Lecture – 11
Research Design - I

Welcome friends to the course of Marketing Research and Analysis. So today we will be discussing on the research design. This is one of the very important parts of the research process. What is this research design all about and what should a researcher know about it, why he should know about it? Research design is nothing but this is something that comes after the definition of the problem or defining the problem.

So when you have you have made your problem statement and you have already defined it, so at that time you need to understand how do we conduct the research? So what is the design that we need, what is the path that we need to follow so that we can smoothly conduct our research. So to do this, we have to make the research design. So how is it defined?
(Refer Slide Time: 01:24)

Research Design

- **Research design** is a set of advance decisions that make up the master plan specifying the methods and procedures for collecting and analyzing the needed information.

It is defined as a set of advanced decisions. It is a set of advanced decisions that make up the master plan or sometimes it is also called as a blue print, specifying the methods and procedures for collecting and analyzing the needed information. So suppose you have defined a problem statement, the question is how do you conduct, how do you meet your objective. So to meet the objective, you have to understand how do I proceed further. So to understand

how do I proceed further, you have to understand what is the decision I need to take. So how should I go ahead in my research process?

So to do this, you need to understand what is the method I adopt, what is the sample I should be collecting, how many samples I should collect, how I should collect the data, should it be online method, should it be offline method, it should be a qualitative study or it should be a quantitative study, should it be like for example I would use a projective method or I would use some kind of a modeling, so what am I going to do, how am I going to do? So this how and the method is what you answer in the research design process.

(Refer Slide Time: 02:31)

Why Is Research Design Important?

- Good research design is the "first rule of good research."
- Knowledge of the needed research design allows advance planning so that the project may be conducted in less time and typically at a cost savings due to efficiencies gained in preplanning.

So why is research design important? You see it is the first rule of good research. So the first rule of good research is that you should be clear with your research design. The knowledge of the needed research design allows advance planning, what it is saying? It says the knowledge of the research design, so this when you have the knowledge of the research design, it allows you to plan in advance so that the project may be conducted in less time and typically at a cost savings due to efficiencies gained in preplanning.

So it not only tells you the right method, so by telling you the right method, it helps you to understand how you can save time and thus save also cost. So saving time and cost is very important because you do not have infinite resources in your hand, so in order to have a control and have a better approach, you need to know the research design.

(Refer Slide Time: 03:31)

Objectives of Research Design

- To gain background information and to develop hypotheses
- To measure the state of a variable of interest
- To test hypotheses that specify the relationships between two or more variables

So what is the objective of the research design, to gain background information and to develop hypothesis. So to gain the background information and to develop hypothesis is one of the most important jobs of the research design. So when you talk later in the types of research design, I will explain you what it means. To measure the state of a variable of interest, to measure the state what are the variables of interest and how do we use it that is what you understand during the research design process.

The third is to test the hypothesis that specify the relationship between 2 or more variables. So the relationship between 2 or more variables, for example the dependent and the independent variable, for example let us say how income affects lesser spending, so spending is my dependent variable and income is my independent variable. So how do I frame a hypothesis and how do I check the relationship between 2 or more variables.

Sometimes it could be 1 dependent relationship, 1 dependent variable with 1 independent variable or it could be 1 dependent variable having relationship with multiple independent variables. So when you have such relationships, how do you proceed further?

(Refer Slide Time: 04:43)

Research Design: A Caution

- In many cases, research is an iterative process.
- By conducting one research project, we learn that we may need additional research, which may result in using multiple research designs.

A caution. So what you should be careful of? In many cases, research is an iterative process, that is very true. So it does not come in a plate to you, so you cannot be sure that in the very first hand you will get a prefect answer, so that is why we say research is an iterative process where you try to optimize you try to improve in each step right, that does not mean that you will have large number of iterations because you do not have the resources to do so many iterations. So how do I reduce my number of iterations?

How do I come close to perfection on the very first hand is a challenge the researcher faces. Second is by conducting one research project, we learn that we may need additional research, now what does it mean, which may result in using multiple research designs. So suppose researcher wants to know certain information about a certain scientific technology or certain marketing application or something. So when he does the project, initially he tries to learn about it what is this all about, what is this concept, how this concept works all these things.

So there, he has no knowledge but rather he tries to just get a brief idea about the process. So in such a situation, the researcher tends to spend more time in learning and you know improving his knowledge base, but then he finds well only having this much of information does not suffice my problem, so how do I deal with it? So then he thinks about if the market needs information to understand what should I do so that my performance will improve in the market. So with this additional knowledge, he tries to see the manipulation of variables, he tries to manipulate the variables.

So by changing the variables, may the number of variables that he has read through the literature or something, if by manipulating those variables may be by creating some kind of a mediation moderation effect or some kind of a change in the model, does the performance of the study increase, so that is where he thinks and that is where you understand during a research study, it is not one research design or only one process that is applicable, you may have to do more than one research designs. We will see what are the research designs okay.

(Refer Slide Time: 07:26)
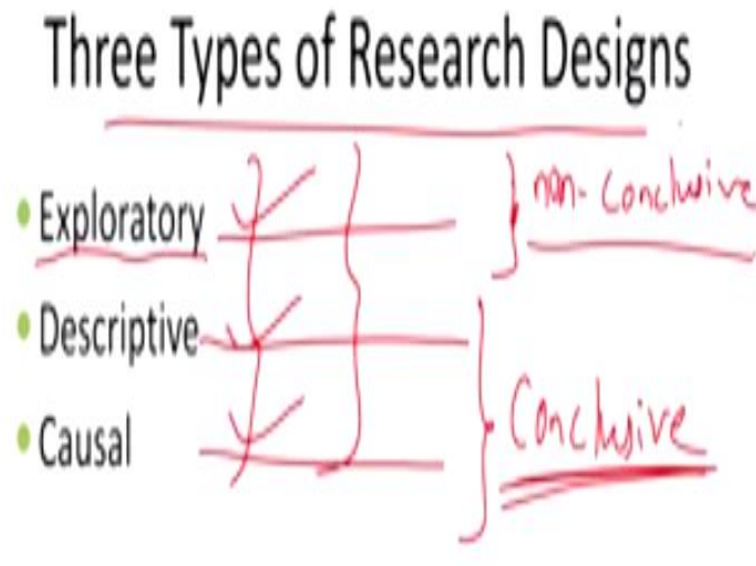
So basically we talk about 3 types of research designs. I have covered this in my earlier video in my first course of marketing research and analysis, but that was just I had briefed, so what I am doing is as I am briefing you again here so that we can get into the most in detail later on. So there are 3 types of research designs. So the first comes the exploratory research design, then the descriptive research design and the causal research design. So as you can understand exploratory means to explore something, to find out something new right that which you have no idea or you lack knowledge.

Descriptive is to describe something, to describe, to describe the characteristics, to describe the features of the market or describe the characteristics or trades of a product, so this is descriptive. Causal is the cause and effect, so there is a cause there is an effect, so this cause and effect relationship is the causal. So these are basically the 3 research designs and as you saw here that in a study sometimes, the research designs that a researcher uses might not be only one of it explicitly but rather it could be combination of 2.

It could be an exploratory and then a descriptive research design or it could be an exploratory and then a causal research design, so it could be. These 2 come under the conclusive research design, these 2 are termed as conclusive because they lead to some conclusion, these 2 descriptive and causal research design they lead to some kind of a conclusion, so they help you to draw inferences. On the other hand, the exploratory research design is called a non-conclusive research design, so here there is no conclusion, you are not getting into some kind of an inference or result, you are no trying to find that, you are just trying to learn okay.

(Refer Slide Time: 09:27)

Exploratory Research

- **Exploratory research** is usually conducted at the outset of research projects.
- It is usually conducted when the researcher does not know much about the problems.

So let us see what is the exploratory research the first one. It is usually conducted at the outset of the research projects. So whenever a researcher is trying to understand a research process or a research problem, he starts with this exploratory. So he starts exploring, how does he explore? He explores by talking to people, talking to expert, reading literature, trying to collect as much as information possible about the subject of interest. So it is usually conducted at the outset of the research project, the first initial attempt.

It is usually conducted when the researcher does not know much about the problem in hand, so he has no idea, so when he does not have any idea, he tries to conduct this first study the exploratory research study.

(Refer Slide Time: 10:18)

Uses of Exploratory Research

- Gain background information
- Define terms
- Clarify problems and hypothesis
- Establish research priorities

So what are the uses of the exploratory research, let use see. It helps in gaining background information. Now suppose let us say you want to sell a very new product or create a very new product for the market. The market has or the people in the market or consumer in the market has never ever seen such a product, let us say you have used some kind of a very new product which is completely new, so it is a radical innovation let us say. So in such a condition, the consumer has no idea. So how will the consumer react to it?

So when we do not know, in this condition, exploratory research helps to understand the background information and helps in collecting this background information, so that we can understand how consumers react to a new product may be in the market. It helps in defining the terms, so defining the terms means the variables that you are using in the study. So how do you define? Why definition is important?

Because a definition tells you what exactly does it mean, a word does not sufficiently tell you its meaning but when you define it in a sentence, it tells you clearly what is the meaning of that particular variable or term. It clarifies the problems. So exploratory research because you are exploring, it helps you to understand the problem. Let us say why does a person behave in a particular manner, let us say we talk about a mental issue or a mental problem, so why does a person react in a particular manner, what is the reason behind it?

So we do not have any idea. So there exploratory research to dwell into the mind of the people and understand the psychology behind it helps us in understanding the problems, and once you understand the problem, the next step is that you can develop the hypothesis. So

you understand okay these are the probable 3 causes that is effecting the mind of a person, so may be let us say the 3 reasons, 1, 2, 3, you might say this might be the cause, this might be the cause or this might be the cause.

So you have built a hypothesis on basis of the knowledge that you have acquired earlier. So it helps you in developing hypothesis. Establish your research priorities. So after you have gained knowledge through the literature review and the discussion and all, it helps you to understand what should I do first, what should I do the next, how should I carry my research? So this understanding this priority is sometimes very critical because otherwise you may land up in a messy situation.

So the more clear you are in your priorities if I ask you what you do in the morning first though I get up from the bed let say and I do my regular work and then I take my breakfast, but suppose you are not clear and you do the opposite, then what happens, you get into a messy situation. The same thing happens here. You have you have to prioritize your research, how do I do this, so what should I do, when should I do my data collection, so after data collection what do I do next, after that what do I do next?

So each step is predefined. So exploratory research helps you to develop hypothesis, but remember exploratory research always starts with a research question. So this question that comes to the researcher is the first thing that he puts forward and to understand this research question, he gains more knowledge and after gaining more knowledge, then he starts developing the hypothesis, this is how it begins.

(Refer Slide Time: 13:53)

Exploratory Research Methods
- **Secondary data analysis**: the process of searching for interpreting existing information relevant to the research topic
- **Experience surveys**: refer to gathering information from those to be knowledgeable on the issues relevant to the research problem
- **Key-informant technique**: gathering information from those thought to be knowledgeable on the issues relevant to the problem
- **Lead-user survey**: used to acquire information from lead users of a new technology

Some methods of exploratory research. Secondary data analysis, what is this secondary data analysis? What is secondary data? Secondary data means that when the researcher uses data collected by somebody else in the past and tries to use that data and try to understand its own research problem. Suppose I am conducting a study let us say on the impact of bonus issues or the declaration of bonus of a company on the stock price let us say, I am trying to understand. So what I will do?

I will take some secondary data, that means in the past how researchers have been done on the subject and how companies have announced and then what did the stock market, the participants or the consumers how did they react to it? So when you do this, so this is a secondary data available it might not be fitting exactly to my condition now, but it is very closest situation, you can understand it is as a simulation.

So it is a case that is simulated to the nearest possible answer, so it tells you well if that had happened and then this condition is a very similar issue, so it may be you can get a similar kind of a result, there you might may be change some, manipulate some variables and see some new effects, but it gives you a very close idea. The process of searching for interpreting existing information relevant to the research topic. The second is experience surveys, it refers to the gathering information from those to be knowledgeable.

Now let us say suppose you want to understand something about let us say health, so should you want to talk about health and the conditions that effect health of a person, the best people might be the doctors or the best people may be somebody a biologist or a genetic engineer.

So the point is anybody who is involved with such a study or has knowledge on that particular aspect or area, so he is the person who can give you a very clear idea.

So experience surveys are done in order to like it is sometimes done using the Delphi technique where people with experience in the related area, discussion happens with them and information is collected through them. So what it says, it refers to the gathering information from those to be knowledgeable on the issues relevant to the research problem. Key informant technique, so what is this. So this is under this, these 2 points are under this. So gathering information from those thought to be knowledgeable on the issues relevant to the problem key informant.

Lead user, now this is something you must have heard of, who is a lead user? Now in the marketing problem, we have seen many times we understand that the person who initiates a buying process or the first person who uses the technology is called a innovator. So this innovator has got a very important role in marketing business because he is the one who actually uses the product for the first time and gives her opinion. So this lead-user survey is used to acquire information from those lead users or those innovators basically of a new technology.

So these new users have a very big role to play because they tell you how is this product working, how it can be improved, things like that. So for any company, it becomes very important to identify those lead users and accordingly keep track of them and be in touch with them so that they give you better ideas of improvement of your products and services.

(Refer Slide Time: 17:48)

Exploratory Research Methods

- **Case analysis**: a review of available information about a former situation(s) that has some similarities to the current research problem   8-12
- **Focus groups**: small groups brought together and guided by a moderator through an unstructured, spontaneous discussion for the purpose of gaining information relevant to the research problem.(Case of fruit juice beverages)
- Depth interview ✓   Cranberry.
- Projective techniques(inherent beliefs or feelings)

Case analysis is also one of the method where a review of available information about a former situation that has some similarities to the current research problem. Now case study is nothing but again it is kind of a simulation. So what is happening, let us say you want to know what will happen if I change the price of my product. So to do this, what you can do is you can take another company, let us say you are XYZ company, you take another company who is into a business that like similar to you are in and try to understand when this company suppose had done some price changes earlier in the past, how had people reacted to it.

So case analysis is a finding a similar situation and trying to see how they had reacted, how the people and the consumers had reacted, and accordingly what decision should we take at the moment. So case analysis is also very much used in the modern day business schools because case studies that you talk about as case analysis or case study analysis are nothing but the same thing it is a similar situation that you think of that you might be facing tomorrow, so how did others react to it you try to understand the same.

Focus groups, it is a small group, basically it is about 8 to 12 people brought together and guided by a moderator. Who is moderator? The moderator is the intelligent guy who can understand who has a knowledge about the subject and he is trying to create a discussion among the group members through an unstructured spontaneous discussion for the purpose of gaining information relevant to the research problem. So I have a research problem in hand, let us say sales of my product is going down.

So what I am doing is I want to know why my sales is going down. So what I have done? I have invited a few people who are my regular users, may be they are users or they are dealers or they are retailers, anybody who are involved. So I bring them to my table and I initiate a discussion and ask them what they think is the reason behind the fall in the sales. So this discussion is unstructured and spontaneous because if you have a structured discussion, it might not be good because sometimes many of the new things that can come up as a knowledge that might be lost if you have a pre-mindset.

So being spontaneous is rather beneficial. So I will talk about this case of fruit juice beverages. One of this company was selling cranberry juices, so cranberry juice is a juice which has a good taste and is liked by people and they are appreciated because of wonderful taste and colour and everything, but this company who was doing this study is Tesco. For one company Tesco was studying that the sales of cranberry juices was doing well in the market for male, but for females, the result was different, the sales was going down.

So they thought what could be reason? So they did a focus group study, but this focus group study was not done offline in a small room, but they used a social media to create a large focus group and tried to understand how people would react. So there about some kind of a half a million people's opinions was taken on the online forum and they realized that cranberry has got a medicinal property. Now what is this medicinal property? The medicinal property is that cranberry is used for cleaning or curing urinary tract infections, UTI, largely called as UTI.

So if use cranberry juice, then your UTI problem will get corrected. So there was a myth connected with this product that if you are taking cranberry, may be you are having a urinary tract infection that is why you are taking it to cure your urinary tract infection, but it might not be correct all the time because some people actually liked the taste and they had no issues of urinary tract infection but they just wanted it for taste, but the myth was a myth, so people got connected with this myth.

So what happened? Men though somehow could manage it, but females they felt very bad because when they were picking up a cranberry juice bottle, they were looking at the sides and trying to see whether others are watching them or not because they thought others might

feel they have a UTI problem, urinary tract problem. So this was creating a problem and the result was that the sales of this juice was going down, especially among the woman.

So the company made a change in the product design and what they said was instead of saying cranberry juices only, they came up with some other kind of juices for example apple-cranberry, guava-cranberry, so the cranberry was made minimal as much as possible and what was highlighted was the apple, the guava, the orange. So by doing this, the juice got a very high sales and people's myth got broken down. So this was found out through a social media, a focus group done on the social media.

Similarly, other methods of exploratory research are like a depth interview in which you try to do an in-depth study and try to find out what is the actual essence of the problem, how do people react to it. So you may be take an interview of a few people or you take an expert's opinion interview and try to find out how do they feel about a problem, may be the energy requirement in the country for certain years or the cleanliness hygiene problem of the country. So this is a depth interview, so it is a structured depth interview.

You sometimes have also a technique called projective techniques which is very very powerful and which helps you to understand the inherent beliefs or feelings and attitudes of people which generally they do not speak about. So this is a technique which comes under the exploratory research methods called the projective techniques. For example you have word association, sentence completion, cartoon test, story completion. So there are several methods in projective techniques so there is Thematic Apperception Test, the Inkblot Test.

So where you try to give an image to a person and you see how he is reacting to that image may be and by that we understand what is the inherent belief of that person, what is the feeling he is going through, is he going through some trauma, is he going through some problem, so that which he generally if you ask they will not tell you, they will try to hide the problems, can be revealed through a projective technique method. So this is also a part of the exploratory research.

So well what I will do is we will continue with this class of research design. So today we have just begun with what is research design and we have understood the research design and we have understood the exploratory research methods and their utilities, the different kinds of

exploratory research methods. In the next lecture, we will continue with the descriptive research and then we will follow it up with causal research and we will go little deep in the causal research because that needs little more time to understand and we will conduct it at a little depth. So thank you for a patient hearing. Thank you for the day.