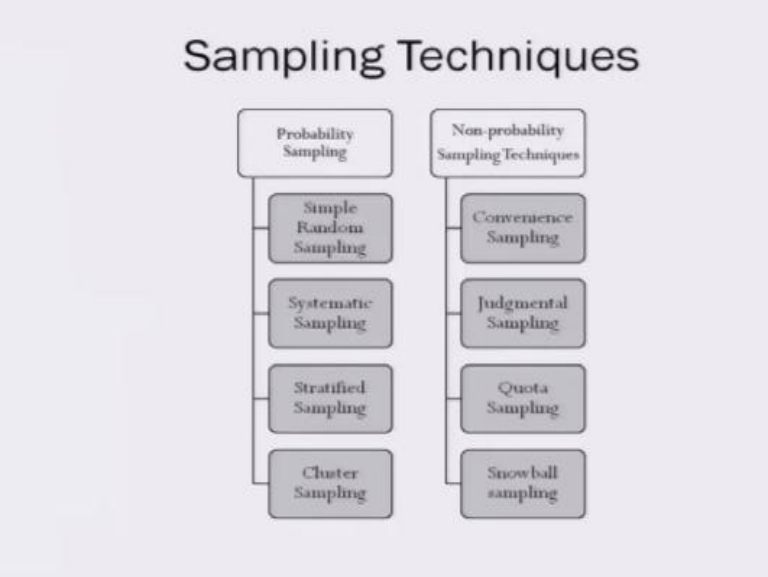

Dr. Shashi Shekhar Mishra: So once you have decided and once have got your sampling frame the next thing that comes into this sampling process is what sampling method you are going to use. So there are basically two types of sampling methods or sampling techniques probability sampling are non probability sampling, within probability sampling you will find out there are four prominent things which I am going to discuss today is simple random sampling, systematic sampling, stratified sampling, cluster sampling.

And on the other side you have non probability sampling techniques like convenience sampling, judgmental sampling, Quota sampling and snowball sampling. So I am first going to discuss about known probability sampling techniques.

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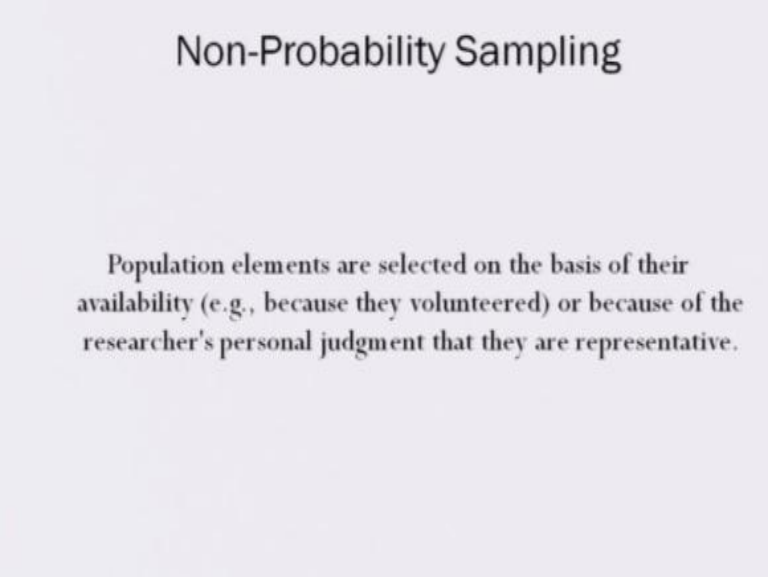

Dr. Shashi Shekhar Mishra: Here in non probability sampling what happens is population elements are selected on the basis of their availability like the people who have volunteered for particular study they have given their consent for that study they are chosen or, because the researchers personal judgment that they are representative. So either the respondent makes themselves available to the -- for consideration into the study or they are being chosen or being selected by the investigative or the researcher based on his own judgment, convenience are the availability of the respondents.

So you will find out that the probability of -- in this kind of sampling process you will find out that it is not possible to understand or to calculate the probability of a unit been drawn from the population from the sample so these are basically non probability sampling.

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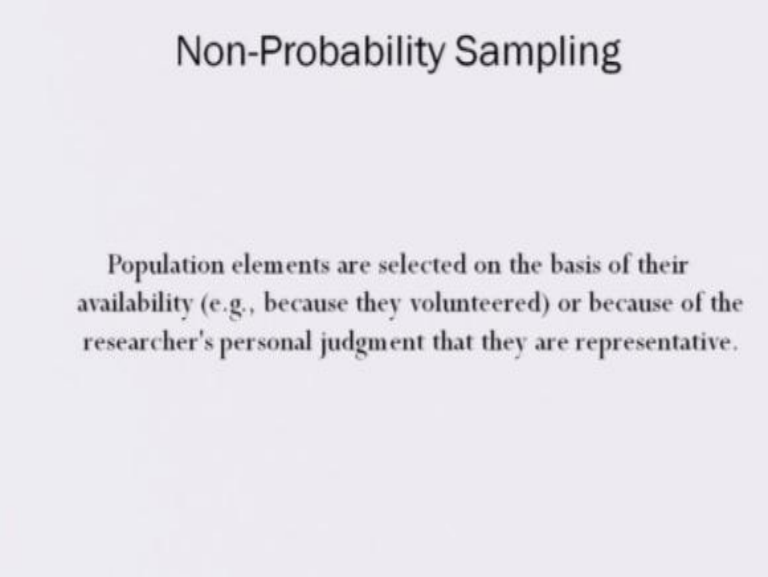

Dr. Shashi Shekhar Mishra: One of the biggest drawback of non probability sampling is that they are not representative of the population, and you will find out non probability sampling whereas probability sampling is not recommended of conclusive research design, in the case you cannot conclude about any inferences drawn from the sample. On the other side in the probability sampling you can innumerate the probability of unit being drawn from a sample and the probability is generally non zero.

So you will find out that there is a possibility of that, every unit can be selected with certain probability in the sampling is basically in the probability sampling. And those are more representative they represent the population in a better way then compared to non probability sampling. So in the non probability sampling you will see that the very first type that we will discuss this convenience sampling as the name suggests.

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Dr. Shashi Shekhar Mishra: The convenience sampling is selection of respondent is based on their availability and convenience of the respondents. Whomsoever is available is chosen as a basically part of the sample, so that is what the convenience sampling is like most of the time we see that the student projects are based on the students as a respondent in the campus or many studies use students are the members of certain organizations as a basically the sample how, because they are easy availability to the researcher. However these are non representative to the population.

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Dr. Shashi Shekhar Mishra: And this kind of sampling technique is more suited for exploratory research where you are trying to identify the problem, or your trying to do basically a qualitative kind of a study, where your trying to explore certain things however you will not be able to draw any conclusive evidence from such kind of sample as I have already told.

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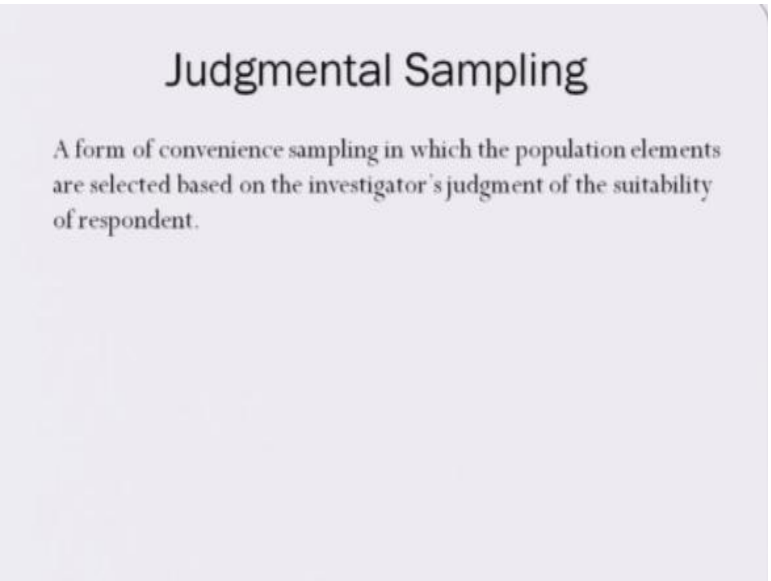

Dr. Shashi Shekhar Mishra: The next type of sampling is basically judgmental sampling a sort of convenience sampling only, but a form of convenience sampling in which the population elements are selected based on the investigators judgment of the suitability of the respondent. So what happens in the judgmental sampling is that a respondent is chosen, because the investigators believe that this individual or this, this unit is the -- is suitable for this study or it should be part of samples, so it is a subjective judgment of the investigator and you will find out certain.

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Dr. Shashi Shekhar Mishra: Examples where judgmental sampling is commonly uses the test market, in B2B market you will find out that when we are trying to understand the buyer behavior in B2B market. So in a buying centre there are different rows there are basically technical people, the engineering people who are involved and there are basically administrative people involved.

Then there are purchasing people who are involved in the process and there could be other type of a executive which might be involved in the purchasing process, however most of the study or many study will be based only on one type of these rows might be just choosing the engineers as a representative of our as a proxy of the buying center. So because the researcher believe that choosing such sample is -- will give you the as close as a information, as close as a probably the actual purchasing behavior of the buying center.

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Dr. Shashi Shekhar Mishra: Then you see a very common example of judgmental sampling is this expert chosen for panel discussion where panel is selected or basically is chosen, because the person who is choosing the panel and knows those people and he understand that these people have certain expertise to talk about a particular subject. So such type of a panel is also are the expert also are basically type of judgmental sampling.

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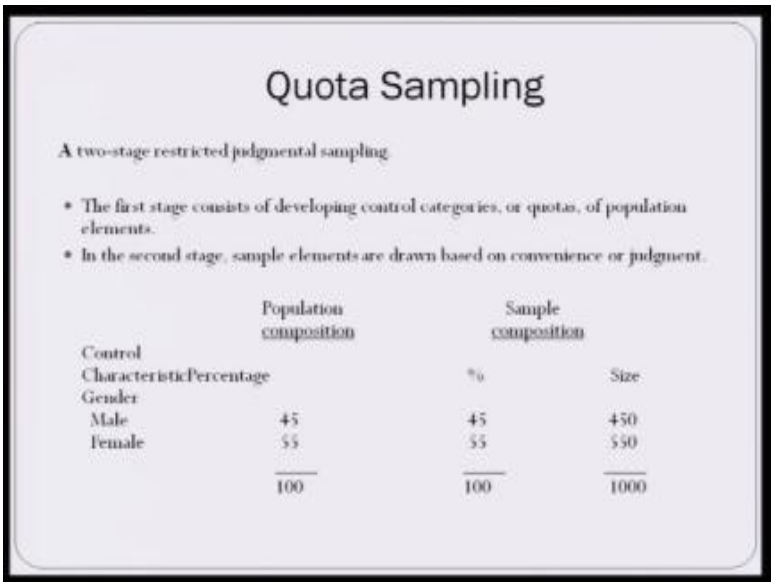

Dr. Shashi Shekhar Mishra: Then you have a quota sampling, as you can see I have given you an example through that, I will explain to you what is quota sampling, but you understand that the Quota sampling is a basically two stages restricted judgmental sampling, what happens is, in the first stage consists of developing control strategies are quota's of the element, suppose you are trying to do some kind of a study.

Were male and female both are involve and their behavior or the phenomena that you are studying is, is being affected by this gender difference. So in that case what will happen is that.

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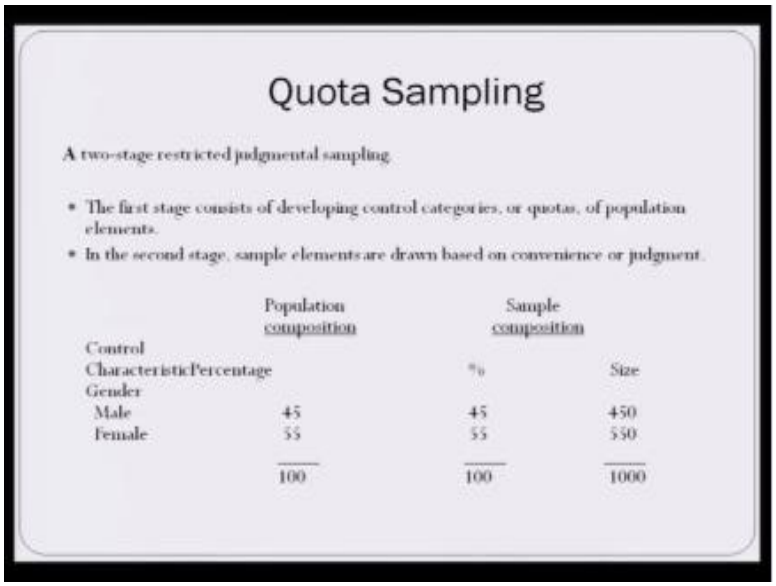

Dr. Shashi Shekhar Mishra: Because of this, this kind of variable or this kind of categorization within the population your results will vary across these two type of genders. So what happens is, first we divide the population in these two quota or two basically groups, and then we draw the samples, sample elements are drawn based on the convenience or the judgment. So once you know that 45% people in a population is male.

For supposedly you are doing customer satisfaction study for a Starbucks store and you find out that or cafe Coffee Day and you find out that forty percent of your customers are male and 55% of your customers are female. So the sample that will be drawn in quota sampling will be that 45% should be mail and then 55% should be female and you will find out within that 45 you can you can choose basically generally.

It could be based on the convenience sampling or it could be just a researchers judgment of who will be the representative of the sample. So judgmental are convenience sampling can be used in the second stage of this quota sampling.

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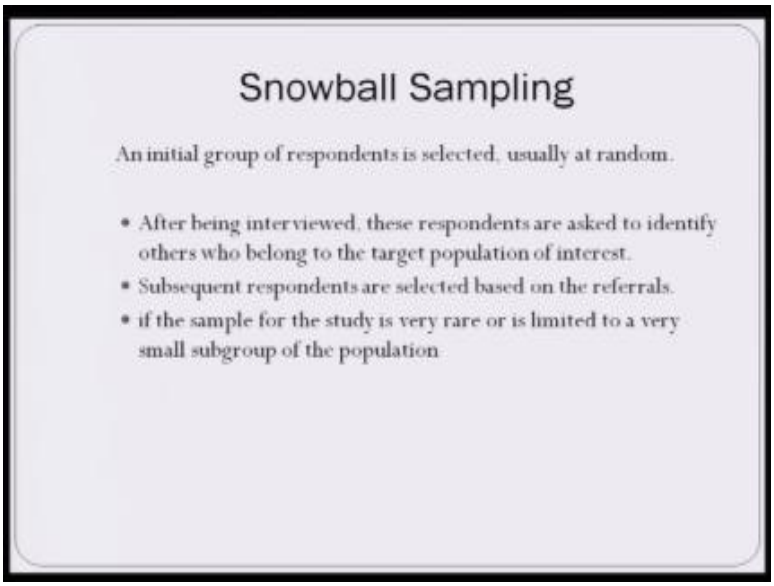

Dr. Shashi Shekhar Mishra: The last type of a that non probability sampling that I am going to discuss is, a snowball sampling and it is a very specific type of a non probability sampling where what happens is that, an initial group or respondent is selected usually at random. So from the entire population you select certain potential respondent, and once you interview those respondent.

Then you after that you ask them that, who are the others who belong to the target population of interest. So subsequent respondent are selected based on the referral source we referrals of this initial group of respondents which were selected. So you see that this is a sort of chain referrals where you select certain initial people and then you ask those people to recommend who are the other people who should be the part of the study.

So because generally these are sort of a specific interest or because of the certain common commonalities across, across such members of the populations, there is a possibility that the people might know each other better than probably going and understanding or finding the people in the population.

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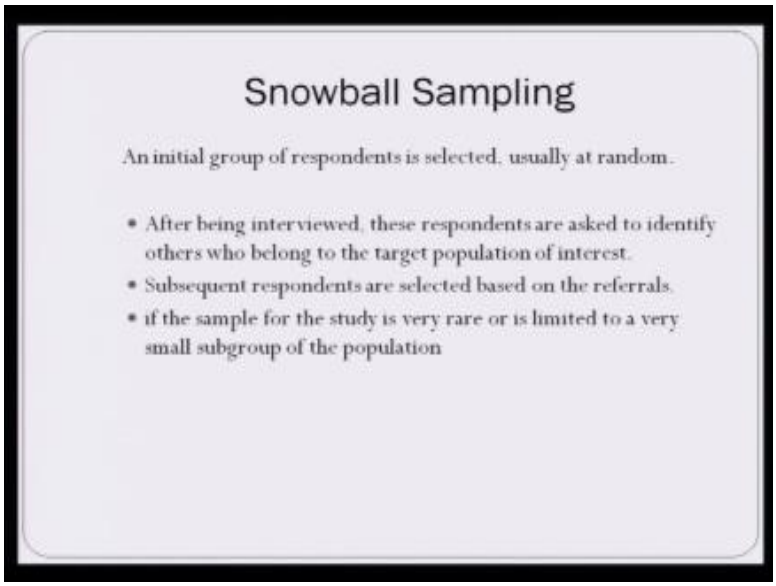

Dr. Shashi Shekhar Mishra: So you will see that, a snowball sampling is used in a probably studies like were a very rare or limited if the sample for the studies very rare or is limited to a very small subgroup of the population, you will find out then that in the case of rare studies or rare diseases or sort of a special interest like particular kind of adventures adventurous sports or a particular kind of automobile driving and or different type of interest where you will find out that the groups are subgroups are basically within the subgroups the respondent are well aware of each other. So in those cases probably the snowball sampling can be used.

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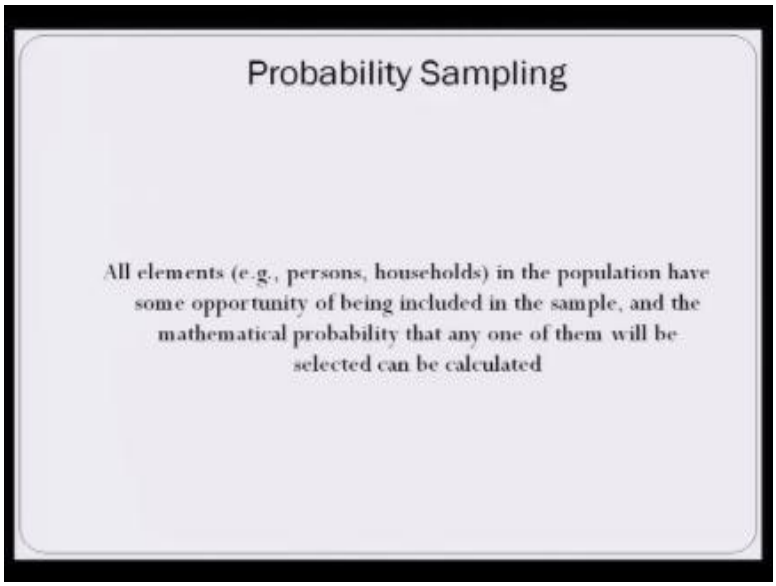

Dr. Shashi Shekhar Mishra: Then we have after this non probability sampling, the probability sampling. So the key difference between the non probability sampling and the probability sampling is that all the elements in the population have some opportunity of being included in the sample and the mathematical probability that any of them will be selected can be calculated. So there are two things in this probability sampling that each unit has a non-zero probability of being selected.

On the other side the techniques that we were discussing in the non probability sampling there it, it is quite possible that some units may not at all be selected in the final sample being drawn. On the other side if you look at the all the probability sampling techniques there will be certain possible probability, non-zero probability of each unit being selected and what happens is this probability can be calculated.

So whether that probability across all the units could be equal or it is the probability of the different units being selected being non equal? However, you can, you are able to calculate that what is the probability of each unit being selected.

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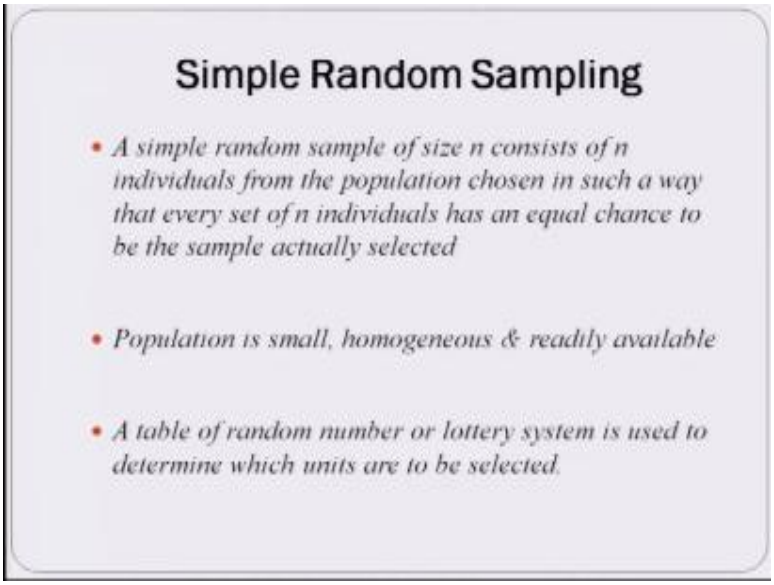

Dr. Shashi Shekhar Mishra: So inside the probability sampling the most basic type of sampling is a simple random sampling. A simple random sample of size n consists of n individuals from the population chosen in such a way that every set of n individuals has an equal chance to be the sample actually selected. So in the probability sampling the most basic type is simple random sampling, as you can see in this definition of simple random sampling.

A simple random sample of size n consists of n individuals from the population chosen, in such a way that every set of n individual has an equal chance to be the sample actually selected. So you will find out that each sample of small n being selected from a large population of size N has equal probability of any others sample of equal size n being selected.

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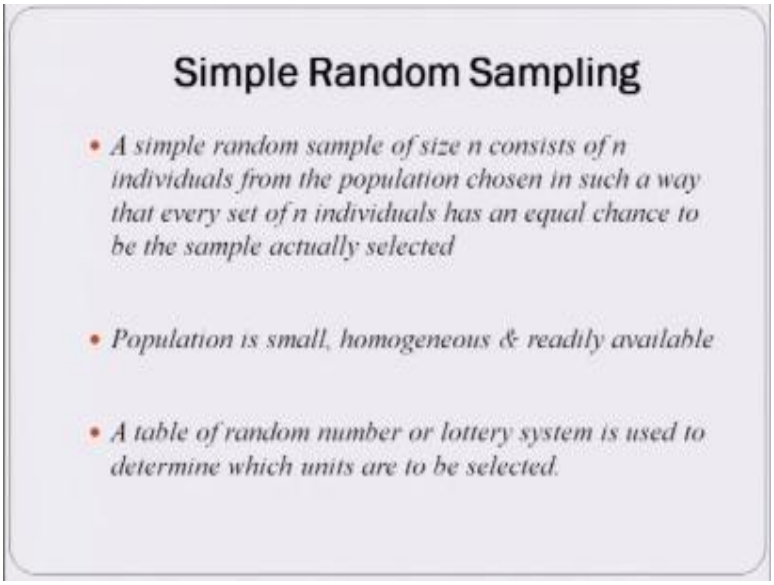

Dr. Shashi Shekhar Mishra: So you will find out that simple random sampling is probably very useful in the case of where you have a small homogeneous and readily available population, they are probably this, this is probably very effective and this is probably the best representative sample that you can draw. A table of random numbers or lottery system is used to determine which units are to be selected. To draw a simple random sample from the population what you do is that, you generate random numbers or you draw basically number through the lottery system and then you pick the units based on their sequence number. So that is the way of doing this simple random sampling.

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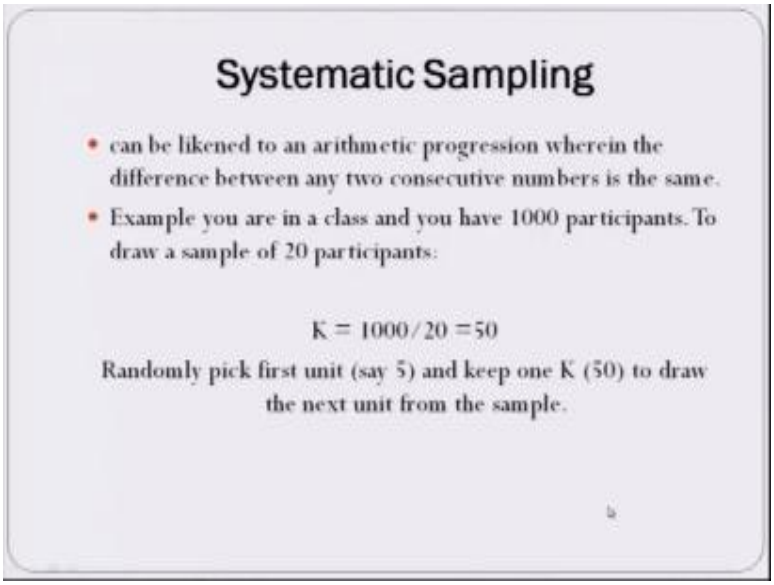

Dr. Shashi Shekhar Mishra: The next type of probability sampling is a systematic sampling, it can be likened or parallel can be drawn to an arithmetic progression, wherein the difference between any two consecutive numbers is same I will explain to you what it is. Supposedly you are in a class and you have thousand participants to draw a sample of 20 participants in this class, you will find out that this number K will be the come out that out of a thousand you have to select 20 participant that once you have selected one unit the next participant should be after, should be the after the 50^{th}, 49 participant after that.

So the next unit will be the 51, 51st units from that, so in this systematic sampling what you will see is.

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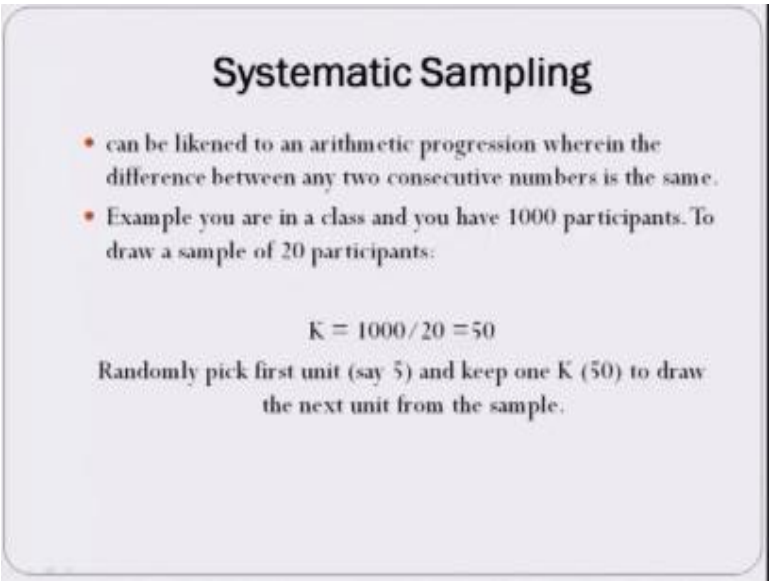

Dr. Shashi Shekhar Mishra: That first randomly, you first put all the population in a sequential order in some, some order, and then basically what you do is randomly select the first unit and then you keep on adding this number K to that first unit being selected and through that you keep on collecting the -- you keep on drawing the sample unit till you are not reaching to your adequate sample size.

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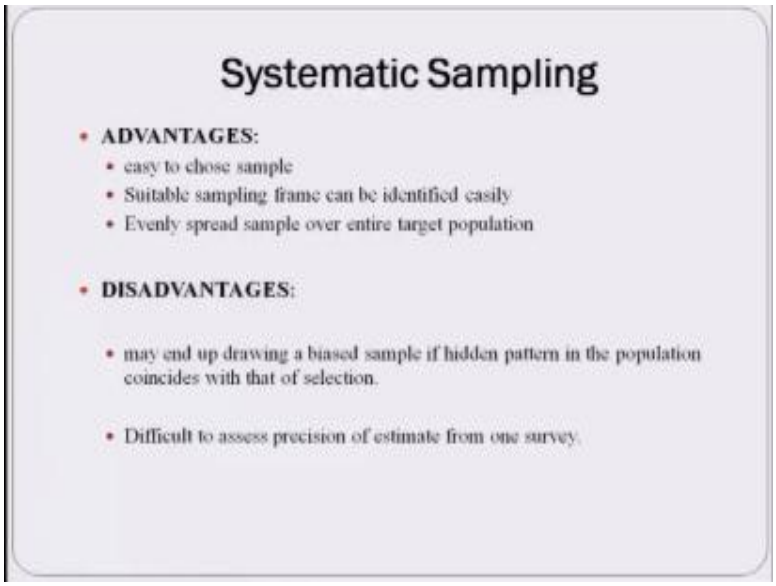

Dr. Shashi Shekhar Mishra: That it is easier to choose the sample, suitable sampling frame can be identified easily in this case. Evenly spread over entire population you will find out compared to simple random sampling in the systematic random sampling, this is probably the, the sample is spread across the population mover evenly. So in simple random sampling it may be possible that, that you may probably your final sample may get restricted to only a certain type of sampling unit. On the other side this systematic random sampling will ensure that your sampling units are drawn across the entire population.

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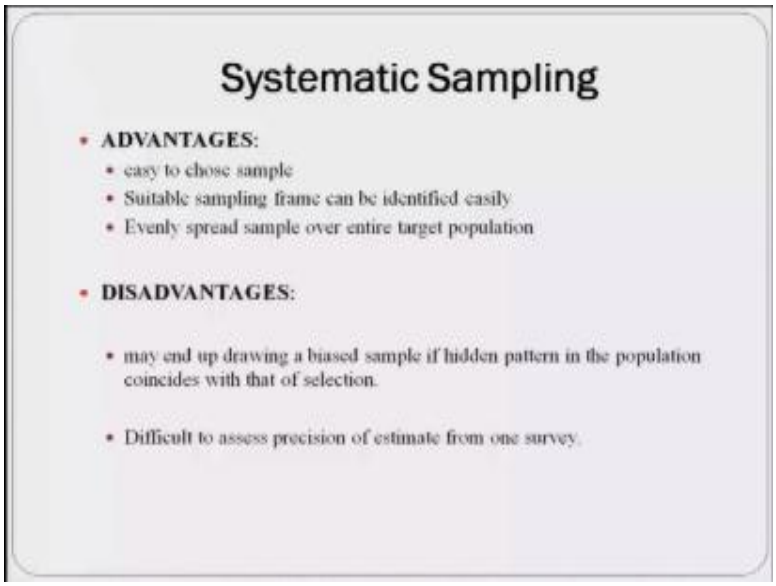

Dr. Shashi Shekhar Mishra: Disadvantage are the biggest disadvantage of this systematic sampling is that you may end up drawing a biased sample if there is a hidden pattern in the population coincides with that of the selection. So in the example which I have given.

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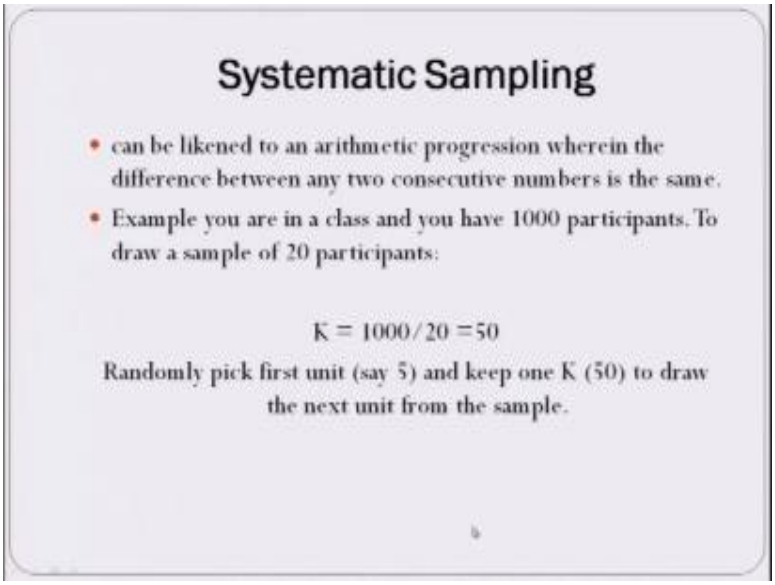

Dr. Shashi Shekhar Mishra: Supposedly in this class of thousand participants, every 50^{th} participant exhibit certain kind of pattern and if I end up in selecting 50^{th} unit I mean the next unit being selected is after the 50^{th} unit, then you will find out that it this selection of the sample is, is in parallel with the some kind of a pattern within the population and if the two pattern coincides, the systematic sampling is parallel.

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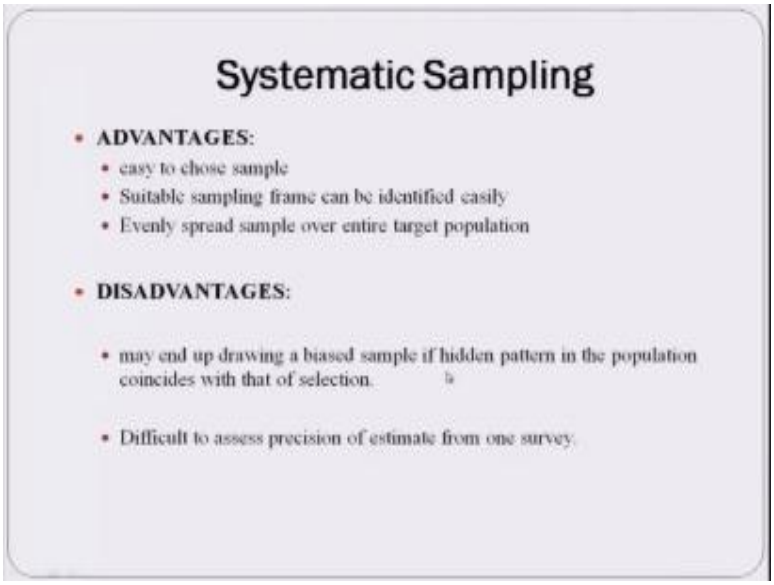

Dr. Shashi Shekhar Mishra: To that, your sample is, has some kind of bias. It is difficult to assess precision of estimate from one survey in this case.

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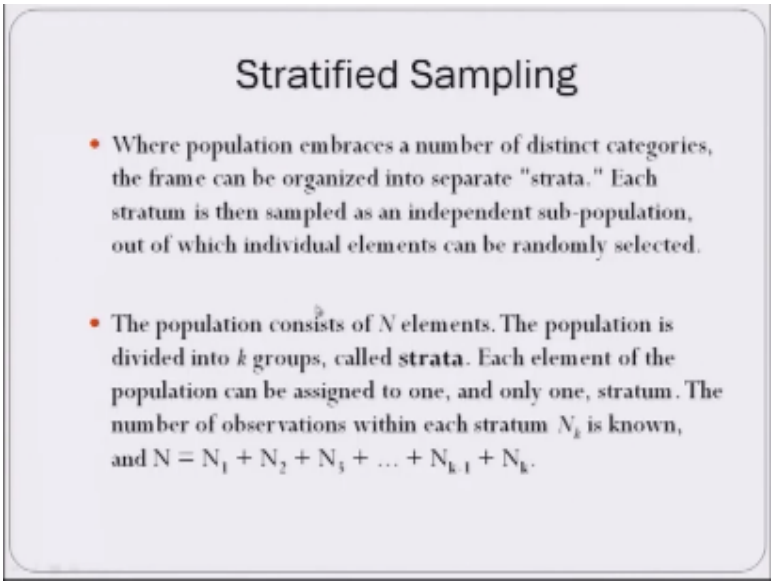

Dr. Shashi Shekhar Mishra: Then you have a stratified sampling, the stratified sampling is use where population embraces a number of distinct categories, the frame can be organized into separate strata. Each stratum is then sampled as an independence sub-population out of which individual elements can be randomly selected.

Now what happens in stratified sampling is that, if your population has subgroups based on certain characteristics are certain variables and those subgroups are within though subgroups or across the subgroups, the behavior is based on those are the characteristics of the subgroups then it may happen that simple random sampling in might not be the best representative sample of the population in the case of a stratified.

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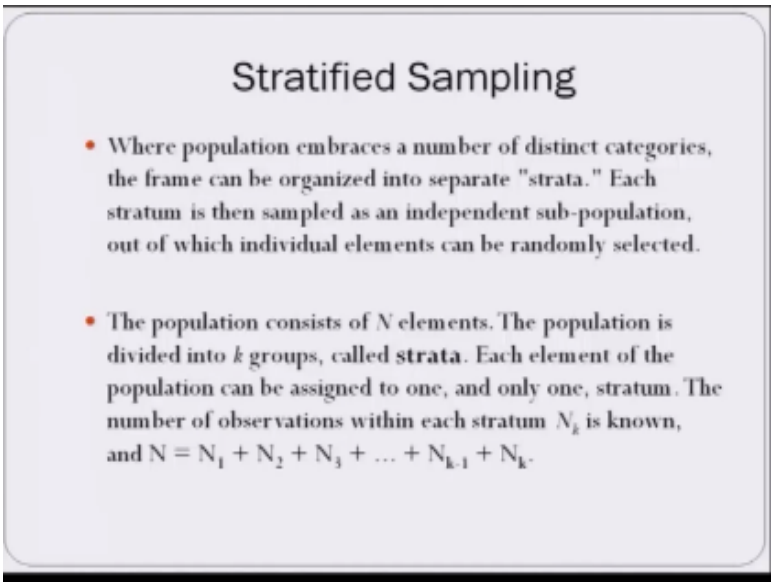

Dr. Shashi Shekhar Mishra: Sampling that it is being explained there that how the sample is drawn that supposedly the population consists of n element the population is divided into K groups that is called strata each element of the population can be assigned to one and only stratum, so what happens in this case is the number of observations within each stratum incase known and total population is basically some of these the number of elements with within each stratum collectively.

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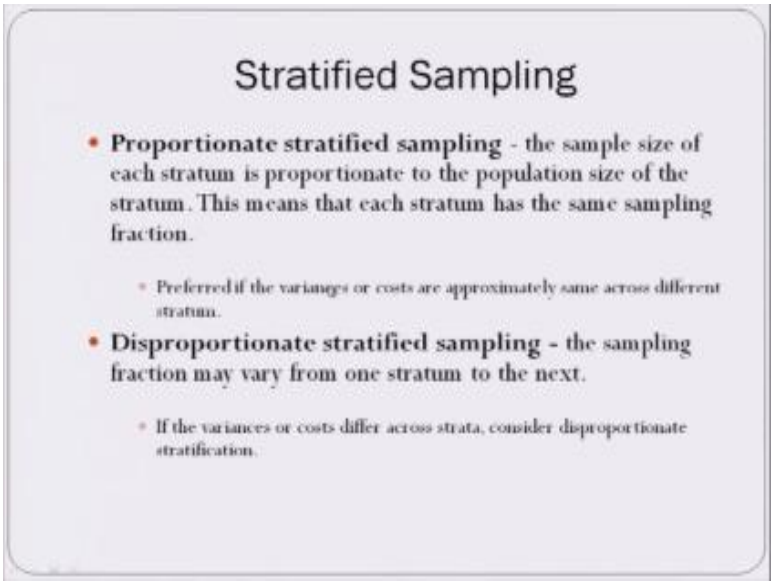

Dr. Shashi Shekhar Mishra: So stratified sampling as you can understand could be of possibly two type that you draw the sample which is proportionate to each of the strata size in the target population or it could be basically disproportionately stratified sampling were the size of a sample been drawn from a particular strata is not in proportion to the size of that strata in the total population.

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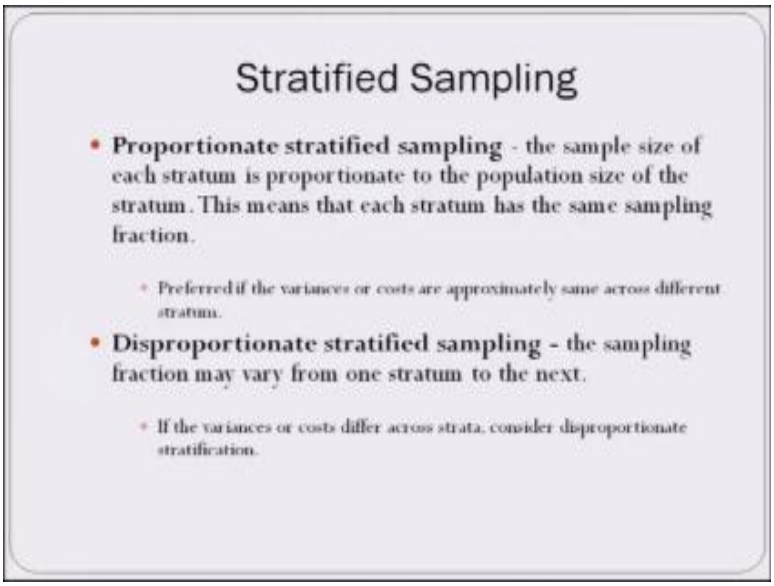

Dr. Shashi Shekhar Mishra: You will find out that proportionate stratified sampling is preferred the variants are the costs are approximately same across different is stratum. So the variance in the costs are almost same across the strata different strata in the population then proportionate sampling is stratified sampling is better otherwise you should go for it is disproportionately stratified sampling.

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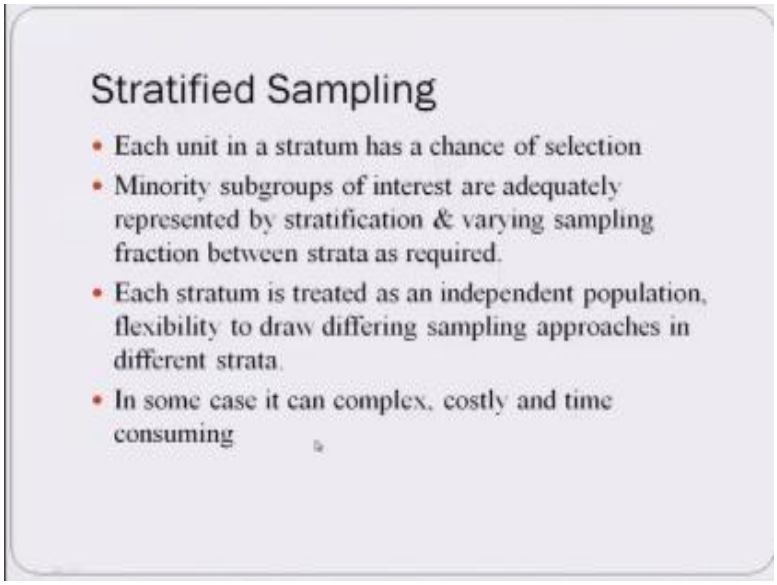

Dr. Shashi Shekhar Mishra: Now the benefits of or the advantages of stratified sampling is that each unit in the stratum has a chance of selection what will also happen in this case of a stratified sampling is that minority subgroups of interests are adequately represented by stratification in varying something friction between the strata as required. So you will be able to get the minority interest group across the strata in a better represented manner as compared to if you do not consider this strata wise sampling

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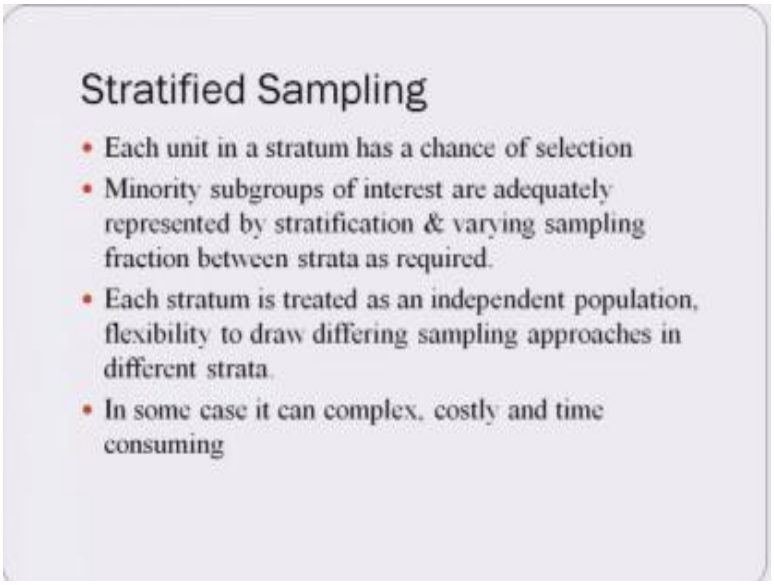

Dr. Shashi Shekhar Mishra: However in some cases is stratified sampling could be a complex more complex and then it could be costlier as well as more time-consuming also.

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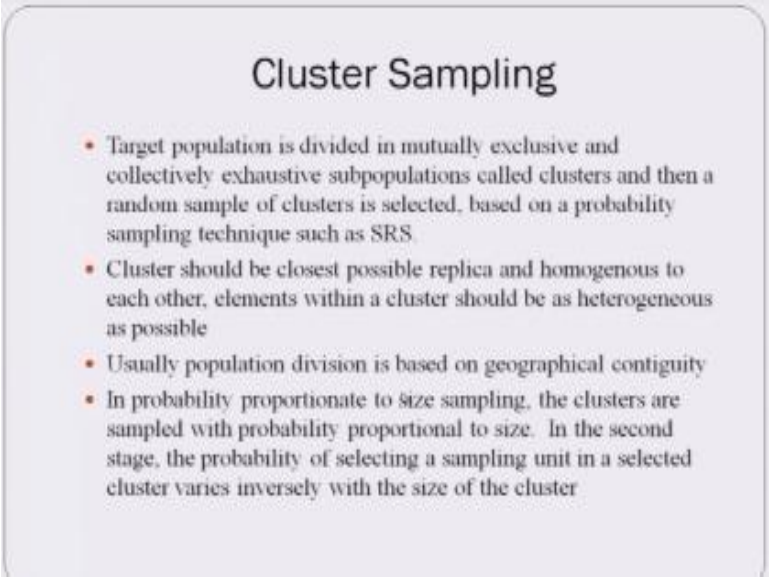

Dr. Shashi Shekhar Mishra: The last type of probability sampling which I am going to discuss is this cluster sampling, what happens is that in strata actually what we were doing were, we have a sub groups in the populations they are subgroups within the subgroups the units were same and across the subgroups the units were different. In the cluster sampling you will find out that within clusters are basically form hydrogen units within the cluster and each cluster are basically from heterogeneous units within the cluster and then each cluster is basically a sort of replica of or as close to the population.

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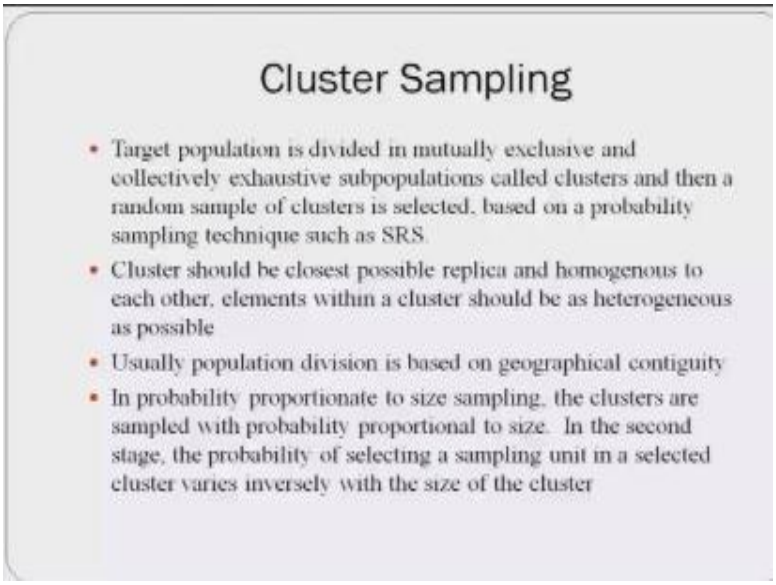

Dr. Shashi Shekhar Mishra: What happens it is explained here, the target population is divided in mutually exclusive and collectively exhaustive subpopulations called clusters and then is random sample of clusters is selected based on a probability sampling techniques such as simple and random sampling. Cluster should be close as possible replica as I have said, and homogeneous to each other, each cluster is basically a representative of sort of similar to the population you will find out that each of the clusters have basically similarity to each other.

On the other side the units within the cluster will be heterogeneous, usually population division is based on the geographical contiguity and in that case you will find out proportionate to size sampling, the clusters are sampled with probability proportion to size. In the second stage, the probability of selecting a sampling unit in a selected cluster wise inversely with the size of the cluster.

This is the guideline for cluster sampling with this, I finish of this sampling process including both type of sampling probability sampling, and non probability sampling. In the next class we will discuss about how to analyze the data being collected and how to basically infer that

analysis part and then we will wind up this capturing market insight or market research part in the next two session, thank you very much.

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