Psychology of Personality and Individual Differences: Theory and Applications

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Week 1

Lecture 2: Research methods in personality psychology

I welcome you all to the second lecture of this course on the psychology of personality and individual differences. So, we are in module 1, and this is the second lecture of module 1. So, module 1 is about the introduction to personality psychology. So, basically, we are introducing some of the basic concepts related to this particular area of psychology called personality psychology. So today, we will be talking about some of the research methods that are used to study personality psychology.

Because it is important to also understand how the knowledge that is gathered in a particular discipline, and what the process of gathering that is. So, in yesterday's lecture or the last lecture, we talked about psychology being a discipline that uses scientific methods to gather its information and data. So, similarly, personality psychology also uses scientific methods to study its contents or uses scientific methods for research. So, today we will be talking about some of the basic research methods and concepts related to personality psychology.

So, before we talk about today's lecture, let me give you a brief recap of the last lecture, which is lecture 1. In lecture 1, we defined what personality is. We also tried to see why the concept of personality is very complex and not easy to define. So, we looked at various complexities associated with this particular term and how One of the definitions given by Allport comes close to capturing most aspects of personality psychology.

So, in that context, what we can say is that in the last lecture, we gave a very broad definition. In very simple terms, we can say that personality refers to an individual's unique and relatively consistent or permanent patterns of thinking, feeling, and behaving, or their style of response. The personality characteristics

differentiate one individual from another. So, the basic idea of personality is what makes a person unique. What are the unique characteristics of the person?

What are the kinds of patterns of reactions, patterns of styles of response? All the characteristics that define a person, which are relatively permanent, are considered under personality. So, with any characteristics that keep changing, which are very temporary, we do not consider them under personality. So, when we talk about personality, it is relatively stable, consistent, or relatively permanent.

Nothing is completely permanent in human behavior, but it is relatively permanent. So, consistent patterns of ways of thinking, feeling, and behaving that we all have, that make us unique individuals and differentiate one individual from another individual, those characteristics conceptualize the concept of personality. So, it includes traits like extrovert, introvert, these are like personality descriptions. So, this is the basic idea behind the concept of personality. We also talked about why we need to study personality. We have seen some of the basic reasons. One of the most fundamental reasons for which we need to study personality is because it gives you an idea of knowledge about yourself and others. As human beings, we want to understand ourselves as well as understand and predict others' behaviors.

So, in that context, personality psychology helps us a lot. And every layman has some ideas about personality. So, understanding personality psychology will help us to build on that layman knowledge with more scientific knowledge. We also talked about different domains of knowledge about human nature. So, personality psychology, as we have discussed, one theory is not sufficient to describe the complexities of human beings.

So, as a result, personality psychologists have devoted their research to specific aspects. So, that leads to the diversification or diverse branches or theories within personality, and we talked about some of these theoretical perspectives. Then we also talked about whether there is a possibility of a grand ultimate theory of personality, and we said, as of now, we don't have any one theory that describes every aspect of human personality. We have more often theories that focus on specific aspects. So, today we will be talking about the concept of the

scientific study of personality, or how personality is studied using the scientific method.

We will be talking about different approaches that are used to study personality. We will be talking about sources of data and about basic research designs that are used in personality psychology. So let us start today's lecture. So when we talk about scientific research, I have already discussed in the last lecture the basic hallmarks of scientific research.

Which are systematic observations, objectivity, replicability, and so on. So all these things are also included when we talk about studying personality scientifically. Like other scientists, personality psychologists use the scientific method to study personality, and we have already discussed what the scientific method is in the last class. Basically, they use empirical, systematic, and objective observations to answer research questions and make predictions. So these are not random observations or someone's speculations; these are based on data collected from the real world, people, and so on. So that is why the field of personality is considered to use or attempt to use scientific research methods. So when we talk about research, this is a typical cycle of research.

Basically, most of the time it starts with a theory. Then from the theory, we develop a hypothesis. So the theory is something that starts or may be provided by a theorist based on certain observations or studies. So from this theory, the researcher derives certain hypotheses, which are tentative solutions to certain problems. Based on observations, the researcher proposes certain solutions to the research problems that they have proposed.

Those solutions are called tentative solutions, and they test whether these solutions are right or wrong. So that is what the research goes on to do: to test those hypotheses to see whether they are right or wrong. Whether the hypotheses are accepted or rejected. So the research is all about testing those hypotheses. In the process of research, the collection of data is very important.

So, when the research design is complete, then the researcher goes out to collect data, and this data refines the theory or validates the theory. And the data also becomes more meaningful because of the theory. So, you can interpret the data using the theory. So, this is the cycle that goes on. Theory, hypothesis, research, research data to theory again, like that.

This is the cycle of research. We will give you an example of how it is done using a very simple study that already exists in the field of personality. So, let us say this is the theory of something that we will be studying in detail in the later upcoming lectures. So, Albert Bandura gave a theory of social learning theory. So, one of the important aspects of this theory is that people learn behaviors through observations and imitations of others. This is one of the important principles. So, this theory has many other aspects. So, just to give you an idea of this whole cycle of research. So, this is the theory, and one of the central ideas of this theory is that people learn behaviors through observations and imitations of others.

So, we see others. Then, from there, we learn things by imitating others by looking at how others are performing certain behaviors. So, one of the ways to learn is to observe and imitate others. Now, from this theory, the researcher proposed a hypothesis that children who observe aggressive behavior in adults will exhibit more aggressive behaviors themselves. So, one of the things that children learn from others is their aggressive behavior.

So in theory, they propose the hypothesis that children who observe aggressive behaviors of others are like adults, i.e., if they observe adults behaving aggressively, they are also more likely to exhibit aggressive behavior later because they are learning from the others. So, this is a hypothesis that is derived from the theories. Then the research is conducted where the researchers try to prove or disprove this hypothesis. So, in this particular study, 60 children from ages 4 to 6 were taken into the research. How did they conduct this research?

So, the procedure includes using two groups of children. One group is called the experimental group, and the other group is called the control group. In the experimental group, the children observed an adult behaving aggressively towards a doll, called the Bobo doll, a kind of inflated doll. In the experimental group, one group of children observed that adults were behaving aggressively towards the Bobo doll.

The children were shown video clips of aggressive behavior like somebody is punching and hitting that doll. So, one group of children was shown videos of people behaving very aggressively towards the doll. In the control group, children observe an adult behaving non-aggressively.

So in that particular group, children observe an adult behaving non-aggressively. So, these two groups of children observe different things. One in the experimental group observes aggressive behavior, the control group does not observe aggressive behavior, they observe normal behavior of some sort. Then these two groups of children were placed in a room with the same doll which was shown to both groups of children. One group was shown videos of a person aggressively behaving, and another group was shown videos where they were not aggressively behaving towards that doll.

The same doll was put in a room and both groups of children were placed in that room. So, how did they collect the data? The researcher measured how these two groups of children behaved toward the doll later after observing others' behavior toward that doll. In the results, they found that children in the experimental group, where they observed that the people were aggressively behaving toward the doll, exhibited significantly more aggressive behaviors compared to the control group. So, it was very clear that children who observed aggressive behavior replicated the same behavior when they were put in a room with the same doll. So, this supported the hypothesis. The hypothesis that we learn behavior by observing others was supported. So, the theory is supported here.

The results support the social learning theory, showing that children learn and replicate aggressive behaviors by observing adults. Now, so this is the cycle. Theory, hypothesis, then research, then the collection of research data, and then it kind of proves the hypothesis or the theory again, or it can also refine the theory by getting more additional information. For example, the research could have also shown specific conditions under which this observational learning is more likely to occur. Maybe not in all conditions do people observe and learn, maybe in some circumstances people learn more by observing in some circumstances. So, what are the conditions under which people learn more by observing others? So, the research could throw more light on those diverse factors that can influence observational learning leading to refinement of the theory. So, this is how the cycle of research goes on. Now, when we talk about personality research, there are two major approaches.

To study personality based on the idea behind or the theoretical perspective that the researcher considers or the philosophical perspective that the researcher

considers. So, one approach to studying personality is called the idiographic approach, and another is called the nomothetic approach to research. So, personality psychologists also use both approaches. Let us see what these two research approaches are. In the idiographic approach, the focus is more on individuals describing their unique personality variables.

So, when we talk about personality research, the researcher who takes this idiographic approach or uses this idiographic approach will focus on individual cases or individuals to understand their personality. They will conduct in-depth research on specific cases, and they will try to understand those cases and, on that basis, report the results and so on. So, the focus is more on an individualistic kind of study, describing their unique personality variables or characteristics. So, basically, idiographic comes from the Greek word 'idios,' which means private or personal. So, it is more of a personal focus.

So, researchers study individuals one at a time, viewing each as possessing a distinct personality structure. So, the whole idea of the idiographic approach is that the focus should be given to individual cases because every individual is unique and different. So, the study should focus on understanding each individual. So, that is the idea of the idiographic approach. So, typically, the research method used in this approach is the single case study method, where the focus is given to an in-depth understanding of a particular case or a particular individual.

Now, the unit of this case could be very different in different studies. So, when you are studying, human beings, the case could be one individual. People also could include one organization or one community in a single case study. So, your unit of the case could differ from study to study. In personality, mostly, it is individual persons.

So, an individual case study here basically means one individual or one person. For example, Sigmund Freud, whose theory we will be talking about in the upcoming lecture, most of his theories and ideas came from case studies. So, he dealt with a lot of people with psychological issues and based on his observations and understanding from those case studies, he developed a very intricate and complex theory out of that. So, a lot of personality psychologists use case studies very elaborately.

So, in the ideographic approach, they rely on qualitative methodologies. Mostly, they use qualitative methodologies like interviews, diaries, and therapeutic sessions to gather data on individuals. So, they do not go and collect data from too many individuals. Rather, the qualitative study focuses on a few individuals or individuals in a case study, it may be one individual, and they will collect details about that individual case and based on that, they will make certain conclusions.

Now, in the ideographic approach, generally, the focus is not on generalization. Generally, they reject the notion of a universal personality type. So, they do not focus on generalizing these findings to everybody else, because they are focusing on a specific case with unique characteristics. So, their whole approach becomes significant in certain situations.

The nomothetic approach, on the other hand, is very different. It is kind of opposite to what the idiographic approach is. Here, the focus is more on understanding consistent patterns or variables across groups of people. Here, the focus is not on individual cases. The focus is given to studying a group of people and then finding out patterns within that group and generalizing its findings to a larger population. So, the focus completely different from the idiographic approach.

So it comes from the Greek term for law. So nomothetic comes from law. So they are more focused on finding laws of behavior across groups of people. So the focus is on group studies, focusing on studying large groups to establish average levels and norms of specific personality variables across demographics like age groups or genders and so on. So they study groups and try to find common patterns and then generalize them to the larger population.

So, the emphasis is mostly on focusing on similarities and universal laws and so on. So, here you can see some of the content taken from a book by Maltby, Day, and McCaskill. They gave some of the differences between these two approaches. So, the idiographic approach emphasizes the uniqueness of the individual. The nomothetic approach focuses on similarities between groups of individuals.

Individuals are unique only in the way their traits are combined. So their focus is on both individual and group levels. The goal is to develop an in-depth understanding of individual cases. Here the goal is to identify the basic structure

of personality and the minimum number of traits required to describe personality universally. The focus is on large groups of people or the entire human population itself. The focus is on what are the laws that govern that behavior. So the focus is not on individual cases. In the idiographic approach, research methods mostly use qualitative methodologies. In the nomothetic approach, mostly quantitative methods are used, where they collect data from large groups of people and use statistics to understand the patterns.

So, data collection in the case of the idiographic approach mostly includes interviews, diaries, narratives, etc. People's subjective understanding is reflected in their reports. In the nomothetic approach, questionnaires and so on are mostly used to collect data, which can be generalized. The advantage of the idiographic approach is that it provides an in-depth understanding of the individual. For the nomothetic approach, the advantage is the discovery of general principles that have predictive functions.

Nomothetic research provides general principles that guide group behavior or population-level analysis and so on. The disadvantage of the idiographic approach is that it can be difficult to generalize from the data. Because you are studying only individual cases, your results are mostly connected to that case only. So, beyond that particular case, you cannot be confident of generalizing that finding to other people.

So, that is the disadvantage. The disadvantage of the nomothetic approach is that, even though you are studying a group of people, the understanding could be somewhat superficial because you are not studying each individual in depth. You are trying to find some general patterns, so in that sense, there may not be the rich information that you get from the idiographic approach. However, using the nomothetic approach, you are able to understand a large group of people, which is missing in the idiographic approach. These are some of the comparisons that you can see. This comparison can also be illustrated using an example of research questions to show how these two approaches differ. Let us say one of the research objectives in the case of the idiographic approach would be formulated as: How can we understand the coping mechanism of an individual who has experienced a traumatic event? This objective fits under the idiographic approach.

If you want to study the coping mechanisms of an individual who has undergone a traumatic event, experienced a traumatic event, or encountered a traumatic event, and you want to understand that individual, then the idiographic approach is most suitable. So, you can take that particular individual and understand their case study using interviews, observations of behavior, and so on. Let's say if you want to study something like identifying common coping mechanisms used by college students to manage academic stress, here your focus is not on one individual but on college students as a group, and you want to understand the common coping mechanisms used by those college students.

Then it will fit under the nomothetic approach, where you can use surveys and questionnaires. From this, you can collect data from a large sample of college students using standardized questionnaires. Then statistical analysis will be used in the nomothetic approach. Qualitative analysis will be used in the idiographic approach, where you can use the narrative, the person gave and the interview reports to conduct thematic analysis and identify important concepts in the narratives. So, depending on the research objective, one can use either the idiographic approach or the nomothetic approach, and both have their advantages and disadvantages.

Now, from these basic approaches to research, there are three basic research designs used in personality psychology. So, these research designs are the study plans we use to understand personality. There are three most commonly used research designs. One is called the case study design, which uses the idiographic approach, as we have already discussed. The other two are experimental design and correlational design. The experimental design and correlational design falls under the nomothetic approach, while the case study design falls under the ideographic approach. Let us explore each of these research designs used in personality psychology. The case study, as we have already touched upon, involves studying a particular event. A case could be an event or a person. This case could differ from study to study. What is that case? What is the unit of that case? It could be an event, an organization, a community, or one individual.

When you take that unit as a homogeneous unit, it becomes a case. The focus of the case study is to find out as much as possible. Case studies are widely used across various disciplines, not only in personality psychology. Business studies

use many case studies to understand companies extensively. Psychology also uses case studies, and personality psychology particularly uses many case studies to understand human behavior.

As I already said, Sigmund Freud developed his elaborate complex theory of psychoanalysis using mostly case studies. So it is quite commonly used by people in different disciplines. One of the first founding figures in the field of personality psychology, Allport, as we have discussed in the last class, also emphasized focusing deeply on the individual in each case and basically, he was talking about using case studies to get deeper and richer information about the individuals. More recently, personalities like McAdams also gave importance to understanding individual life narratives to understand their personalities and their behaviors.

So there is a rich tradition in psychology of using case studies to understand human behavior. So, there are a lot of advantages of case study and we have already discussed some of these such as it gives you a comprehensive exploration of the subject matter. You can go very in-depth into particular cases and gain an understanding of those particular cases. When your focus is very in-depth, then a case study is very significant. As we have already said, Freud's psychoanalysis is such an example.

He developed such an elaborate complex theory out of case studies. Another advantage of the case method is that it can also inspire many new ideas. So when you do a case study, you try to understand that particular case elaborately; sometimes many new ideas get generated from those case studies, which you can use for understanding that particular behavior or using other methodologies, etc. So, sometimes when we are doing a close examination of specific cases, researchers can uncover many insights about broader phenomena. For example, studying the causes of airplane crashes can inform safety measures to prevent future disasters.

So, let us say you are doing a case study on crashes of airplanes. It can give a lot of new insights and knowledge about aircraft safety to help in the prevention of crashes. So it can inspire new ideas from that. Sigmund Freud's intensive analysis of himself and his patients generated a wealth of groundbreaking ideas

in psychology, which are ideas that have been impacting the field of psychology for a long time. So, it can give a fertile ground for a lot of innovative thinking.

Another important advantage is that sometimes there is no other way than to do a case study. In certain situations, a case study is the only way to go about it because the situation demands case studies. Let us say when a plane crashes or a patient presents a serious illness, some complex unique cases come up. Then there is no other way than to go and do case studies. Understanding specific circumstances becomes very important.

So, psychology frequently encounters individuals with unique complex cases that require an understanding of that case swiftly. You have no other way than to study that case in depth. So, in such scenarios where a unique complex case arises, a case study is the best way to go about it to understand that particular case because you may not find such cases everywhere, and then you have to go in-depth about that particular case. There are also certain disadvantages of the case study; one is that you cannot generalize findings because you are focusing only on specific cases, and generalization is difficult. So a lot of this knowledge could be only specific or applied to that particular context only. You cannot generalize it beyond that.

So that is the major disadvantage. So sometimes, certain ideas may come from case studies and using some other methods like experiments and correlations are needed to generalize it in other contexts. So, for generalizing the case study findings, other methods like experiments and correlational designs are much better. So sometimes case studies can give you certain insights and ideas, and then we can explore those ideas further using experiments and correlational designs to generalize them to the larger population.

So then next comes experimental design. This is also used in personality psychology and many other branches like cognitive psychology use extensive experimental designs and so on. So, the experimental method mostly focuses on establishing causality between variables and determining whether one variable influences another. So, in an experiment, an artificial condition is created and within that controlled environment, and the experimenter tries to understand the impact of one variable on another variable. After controlling the situation, you can

very clearly find the cause and effect. So, for that, the experimenter first identifies the variables.

So, what is a variable? So, variables are any qualities that can vary or take different values among individuals, such as height or aggressiveness. So, any quality that can have different values is called a variable, meaning its value can change. So, that is a variable.

For example, height can change; some people may have low height, some more, etc. So, height is a variable. Weight is a variable. So, your weight can vary. Sometimes weight can be less, and sometimes it can be more.

So, it is a variable. Psychological variables, like aggressiveness. Your aggressiveness can also be measured; it varies as sometimes you are more aggressive, sometimes less. Some individuals are more aggressive, some are less aggressive. So, its value can change. So, it is a variable.

So, experiments use variables. So, variables are typically of different kinds, but most importantly, independent variables and dependent variables are used in experimental designs. So, there can be mediator variables and moderator variables, but typically we will not go into too much detail about those variables. However, there must be at least one independent variable and one dependent variable in an experiment. The independent variable is a variable that the researcher manipulates or changes to observe its effect.

So, in the experiment, the researcher takes an independent variable and manipulates it artificially in a controlled environment. When this variable is changed in a particular situation, the researcher tries to see the impact of this change on the dependent variable, the other variable that is linked to it. So, after this comes the dependent variable. So, the dependent variable is the variable that is measured or observed to determine the effect of the independent variable.

So, when the independent variable is changed or manipulated, the dependent variable also changes. So, the dependent variable is an outcome variable, and the independent variable is the causal factor. The dependent variable is the effect. So, every experiment will have at least one independent variable and one dependent variable. So, this is one important thing in the experiment. Then, some of the main requirements of the experiment design include

So, the manipulation of the independent variable (IV) to see its effect on the dependent variable (DV) is the first thing. So, it involves actively changing the independent variable to see its effects on the dependent variable. So, this is one thing in the experiment. Second, experiments generally involve, particularly when people try to see or compare groups, mostly a lot of such comparisons are done in personality psychology. So, people use an experimental group and a control group in the design of the research. The experimental group is basically the group where participants receive the treatment or intervention being tested. So, this is the group that receives whatever intervention or treatment that one is aiming at.

So, whatever effect of that intervention that the researcher is trying to see, that intervention will be received by this particular group. So, this group is exposed to the independent variable. The control group, on the other hand, is the group of participants that do not receive the treatment or intervention being tested.

Instead, this group receives the treatment or a placebo of standard treatment serving as a baseline for comparison. So, the control group does not receive those interventions or independent variables. So, they will have some kind of placebo. So, that particular intervention is absent. So, these two groups are generally used in intervention studies, particularly in the field of personality.

For example, If you want to examine the effect of a new drug on reducing anxiety. So, let us say, the objective of the study is to investigate the effect of a new drug on reducing anxiety. So, if you see, the intervention of the new drug is IV, and its effect on anxiety is DV.

So, we have two variables: the drug—somebody will get the drug—and its impact on anxiety. So, anxiety is the dependent variable. So, some participants will receive the drug, that is the experimental group. Whoever will be given the drug, will be called the experimental group.

Others who receive a placebo, or they do not get the drug, or just they will be given something like plain water or some kind of neutral thing, will be called the control group. Followed by the researcher measuring the level of anxiety using tests to find their scores on anxiety, they will see whether the drug has been effective or not. So, this is an example of how experimental and control groups are used in experiments. So here, in a completely controlled condition, the

researcher is manipulating one thing and seeing the effect on the other thing. So very clearly, you can find out the cause and effect because everything is under controlled conditions.

The second important aspect of the experiment is ensuring the equivalence of the participants because if the two groups are already different, then measuring these two groups—the experimental and control groups—on anxiety levels, if they are already different in anxiety, the scores will naturally differ. Therefore, we cannot attribute the difference to the drug. So, it is also important that you ensure that these groups are not already different in the score that we are interested in. So, they should not be very different from each other—the experimental and control groups—in terms of anxiety scores. Because if they are already different, then we cannot attribute the difference to the drug.

They are already different. So, matching them is very important in both groups. They should not be very different in terms of, or they should at least be equivalent in, the score that we are interested in. Only then, we say it is the drug that is causing the effect, not individual differences. So, that is called ensuring the equivalence of the participants, which can be done in many ways in the experiment.

One way is to randomly assign them. If you do not particularly choose one individual because you like them or because they are smart and you place them in a specific group, then that group will naturally become very different from the other. So, just randomly assigning each participant to the control group and the experimental group often cancels out all the individual differences if the group is large enough in terms of numbers. So, randomly assigning participants to the experimental and control groups ensures that each participant has an equal chance of being placed in either group. So, that also makes the groups generally equivalent.

It helps to distribute potential individual differences and other differences generally across the groups. So, across the groups, it kind of cancels out or is distributed equally. Sometimes, people also do matching. Very specifically, they match the characteristics of the people in the group. So, participants in the experimental and control groups are matched based on certain characteristics like age, gender, baseline performance, etc.

So, baseline performance could be performance in the anxiety test for both groups. If they are similar, then we can say they are equivalent. So, sometimes people do matching, and sometimes random assignment. So, this is another important thing in the experiment. So, this is how it is done. The controlled conditions are created in the laboratory setting, the researcher aims to understand the impact of the IV on the DV, the independent variable on the dependent variable. Then, the researcher manipulates the independent variable. In the case of personality research, mostly they use an intervention in the experimental group and do not use an intervention in the control group. They try to match both groups to be equivalent in the particular case or dependent variable measure, and then they see the impact of a particular intervention by taking the pre-and post-test scores.

So, this is how experiments are mostly done in personality research. So, there are many other complex designs also involved. So, we will not go into that part. So, experiments are also there in personality research. One of the examples that we have already discussed of an experiment is the Bobo doll experiment that we discussed while talking about the research cycle.

Where we have seen there is an experimental group and there is a control group. In the experimental group, the children observe video clips of adults punching or behaving aggressively with the doll, and in the control group, the children observe a video clip of adults not behaving aggressively with the dolls, and when both groups are put into a room with the same doll, we have seen the experimental group behave more aggressively as compared to the control group. So, that was a very typical example of an experiment done in the field of personality psychology. So, the advantage of the experimental method is mostly that it helps us to establish a cause-and-effect relationship because we are doing it in a very controlled environment and manipulating one variable and seeing its direct impact on the dependent variables.

So very clearly, we can find out the cause-and-effect relationship. So basically, it also provides a very controlled environment. We can control important things, and we can kind of remove the things that are not important in the laboratory setting. This control enhances the ability to attribute observed effects to specific variables under study. It also helps us to replicate results because the same conditions can be created again, and the findings can be replicated, which may

not be so easy in the real-life context because the same situation may not arise in the real-life situation again and again.

So, replication of results is much easier in experimental conditions. It also enables the isolation of specific variables because of the control conditions. And we can very quantifiably measure and find out the cause and effect. So the major advantage of experiments is that they can help you to establish cause and effect in a very controlled condition. The disadvantage is basically that you are finding a result within a controlled, artificial laboratory setting, which may not have ecological validity, which means it may not be true in real-life situations. In real life, human beings behave under the impact of so many variables that may not be present in a laboratory setting. So, whether the findings of the experiment occur in the real world or not cannot be generalized to the real-life context, so that is called an ecological validity issue in the case of experiments. Many times, because of ethical concerns, you cannot manipulate all conditions in the laboratory. For certain experimental manipulations, for example, you need to induce stress among the participants. It is not ethically right to put people under stress. Or you may need to deceive people or give some wrong information to see its impact on their minds. So many times, a lot of situations, a lot of experiments that were done earlier are now ethically not possible in today's world. Because a lot of ethical guidelines are there, which will not allow you to do such kind of research. So many times, you cannot do many experimental setups simply because it is ethically not possible to manipulate those variables. There is also the possibility of demand characteristics, which basically means that participants in an experiment may modify their behavior or responses based on their awareness of being in the experiment. Simply because they think they are in the experimental setup in the artificial condition, they will change their natural behavior.

So, the behavior response that you will get may not be true in terms of how they behave in the real world. Because they will simply change their behavior due to the artificial condition. So, because of that, sometimes we may not get the right kind of response. So, this is also another disadvantage. Another disadvantage is that you cannot study a lot of complex phenomena in the laboratory setting that happens in the real world.

So, this is also one of the limitations. Sometimes conducting or setting up a laboratory setup in an experiment may also require a lot of resources. Conducting experiments requires significant resources like time, funds, specialized equipment, trained personnel, and so on. So, all this could also be very resource-intensive, which may not be possible in all cases. Then, the issue of external validity is also there, where such behavior may not exactly happen in the real world because of the artificial situation.

So, these are some of the limitations and the advantages of experiments. Then comes the correlational design. In correlational design, the researcher is mostly interested in identifying relationships between two or more variables without imposing manipulations seen in the experimental setup. So, correlational designs are not done in the typical artificial laboratory situations as in the experimental setup.

Here, they are more interested in finding relationships between variables. So, they can very much do it in a real-world setting. For example, you know One research question related to correlation design will be, do individuals with a high need for achievement in the university earn higher salaries in adulthood compared to those with a lower need for achievement? What is the relationship between self-esteem and the esteem in which a person is held by others?

How does achievement motivation relate to the grade point average? So, you are talking about at least two variables and want to see the relationship between them. So, you collect data for both variables and then statistically see the relationship between them. Most of the research designs such as survey designs are basically correlational designs.

So, what happens in a correlational design? Basically, we collect data for these two variables, at least in which you are interested, and then find the correlation coefficient between them. The most common statistical procedure for finding this correlation is called the correlation coefficient. Based on the coefficient that you get, you can make certain interpretations. So, the correlation coefficient can range from plus 1 to minus 1.

So, plus 1 means a perfect positive correlation, minus 1 means a perfect negative correlation and zero means there is no correlation. You can have scores in between the range of +1 to -1. So, a positive correlation indicates that as one

variable increases, the other also increases. So, if you see the grade points of a student and the self-esteem of a student, if there is a positive correlation, that means as the grade increases for a student, his self-esteem also increases. So, a positive correlation basically means this.

A negative correlation indicates that as one variable increases, the other decreases. So, let us say you want to study two variables which are negatively correlated; that means if one increases, the other decreases. So let's say you see people with certain psychological issues or emotional issues like depression, the score of depression and the score of happiness would be negatively correlated. Possibly in real life, what we see is that the person who scores higher in depression may score very low in the happiness scores because both are negatively correlated. If one increases, the other will decrease.

So, like this, we can find the relationship between variables using correlational designs. We can do a lot of other complex statistics to predict variables. I will not go into detail about all these things now. So, examples of correlation design could be, like Let us say the objective of the research is to study the relationship between self-esteem and the amount of time individuals are unhappy. So, what is the relationship between happiness and self-esteem? That is the objective of the study. So, there are two variables. One is self-esteem, and another is happiness.

We want to find what the relationship between them is for individuals. So, let us say you take 500 university students and then you measure self-esteem using a certain standardized questionnaire and happiness score using certain standardized questionnaires. So, you have already measured the standardized scores using standardized questionnaires. So, now you have scores for self-esteem, and scores for happiness, and then statistically, you can see the relationship between them.

So, then you analyze the data and find the correlation coefficient between these two. And the result says, let us say the correlation coefficient came out to be minus 0.60. So, that means both are negatively correlated, indicating that there is a moderate to strong negative relationship between self-esteem and unhappiness. So, as self-esteem increases, unhappiness decreases.

So, the researchers found a negative correlation. So, self-esteem and unhappiness exhibit a negative correlation, meaning that as one variable, self-

esteem increases, the other variable, the percentage of time one is unhappy, tends to decrease. So, that means self-esteem is important for happiness.

So, based on the magnitude of the correlation coefficient, we can draw some kind of conclusions. So, if the correlation coefficient is 0.1, it is considered very small. If it is around 0.3, it is considered medium. If it is around 0.5 or more, then it is generally considered large. And then it could be positive or negative, based on the relationship.

So, the advantages of correlational design are basically that it is very easy to find relationships, and you do not have to do all the experimental setup. You can just get the scores of two variables and find the relationship. It also helps us to understand complex relationships. You can find relationships among multiple variables and find out the complex relationships. That is also possible in correlational design.

It is non-invasive; you do not have to do anything with people, you just need to ask them some questions and find out the scores. So, it is non-invasive. So, it is easily done. It can also help us to predict. By finding the relationship, we can predict the kind of relationship between two variables.

This predictive value is useful for understanding and addressing real-world phenomena. So, if you find a relationship between these two variables to be positive, that means we can make certain predictions based on statistics such as if we change this aspect, then other aspects can also be changed. So, these are some of the advantages of correlational design. The disadvantage is that you cannot find causality here, which can be found in experimental design.

If two variables are correlated positively or negatively, that doesn't mean one is causing the other. There can be a third variable also impacting the relationship. So, if self-esteem is positively related to happiness, that doesn't mean self-esteem is causing happiness. There can be many other things in between which are influencing happiness. So, in correlation, you can find a relationship, but it may not be causative or may not directly give us a cause-and-effect relationship. Correlation does not mean cause and effect; it only shows that these two variables are related but one may not be causing the other. So, causation is not included in the correlation. The directional problem is also there. Correlation studies cannot determine the direction of the relationship between variables. It is

unclear whether one variable influenced the other or a third variable can also explain it. So, these are some issues in correlational design. The third variable confounding could also be present. You are only seeing the relationship between two variables but in real life, there can be a third, or fourth variable impacting the relationship, which you may not know. You don't have much control over variables. You are just measuring their scores but lack the control you have in the experimental setup. Also, bias reporting could be another issue here. Correlation studies often rely on self-report measures and observational data, where people sometimes may not report actuality, whatever the truth they want to describe about themselves.

So, there can be biases in the reporting which may also influence the findings. So, these are the three main designs that are used in personality research. So, we have a case study design, experimental design, and correlational design. Again, all three designs have their advantages and disadvantages. Depending on the research questions, whatever is suitable, one can select some of these designs or you can use multiple designs also together in your research study. As every design has its advantages and disadvantages, researchers use them based on what kind of research problem they are interested in. Now, when we talk about research, the most important thing is the sources of data from where we are getting the data. How we are getting the data plays a very important role in the research. We cannot do research without the collection of data. So, in personality research, where do we get data from? Where do we get all the information to make conclusions? There are four possible sources of data in personality psychology from which we get data and then make conclusions about personality. So, these four sources of data are: one is S data or self-report data; another is I data, or informants' data; third is L data or life data; and fourth is B data or behavioral data. So, we have self-report data, informants data, life data, and behavioral data.

Let me briefly discuss each of these data sources and how they are used in personality psychology. So, self-report data is basically very evident. We have already seen that most of the questionnaires used in research are self-report data. You just give a questionnaire and ask a participant to kindly report or respond to the questions that are there in the questionnaire.

So, it is a self-report, the person is reporting about himself or herself in that questionnaire, so, it is a self-report. The person himself or herself is judging about themselves and then reporting whether something is true about them or not. So, that is called self-report data.

The most employed self-report data is the questionnaire method, which is used in research, most of the survey research conducted used this. Individuals answer a series of items seeking information about themselves. So, the questionnaire consists of many items or questions which ask them to report about themselves. So, that is why it is called self-report. Here, the individual simply tells the psychologist on a questionnaire about his or her personality characteristics.

So in the case of personality, they will ask about different personality characteristics, and they will write whether this is true about themselves or not, or to what extent this is present within themselves or not. So the question could be in the format of true or false, or it could be in the Likert scale, like a rating point. On a 5-point scale or a 10-point scale, how do you rate yourself on a particular trait? So some of the examples could be Likert, like, let us say, in the trait of dominance, how do you rate yourself from 1 to 5? 1 is I am not at all dominant, 5 is I am very dominant.

So one could rate anywhere between these two extreme scores. So here, the person himself or herself is reporting about themselves. So that is why it is self-report data. It could be in the format of true or false. You ask a statement like, I usually dominate the discussions I have with others.

The person will say whether this is true or not. One can also ask open-ended questions such as can you describe a situation where you naturally took charge and led a group or team toward a common goal? The response will also give clarity about the trait of dominance in that person. So likely, there could be different formats of questions that can be asked, and it could be self-reported by the participants.

So this S-data has many advantages because it can give you a large amount of information. You can ask about that person, almost everything about that person. So you can get a lot of information by using this self-report data. Data from almost every setting: home, school, and work can be collected. Because the person himself or herself knows everything about that themselves.

Unlike others who may only witness certain aspects of life, you have a comprehensive view of your own behavior across diverse situations. It is only the person themselves who knows best about themselves. That is why you can gather large data from different contexts. So it gives access to the thoughts, feelings, and intentions of the person because the person is aware of their inner life. No one else can know what is going on inside that person until and unless that person reports it to another person.

So, self-reporting is the only way to gain understanding about the inner mental life of a person such as the fantasies, hopes, dreams, fears, emotions, etc. Others cannot talk about the inner mental life of that person; only self-report can provide that. Sometimes, in certain situations, self-report is by definition inherently true and the only way to collect data.

For example, if you believe you have high self-esteem, then, according to self-report data, you have high self-esteem. Because a lot of psychological constructs are based on what you believe. So, if you believe you have high self-esteem, most likely you have high self-esteem. No one else can tell you about that.

So, in such situations, no one else can tell whether this person has high self-esteem or not. You can observe certain behaviors, but the actual truth can only be provided by the person themselves. So, in that case, self-report by definition is true. Whatever the person says is the true reflection of his/her belief. So, by definition, it is true.

So in such cases, self-report is the only way to get information. The most important thing is that self-report is very simple and easy. You just have to make a questionnaire or you can use certain standardized questionnaires and ask people. You can collect data online or offline. It can be distributed very easily and collect a large amount of data in a short span of time.

So it is quite easy and simple. There are certain disadvantages of self-report data, such as the problem of self-disclosure, because you are asking the person to report about themselves. Many people may not report the truth about themselves. You don't have control over that. For example, people who are very narcissistic individual, defined as those who have a lot of unrealistic self-esteem and always want to be at the center of attention. These people always portray themselves in a positive light, so they will give data that puts them in a positive

light. Many times, people do not report about themselves truthfully. So this is one issue with self-report data.

They don't want to disclose certain aspects. So that is where sometimes we may not get all the information. Another important issue with self-report is the lack of self-awareness. Many people may not be aware of themselves either.

People themselves may not be aware of a lot of things about themselves, about their inner life. This phenomenon is called the fish and water effect, which means that, as fishes are not aware of the water because they are surrounded by water all the time, similarly, we also don't know many things about ourselves because we have been in that situation or conditioned mind. We take certain things for granted, and we may not notice that we have these traits within us. For example, someone who consistently shows kindness and generosity may not realize that these traits are distinctive of themselves.

Because they have always behaved this way. So if certain traits are a very common aspect of themselves, probably they may not notice it as something very distinctive about themselves. So they may not even report certain things because of a lack of awareness. So that could also be another problem in the self-report data. Research also says because of the ease and simplicity of the self-report data, researchers sometimes overuse it and they do not take other kinds of data.

Which can give a lot of other information. So, sometimes, overuse is also a concern because of the ease and the simplicity of the self-report data. So, people neglect other forms of data.

The second is informant data; basically, here you do not ask the person directly to report about themselves.

You ask other people who know about people about whom you need data. And then you ask those people who know about the participant to report about that person. So you are asking informants to report about some other person. So another method to understand an individual's personality is by collecting judgments from people who know them well in daily life. Known as informant.

So, if somebody, let us say, you are interested in finding out about a person X, whoever knows that person. So, he or she will become the informant, and you

ask that person about the other person. So, the informant will report about the other person. So, this is called informant data. So, basically, it is obtaining assessments from knowledgeable individuals, who are called informants here, about the individual's general personality attributes.

So, informant data can be generated through various means. For example, let us say you are studying college students. Participants are asked to provide the names and contact information of two individuals on campus who know them best. So, you ask those participants to give the names of two persons who know them best. And then, the researcher will collect data from those informants.

So, these informants are then invited to the lab or other location and asked different questions about that participant. So, the informant will report about the participant. So, that is called informant data. The informant data may be more accurate than self-judgment data in certain situations. For example, if you are measuring traits that are highly desirable or highly undesirable, the person may not report them accurately in self-report data, because they may exaggerate.

But other people can more accurately report when asked about highly desirable or undesirable traits in another person, because they have been with that person very closely, living with that person. So, they can give a more objective report. Thus, in certain situations, informant data can be more accurate. Such data are commonly used in everyday situations. For example, in many employment situations, letters of recommendation are asked from a third person, which is like informant data. So, you ask a certain person who was associated with that person, an expert in a certain domain, to give a report about that particular individual. So that is called a letter of recommendation. These are all like informant reports only.

The advantage of an informant report is that you can get a lot of information about acquaintances who are living with those individuals. They are in a unique position to accurately describe someone's personality because they have observed the individual in numerous situations. So, in that way, we can get a lot of information. In the informant data, one can also take data from multiple individuals.

So you can get information about one person from different sources. So this gives much more validity to the data rather than just you reporting about yourself.

If five more people are also saying the same thing, then you are more confident that this is true. So, researchers often seek multiple judgments from different acquaintances to assess participants' personalities, averaging these judgments for a more reliable and overall rating. So sometimes, a lot of this informant data is more real-world data.

So, unlike many other sources of psychological information, which are often under controlled conditions like experiments, informant reports reflect behavior witnessed in daily social interactions. So, they will give more real-life information because they have been with that person in real-life situations; so, they can give more real-world data or more accurate data which they show in the real world. So in that sense, this is also another advantage. Informant data can give a lot of contextual information which the person may not report.

It means nuanced information about their behavior and certain personality traits etc. For example, imagine a researcher conducting a study on stress levels among employees in a corporate setting. Let us say this is what the researcher is trying to understand. In this case, if you ask the person themselves, it means the employee who is going through certain stress, will be self-report data. Let us say, the employee reports high levels of stress and attributes this stress to a heavy workload and tight deadlines.

So, he may say he is stressed because of a lot of workload and deadlines. So, self-report data may give you this information. But let us say you are also asking for another informant's data. Let us say a supervisor's report also. Then you may get a more nuanced understanding of that particular case or particular employee.

So that the supervisor may also give more information, like the supervisor may say a heavy workload is an important factor contributing to stress. But the supervisor also highlights that the employee may be significantly going through certain personal issues such as recent family illnesses which are contributing to more stress. This new information may not be highlighted in the self-report data, but the informant report may give a more nuanced understanding of the life situation of that person. So, employee John may have a history of managing work stress well but because of the additional family issues now the person is not able to deal with the situation. So, the informant may give all this nuanced understanding so that is the advantage of using informant data.

Like certain cases of self-report data, in certain situations, informant data is the only way, and by definition that should be true. For example, evaluating oneself on the trait of charm is challenging because charm is perceived by others rather than felt inherently. So let us say, in a hypothetical situation, you want to measure the charm of a person. Now charm is something that is observed by other people. You cannot understand the experience of charm, others understand whether you are charming or not. So, by definition, in this case, informant data is the only way to get the information. You cannot have a self-report on that. So, in psychological assessment, attributes like charm, likeability, sense of humor, attractiveness, etc, can only be accurately reported by other informants. The self-report data is not appropriate in these cases. Like self-report data, there are also certain disadvantages of informational data. Informants can have limited observation of certain situations because no one can be with the person all the time. So, the acquaintances or the informants can give information about only certain situations.

You cannot get every piece of information from the informants. People live in distinct social compartments. People have friends in schools, they may have different kinds of friends in work life, they may have different kinds of friend circles in, let us say, religious gatherings, and so on. So, friends from school may not give accurate information about his behavior in, let us say, religious gatherings or maybe in the workplace. So, this is the limitation of informational data.

So, every informant cannot have information about all aspects of everyone's life. So, relying on data from one person may provide only limited validity. So, in that context, this is one limitation. One needs to collect data from diverse informants. Another limitation is the lack of access to private experience.

When we talk about private personal mental life experiences, then informants may not know everything accurately unless it is reported to them. So, in that context, self-report is much better. Informants may also make many errors in judging people, especially since they may not remember everything about the person, so they may not be able to report correctly on the different pieces of information. So, the possibility of error is present in the informants' data because they cannot be sure about everything they are reporting.

It is impossible to remember every detail of one’s actions or those of others. Informants mostly tend to remember extreme cases like behaviors that are highly emotional or where there are a lot of extreme cases. People generally tend to remember those things, and they base their judgment on that. People tend to forget a lot of ordinary things that happen in life. So for informants, sometimes their judgment is colored by those extreme events that they encounter with that person, which may not be correct about this person in all situations. So that is also another problem. People tend to remember atypical events which are very different, either very extreme or highly emotional situations. So that can also lead to errors in judgment. People can also be biased because everybody has their likes and dislikes.

So if you like that person, you will say all the good things about that person. If you don't like that person, you will say all the bad things about that person. So we all have biases about other people. So these biases will also influence the report. So that is also another problem with the informants' data.

Those informants may be biased towards something. We have so many other biases also like bias towards gender, race, and stereotypes about certain groups of people. All this will also influence your judgment, and you may report wrong things about other people. So those things are also possible.

The next one is live data, where you basically collect real-life facts such as arrest history, education reports, marital status, hospitalization, employment reports, social media reports, etc. So basically, you don't ask the person, you collect data from different archives. So those are called live data. So the actual data is recorded somewhere and then you collect it from there.

So those are called live data. It can come from medical files, police files, web pages, social media accounts, etc. Archival records are less prone to biases. So one good thing about this is that as the actual data is already present, you may not make errors as mostly these are accurate data which can help you to understand that person.

A lot of research nowadays also uses social media platforms like Facebook and Twitter, increasingly used in health data and psychological research, to understand the personalities of individuals based on how they handle their social media activities. Many individuals conduct a significant portion of their social

interaction online nowadays. So online behavior can also be an important source of personality information. Some research shows that certain traits of individuals can be accurately assessed from Facebook profiles, and how they behave in online situations.

Live data is again more objective and verifiable in terms of advantages because these are already present when you report, you may distort the data while reporting, but if something is there as recorded data, most probably it is more objective and verifiable and more accurate, and it can be precisely measured and implemented in the research. Certain live data has a lot of intrinsic importance as it is significant in providing exactly what psychologists need to know, especially when dealing with outcomes that have significant consequences in certain situations. So live data is very important. Particularly applied psychologists who want to do certain applied research aim to predict and positively impact real-life outcomes such as criminal behavior, employment status, academic success, and accident proneness. All this information can be collected from the live data, and it can have a lot of applied implications in terms of understanding the person.

Life data relates to these important outcomes in life and plays a very important role in applied psychology. So intrinsically, this could be very important. The disadvantage is problems of multiple causes. So, for example, there is difficulty in directly connecting some specific life data to personality. This is due to a multitude of factors influencing these outcomes.

For example, let's say an arrest record may not accurately reflect an individual's behavior if they are wrongly accused. So, from the arrest record, you can find that the person was arrested, but this could have multiple other causes also. The person may be wrongly accused. So, then this arrest record data is not an important indicator of the personality of that person.

So, in many such life data cases, there can be many other causes which may not be apparent in the life data itself.

The last one is behavioral data, where you just record the behavior when the person performs that behavior in the real world or an experimental setup. So, you do not ask the person to report; you just observe their behavior in different settings. It could be in an experimental artificial setting or the real world, or it

could also be a physiological measure of how the body behaves in certain situations in terms of certain reactions. So, these are called behavioral data.

You just observe their behavior and record it. The participants are placed in specific situations, either in real-life contexts like a classroom or workplace, or an experimental setting created by psychologists, and the psychologists record their behavior. So, the key characteristic of B data is that it involves direct observation and recording of what the participant does in a given situation. Actions are recorded here, not the reports.

So that is the difference with other data. So some of the behavioral data is recorded from the natural behavior setting. In most cases, it is not possible to follow a person in the real world all the time. It is also practically and ethically not feasible. So, people use behavioral data as a proxy or compromise method, such as people report using methods like diary entries and experience sampling methods where they ask the participant to report their behaviors at different times of their lives and these reports become behavioral data. So the diary method includes things that people report in the diary every day, like whatever they have done in the day, and then those diary entries can reflect their behaviors and personalities. The experience sampling method is another thing where people are given a small beeper, and it beeps at different intervals of time, and whenever that instrument beeps, they are supposed to record what they are doing. So it is real-life behavioral data that the participant records, and then it is used by the researcher. So this is also used in certain contexts of research which is called the experience sampling method.

This requires certain technological advances where the participant must handle certain things. So, behavioral data are collected from real-life settings, and it acts as an advantage of this method. For example, when you report something, you may distort it, but when you are collecting data from real life, then you are less likely to distort it and accurately report what you are doing, or the researcher can record it very clearly. So, that is the advantage of it. The drawback is that in naturalistic, particularly in naturalistic behavioral data, it takes a lot of effort from the person as well as the researcher to collect such data. It can be a very expensive and time-consuming method. Certain contexts of behavior that the researcher wishes to observe may not occur frequently in daily life settings. So, sometimes real-life behavioral data may not capture those behaviors in the real-

life setting because the situation is not arising. So, due to these challenges, behavioral data is derived from laboratory contexts sometimes. People go to the laboratory and do experiments to record their behavior also in the laboratory setting. Like in the experiments, researchers put people in certain artificial situations and then see how they behave. In this method, the behavioral data is collected from experiments. It includes psychological experiments where participants are placed in a controlled environment and then a certain stimulus is introduced in that situation, and the researchers see how the person behaves.

So, for example, a participant might be asked to fill out a form in a particular room, and suddenly the experimenter introduces smoke in the room. The psychologist positioned outside the room with a stopwatch, measures how long it takes the participant to seek help when smoke comes into the room. So, let us say the researcher artificially introduced smoke in the room and the participant was not aware that such a thing would happen. The researcher observes and records how the participants respond to the smoke. So, it is an artificially created situation, in which the behavior was recorded. It is a more controlled situation because such situations may not arise in real life. So, the researchers created a situation to induce certain behavior and record it.

The last one is physiological measures, which are related to behavioral data. Here, the researcher records the behavior of the human body in response to certain situations. So, it includes measuring things like blood pressure, skin response, heart rate, and complex assessment of brain functions using CT, PET scans, MRI, etc. All these things are indicators of what is going on inside your body when you respond.

So, that is also an important part of personality research. We will look into that also. These physiological measures are also considered behavioral data because this is not just your behavior but the behavior of the body itself, which is controlled by our nervous system. So, this also gives a lot of information about the biological aspects of human personality. So, this behavioral data also has a lot of advantages because it gives more accurate information and a range of contexts where you can collect data.

Especially in some of the experimental setups where those behaviors may not openly happen in real-life situations, you can create and observe behaviors. So

that is also another advantage of it. So psychologists do not have to sit and wait for the behavior to happen. They can create it and record data.

The most important thing about behavioral data is that it is very objective. You know, you just observe the behavior because when you report something, people may give incorrect information, people may intentionally distort, or people may forget something. So, a lot of unreliability comes into the picture. But when you observe the behavior, it is more accurate because you are directly recording what is happening. So, objectivity is a very important aspect of it.

The disadvantage is that behavioral data is mostly very expensive and very difficult, and it is not possible for every researcher to collect behavioral data. Especially, let us say to record physiological measures, we will need a lot of complex and expensive instruments, which may not be accessible to all researchers. Even experience sampling methods also take a lot of time, and many participants may not be willing to go into those kinds of research. So, those are the disadvantages of behavioral data. Sometimes it is not easy to interpret behavioral data, especially physiological measures because suppose you have an MRI scan or PET scan, how do you interpret those reports that come? You need a lot of expertise in interpretation.

So, a lot of observational or behavioral data could look ambiguous, and it may be challenging to determine or make sense of that data. For example, if someone gives an extravagant gift, it is not immediately clear whether the person is generous or fond of you. It may not be easy to determine the causal reason behind it. So, a lot of these behaviors that are observed may not be easy to interpret like answering why that behavior is happening. So, these interpretational issues could be one of the disadvantages of behavioral data.

So with this, I stop here. So this is a brief overview of some research aspects associated with personality research. And we will discuss some other things in the next lecture. Thank you.