

Psychology of Personality and Individual Differences: Theory and Applications

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Week 2

Lecture 4: Methods of Personality Assessment

I welcome you all to lecture number 4 of this course titled: Psychology of Personality and Individual Differences. So, we are in module 2 and have already covered one lecture under module 2. Today is the second lecture of module 2, and overall, it is the fourth lecture of the course. So, today, we will be talking about specific methods of personality assessment. To give a brief about the last lecture, we talked more about the introduction of personality assessment, where we discussed the characteristics of a good personality test because many personality tests are floating around. Most of them may not be good tests. So, how do you identify a good test? So, in that context, we discussed the characteristics of a good test. More specifically, we discussed three important characteristics. These are reliability, validity, and generalizability.

We also discussed the various ethical issues associated with personality assessment. Because personality assessment has a lot of practical implications, these tests could be used in diverse applied contexts. For example, these tests could be used for job recruitment, as well as in the defense sector, for school admissions, and so on. So, since these tests have very specific and important applied implications in different real-life contexts, there is a need for the ethical use of such tests because misleading tests can lead to misleading results, which can then bias certain kinds of individuals, and so on. We also discussed three major sources of bias in personality tests, which include gender bias, response bias, and ethnic bias. So, we have discussed all these things in the last class. Today, we will be talking more about specific kinds of tests, which are categories of tests used in personality assessment. So, more specifically, we will be talking about self-report tests, Q-sort tests, projective tests, clinical interviews, and physiological measures used in personality assessment.

So, when we talk about personality assessment methods, there are diverse ways to look at it. We have different theories of personality. We will be looking at these as we proceed further in this course. Most of these theories have their ways of assessing personality. The assessment of personality became the backbone for the knowledge and data supporting their theories. So, the methods can vary in terms of objectivity, reliability, and validity.

Some tests may include dream interpretation, childhood recollections, computer-administered objective tests, and so on. So, there are diverse ways of measuring personality through methods of personality assessment. All these methods may vary in their scientific rigor and concepts of reliability and validity. Most of these theories base or collect their data using those assessment methods, and it becomes the backbone of their theories.

Now, when we talk about diverse ways of measuring personality, in that context, Robins and his colleagues conducted research with about 72 personality psychologists and asked them what kind of tests they use. They provided a list of tests. They asked to what extent they use these kinds of tests. So, the results of this study show the varied nature of personality assessment tests available. So, if you see, self-report scales and questionnaires were used by all personality psychologists. Then, it is followed by, in decreasing order of percentage. Judgment of self and others: about 99% of psychologists said they use this kind of test. About 89% say they use behavioral observation. About 86% said they use informant reports. Behavioral responses were studied by about 81%. The other judgment tasks that are used, using certain stimuli, are about 79%. Structured interviews were used by 76% of psychologists. Narrative open-ended questionnaires, about 74% of them used, and the list goes on. So, about 65% say they use the experience sampling method, which we discussed in the second lecture in the research method, that there is a kind of experience sampling method which kind of directly tries to collect data on a real-time basis. So, participants are given certain beep instruments. And whenever that beep sound comes up, they are supposed to record what is happening in there, based on the objective of the study. They need to kind of record what is happening in terms of behavior or in terms of thought processes, whatever it is. So, it's more like a real-time measurement of data.

Certain implicit measures and different kinds of implicit measures are also used in about 64% of memory tasks and reaction time. If you see most of these others are about physiological measures, which are relatively less used by people. Simply because, as we have already kind of discussed, you know, physiological measures are more expensive, and it takes more time and more expertise; more specialized training is required for this kind of test. So, maybe most, not many people use them.

So, this list shows the diverse kinds of personality assessment methods used by psychologists to assess personality. So, if you see broadly all these kinds of tests, psychologists' kind of agree that broadly, they can be categorized under two major categories. One is self-report tests and performance-based tests. So, self-report tests are also called objective tests. Performance-based tests are also loosely called projective tests.

So, this is a kind of making it a simpler way of categorizing. Most of the tests could be categorized into one of these types. Some tests may fall outside of them a little bit, but most of the tests come under this. So, let's kind of discuss some of the more popular methods of personality assessments. We will not be able to talk about all kinds of tests, but some of the major assessment methods will be discussed.

So, the first one that is the most popular and most commonly used is the self-report test personality test. As we have seen in the last research report or the data, almost everybody, one hundred percent of personality psychologists, use this kind of test. So, it is one of the most common personality tests, and it depends on the test takers' self-reports. So, the participants are asked certain questions about themselves, and they report about themselves. So, it is a kind of self-reported information by the person. So, these self-report personality measures may use diverse kinds of formats. It may be a dichotomous two-choice scale. So, the scale in the structure could be dichotomous, like it may use questions based on true-false type or yes-no type of questions. So, a question is asked, and you are supposed to say whether this statement is true or false in your context. Is it true for you or false for you, or is it a yes or no kind of statement? Does it apply to you or not?

So, some questions could be in a dichotomous format, self-report questions. Some self-report assessment scales are Likert-type scales. Likert-type scales, when we say they are. Certain scaling methods are used, which could be a 5-point scale, 7-point scale, 10-point scale, or whatever it is. So, these are like certain scaling methods used to understand the degree of judgments in a more refined way.

So, this Likert-type scaling might ask participants to rate diverse aspects. Rate their agreement about certain statements. So, it may present a certain statement and ask the participant to what extent they agree with this statement. To what extent do you agree that could be used in a scaling format? So it may include things like at one end, it strongly disagrees while on the other end, it may be strongly agree. So strongly disagree to strongly agree, or somewhere in between, there may be other scaling details. So, this is how the degree of agreement could be measured on a Likert scale. Likert scales could also use certain kinds of degrees of, you know, other aspects of the degrees of certain scaling methods can be used, which include, you agree, very little or quite a bit or something like that, you know. So, degrees could be measured in other ways also.

The level of similarity of certain things about yourself could also be used in the Likert-type scale. For example, you give a statement and say to what extent this statement is very

uncharacteristic of me or very characteristic of me. So it is a kind of the similarity of this statement with yourself. You also measure using certain statements like this. This Likert scale could also measure frequencies or certain behaviors happening in one's life, which may include something happening never or always or in between that. In a 5-point or 7-point scale or something like that. So, this is another way of self-report scale that is used. Using certain scaling methods, which may be 5-point, 7-point scales, or 10-point scales. There are also other possible formats used, like certain checklists. So you can just tick on the checklist that applies to you. It can also include forced choice scales, visual analog scales, and so on. But these are less commonly used.

Most of the used scale formats are dichotomous, as well as more of a Likert scale. So, one of the major reasons behind the popularity of self-report tests is that they are very easy and inexpensive to administer and are often objective. But obviously, their validity should be carefully evaluated. That is where a good test comes in. So, in the name of self-report, you cannot just use any kind of scale that comes to your mind. Their validity has to be established. That is where we discussed in the last lecture the importance of validity, reliability, and so on. Because self-report tests are very easy to make, one can make anything and say this is a test, you know. So, it should not be like this. They should be properly designed and should also go through proper reliability and validity tests, and so on.

But when a good test is there, it is one of the easiest ways to collect data, and it is very inexpensive, you know. You can collect a large amount of data from a large number of people in a short period, and so on. Some examples of existing self-report tests that are highly reliable and valid and are widely used across all cultures. One is called MMPI, which means the Minnesota Multiphasic Personality Inventory. It is quite an old test, but it is still very popular, and it is one of the most widely used self-report tests. So, it is one of the most comprehensive and popular self-report tests. It requires respondents to address almost 500 statements, selecting true, false, or cannot say kinds of statements. Mostly, they use this kind of scale: whether this statement is true for you or not, or you may also say, I cannot say.

So, this is a very comprehensive scale. It was developed mostly for people with certain psychological issues and disorders. So, this used criterion-related item selection, meaning that the chosen items aim to distinguish between various groups of people, such as individuals with depression and those without. So, this scale can mostly be used for people with psychological issues. So, it could distinguish people who are having depression and

those who do not have depression. So, mostly focuses on some of the aspects of psychopathology or mental illnesses. So, it is one of the most popular examples of a self-report test. So, this test was originally published in the 1940s, quite an old test, by two clinical psychologists, Hathaway and neuropsychiatrist McKinley, at the University of Minnesota. That is why it is called the Minnesota Multiphasic Personality Inventory.

And then, many revisions of this test happened later on. One such revision happened in 1989 when it underwent a revision which became MMPI-2, which sought to eliminate outdated terms and establish norms based on a more representative sample of the United States and so on. So, it became much more updated based on the existing research findings and so on. Subsequently, another revision happened in 2008. So, it became MMPI-2-RF. RF means restructured form, which is further revised based on more modern research and so on. Another self-report test, which is widely used and one of the most popular self-report tests in the field of personality, is the NEO Personality Inventory. NEO is the acronym for three personality traits: one is neuroticism, then extroversion, and O is for openness. The personality inventory started with three personality traits to measure personality, which later expanded to measure five personality traits. This personality inventory was developed from a theory called the Big Five Factor Model. It is one of the most popular or widely accepted theories of trait theory in personality theory, which we will be discussing in the upcoming lectures. So, this theory says five personality traits are universally applicable. Human beings can be distinguished using these five traits. So, it includes traits like conscientiousness, extroversion, agreeableness, neuroticism, and openness. This particular inventory measures these five traits, and this is one of the most popular tests.

This test has undergone many revisions. It also has a short form, a long-form, and so on. This is also another example of a widely used self-report personality inventory, which is highly reliable and valid. This is another form of test that is directly a self-report form of test. Another method of assessing personality, which is less used, is called the Q-sort test, but it has its advantages and certain methodologies that are used by this kind of test. So, this is called the Q-sort test. The Q-sort personality test presents an engaging and active alternative to traditional questionnaire-based methods. If you look at traditional questionnaire-based methods, they have many disadvantages and advantages, which we have already discussed earlier. The main advantage is that it is very easy and inexpensive. The disadvantage is that, in many cases, people may not accurately report their traits simply because they will lie about themselves. It is also possible that sometimes people don't

intentionally lie, but they are not aware of certain aspects of themselves, you know. People's awareness of themselves may vary. Some people are not that self-aware.

They may not know many nuanced aspects about themselves because of unconscious influences and so on. So, it has its problems. Q-sort test involves more active participation rather than just reporting. So, in that sense, it has its advantages. So, what happens in the Q-Sort personality test is more active involvement. So, rather than simply answering a question, participants are provided with a set of cards containing various personality traits and characteristics. These traits cover a wide range of behaviors, attitudes, and attributes. In the case of self-report, certain sets of questions are given, and then it will report about it. In Q-sorts, they typically give a lot of cards. Each card will have a statement about certain personality characteristics. So, they will give many such cards, and the participant or the particular sample, or whoever is involved in the research, is asked to sort these cards according to their characteristics on different levels. So, it has its methods to do that. So, they will sort more significant characteristics into the least significant characteristics. They need to sort these cards into different piles and so on.

So, there is a more active involvement of the participant in this case rather than just reporting about certain questions. So, this Q-sort personality test represents a modern attempt to capture more objective behavioral data in personality research. So, it is much more objective and requires a much more active involvement here. So, in that sense, it is different from the typical questionnaire method. So this particular method was first introduced by a physicist and psychologist, William Stephenson. He developed the Q-methodology in the 1930s. Out of that, this whole assessment method emerged. So, Stephenson diverged from his colleagues. Most of the existing colleagues, like Spearman, who gave factor analysis and other things. Most of the existing approaches to personality assessment were different from what he was proposing. So, he disagreed with some of the existing colleagues who were measuring personality by questioning their variable-centered methodology. If you see, most of the self-report questionnaire methods that are used are mostly variable-oriented methodologies. So, many people are given these questionnaires, and then in the population itself, or a particular group of people, they see what traits are available and so on. Then, they see which trait is more dominant, which trait is less dominant, and so on. The focus is more on variables like what kind of traits are there. So, he said this whole approach is variable-oriented, or what you are measuring, as compared to less focus being given on the person themselves.

Whereas he said that in the measurement of personality, the person should be given more importance. From there, he disagrees with the existing methodologies. So, he proposed a person-centered system of data collection, scaling, and analysis, which contrasted with the existing approaches. So, this is how the Q methodology differs from the existing one.

So, the existing one is called R methodology, which focuses on a group of people across a large sample measuring certain traits and seeing the patterns. Typically, in the R methodology, correlation analytical techniques are used to explore patterns of relationships between variables. While factor analytical techniques are used to understand variability among observed variables in terms of latent factors. So basically, the idea is correlations and matrices are created to show the relationship among all the factors or the personality traits that are measured, and then patterns are seen in terms of which variables come together as a group using factor analysis techniques. So, these are statistical techniques that are used. We will not go into the details of those techniques, but the typical approach is like this. So typically, questionnaires and structured clinical interviews are developed based on this method, which aims to understand constructs systematically. So, most of this uses questionnaire methods and other things in the R methodology system.

On the other hand, the Q methodology is mostly different from this existing approach in the sense that its focus highlights a contradiction in the variable-centered approach. So, there is a problem with the variable-centered approach, according to Stephenson, who developed the Q methodology. He said this whole variable-centered approach or R methodology aims to study individual differences but uses methods that provide information about average traits in a population. So you are looking at a population or a group of people and the kind of patterns of traits in that. The whole focus is not on understanding the individual himself or herself, which should be the focus of the personality assessment. So, this approach focuses on isolated aspects of a person. It ignores the interdependence in forming a whole personality. So, that is what his argument is based on. So Stephenson and his colleagues also suggested this correlating factor by analyzing persons rather than variables.

Rather than correlating or using statistics on the variables, it uses the person as a focus or unit of analysis. So, that is how it is different from the R methodology. So, it is basically called the Q methodology. So, it then gave rise to the Q factor analysis or person factor analysis, which gives certain Q factors, factors which are there within the person. So, you study a person holistically, and certain factors emerge statistically about that person, and then you can measure other people and see the pattern itself. However, the focus is more

on understanding the person, which is the focus of analysis. So, he said the existing methodologies that are used in the R method to collect data and so on will not be applicable here because their focus is more on the variables. So, to address this issue, he developed something called the Q-sort method to ensure that this has a holistic understanding of the person, which is given more importance. So, this Q-sort method comprises a diverse set of items, as we have already said, mostly on the cards of different personality characteristics. So, it is a collection of personality traits where everybody can find something about themselves. So, this whole set of cards is called the concourse. This concourse is the total population of items from which final Q-sort samples are drawn. So, there is a whole set of lists. From there, whenever we want to measure a particular person, certain items are taken from that concourse, a sample item, basically a Q-sort sample.

This item can be sourced from various forms of communication, including literature, interviews, and focus groups. So, they could be taken from all kinds of sources, whatever is relevant. Once this is established, a suitable ranking system and sorting distribution must be chosen, which is mostly done by the person. So, they will sort these cards according to which is the closest characteristic of that person to list characteristics and make certain piles of those cards. Sometimes, a certain forced choice is given, and sometimes, a free distribution is given.

So, depending on different methodologies and different researchers, different methods are also used. So, Stephenson used the term psychological significance to describe this Q-sort technique. So, participants are asked to rank items with high psychological significance, which are highly significant to them, to those with low significance. So, the idea is that they need to sort according to the significance of these items to themselves. Each item or stimulus is then ranked relative to others.

Relative to these different statements, they are ranked where one that is more significant is given a higher rank, and this captures the interdependence and complexity. So, if you see, this whole process requires much more active involvement, and much more dynamism is there, and people kind of have the freedom to choose the structure of their personality according to what they say rather than just blindly reporting something that is already there. So, unlike a questionnaire, as I said, which presents an already predetermined concept, here it allows participants to project their viewpoints and meanings. So, in that sense, it is much more significant. So, this method captures the unique perspective and psychological significance assigned by the participant, offering a more personalized and comprehensive understanding.

So, that is the advantage of the Q-sort technique. But, you know, this takes much more time and involvement from the participant. Finally, the Q factor analysis is done to find the patterns within the person as well as in terms of comparison with other persons. So, that is called Q factor analysis. So, this is more of a specific statistical thing that is done based on the data they get from this sorting technique. Then, it is used for analysis using Q factor analysis. Now, projective tests are another set of tests that are used by many theorists to understand or assess personality. Now, these tests are based completely on different ideas than objective tests or self-report tests. These tests are completely different from them in terms of the assumptions behind those tests.

So, these are tools for assessing personality where individuals are believed to project their personal needs, fears, and values into their interpretation or description of an ambiguous stimulus. So, the basic idea is if you give an ambiguous stimulus where there is no clarity about what is happening in that particular situation, photo, or picture. So, if it is not very clear what is going on, then when people are asked to describe this particular ambiguous stimulus, they are more likely to give flavors of their personality in their description. The kind of person they are will be reflected in that description. So, they will project their personalities, their inner conflicts, fears, and needs into the interpretation. That is how they can capture what kind of person they are by using this kind of test. Rather than giving very structured questions and answers, here, they will give a very ambiguous stimulus, which could be a photograph or a certain ambiguous picture of something, and then they are asked to describe it using certain specific criteria. Then, the reports are recorded, and based on that, personality assessments are done.

These tests are mostly based on Sigmund Freud's theory of the unconscious mind, which we will talk about later. This says that we all human beings have an unconscious mind, or a mind that is not conscious, which you are not aware of. So many things are there within your mind, a certain part of the mind that you are not aware of. The content of that unconscious mind influences your behavior in terms of so many aspects of your behavior. It may include things like a slip of the tongue, or it could be things like a lot of emotional expressions, and so on. So, people project those unconscious needs and fears when certain situations are there in the outside environment, particularly when given an ambiguous stimulus. So, it is possible that we can understand those deeper needs and so on. So, these tests are based on a theory that when confronted with an ambiguous stimulus, individuals will project their inner conflicts, needs, and emotions into that stimulus, revealing their personality, which is hidden from their conscious awareness. So directly, if you ask people,

they may not be able to give a lot of accurate descriptions about themselves. But when they are kind of describing ambiguous stimuli, a lot of those unconscious aspects of their mind and their personality will be projected onto those stimuli. So, that is why they are called projective tests.

Typically, in this kind of test, the person is asked to respond to stimuli such as an image, an inkblot, or incomplete sentences, and the responses are then interpreted based on certain criteria by trained people and so on. The two most well-known projective tests are the Rorschach inkblot test. So basically, this test uses certain ambiguous inkblots. Rorschach was the person who developed this test. So this is called the Rorschach inkblot test. Another is called the thematic apperception test, TAT. Both are very popular projective tests. Let us see what these kinds of tests are all about. So, mostly, the interpretation of these tests is very subjective, and it requires, different systems to interpret the results. So that is why probably the reliability and validity of these tests are questionable. We will look into that part later. So, certain limitations are there, but they are used in different contexts also. So, let us start with this Rorschach inkblot test. So, this is the person, Hermann Rorschach, who developed this test. So this was developed in 1921 by a Swiss psychiatrist, Hermann Rorschach. He had a lifelong fascination with inkblots dating back to his childhood. So somehow he was very interested in inkblots. So, whenever you put ink on paper, it takes different shapes.

So, somehow, he was very much interested in those inkblots from his childhood, and it continued throughout his adulthood. So, as a teenager, Rorschach acquired the nickname 'Klecks,' meaning blot of ink. So, people used to call him by this name because he was fascinated with inkblots due to his intense interest in them. So, during his psychiatric training or residency practice, he consistently observed the differences in responses to inkblots between patients and school children, which inspired him to develop a test. So he found that when these inkblots were shown to different people, including patients and school children, everybody gave different versions of their stories. So, he found this could differentiate individuals based on characteristics. He developed a more formal test based on those ideas. He created inkblots himself by dropping ink on paper and then folding the paper in half. So, if you take a paper like this, probably it is a paper, he would put an inkblot here, and then he would fold it like this. And it would take certain shapes, an ambiguous shape. It will not have any fixed structure. This is how he developed almost 10 distinct patterns he found, which were, according to him, more reliably used. So, people are asked to describe what is happening in that particular picture when given these inkblots. Based

on that, he used to analyze their personalities and so on. Despite his initial publication failure and a lot of negative reviews initially, because it is very unstructured, the Rorschach Inkblot Test gained immense popularity later on after his death. In fact, because of his negative criticism, he became depressed and died after some time, but his test became much more popular after his death.

Talking about how it is administered, this inkblot test involves presenting these cards with inkblot structures, ambiguous figures, and so on. We will see how these figures are. One at a time, with some black and white and others in color. Test takers are asked to describe what they see on each card. So, these cards are somehow like this. So, if you see these, they are all inkblot tests. This is how a very ambiguous figure looks. There is no fixed structure. So, such cards are given to the participants one by one, and they are asked to describe what they see in them. And basically, psychologists use different criteria to analyze. For example, a well-formed response that aligns with the enclosed structure suggests good psychological functioning of that person, a more realistic orientation. While poorly formed responses indicate unrealistic fantasies and bizarre behavior. So, for example, this is one thing that is used to interpret the personality of the person. Content of the response, such as whether subjects see animate or inanimate objects, is used for certain types of assessments.

Some may see animate objects or inanimate objects, some people may see humans in the figure, some people say animals also, and expressions of affection and hostility could also be expressed in those figures. All these are interpreted using certain criteria and so on to judge a person or assess that person.

For example, more specifically, if repeated perceptions of fighting animals a person can see versus cooperative humans, it would lead to different interpretations of that person. What kind of things do they see or project themselves in those figures. Some people also say symbolic contents like an explosion may be symbolized as intense hostility. Somebody may see a pig, which may indicate things like a gluttonous nature, and a fox may suggest craftiness and aggression. These are some of the examples of how it is interpreted. Negative images like spiders and octopuses might represent a dominating mother, while gorillas or giants could indicate a negative attitude toward a dominating father. An ostrich might symbolize certain conflicts to hide oneself and so on. So, like this, these are some of the interpretations that are given to understand as a projection of the personality of the person.

So, all these responses are hypothesized to be an individual's reflection of personality, which are checked against other responses. It is not just one response; based on that one response, somebody will judge or assess a personality. Different responses are collectively looked at, and certain patterns are observed. The examiner also observes unusual behavior for further interpretation. Somebody may show certain unusual behaviors, like a subject who frequently asks for guidance, and may be seen as a dependent kind of person. While one who seems tense certainly questions and looks at the back of the card may be interpreted as a suspicious or paranoid kind of person. Like that some additional behavioral observations are also done in this kind of test. Now, certain attempts have been made to standardize this coding system. But you can understand that this kind of test is very ambiguous and subjective. It is very difficult to make it a very standardized system.

Still, some researchers tried to develop a certain comprehensive system. One such system was developed by Exner in 1993 to attempt to improve the reliability and validity of such tests. However, generally, a lot of controversies and debates are there around this kind of test. Particularly because people always question the validity of such tests because they are too subjective, as a result, different people will interpret the same response differently. So, agreement is very low on this kind of test. We will see more about this validity and so on. Still, they are very popular. They are used in addition to many other tests. But the validity is always questioned.

The next one is the Thematic Apperception Test, which is also in a short form known as TAT. It was developed by Henry Murray and his colleague Christian Morgan in 1935. This is another projective test. It comprises about 19 ambiguous pictures, each depicting one or more persons, along with one blank card. So here, the process is a little different. Again, it is a projective test, but here, Pictures of people are given on a card, which is very ambiguous, and you can develop a story around these pictures. When you project your story version onto these ambiguous pictures, it is more of a reflection of your personality. So, that is the idea behind this test. So, these pictures are deliberately made vague about the events portrayed and can be interpreted in various ways. So, these projective tests always have very vague stimuli. You can have different kinds of responses to them.

Different people will respond to them very differently, which is an indication of that person's personality. So, that is the idea behind it. So, this kind of card is given where there will be an ambiguous picture. You can have multiple interpretations of these kinds of pictures, and you are asked to make a story or explain what is happening in that particular picture. When people are asked to respond to that, this could be another card, for example,

which again shows people in a very ambiguous picture. People can have multiple interpretations of that, so this kind of card is given, which is quite ambiguous.

So, individuals generally project their personality onto this stimulus. And they interpret it, revealing their characteristics through the stories they tell about these pictures. So, Murray, in 1938, highlighted that when interpreting an ambiguous social situation, a person is likely to express their personality as much as the phenomena they are describing. So, the idea behind the projective test is this only.

So, typically, people are generally unaware of many things and many details about themselves, but weaving a story about pictures allows them to express or remove their defenses about themselves and project their personality onto the story itself. So, generally, the TAT is administered where an individual is asked to create a story about the people and the objects depicted in each picture, some of which I have already shown. So, they are asked to create a story around this picture. So, they are prompted to describe what led up to the situation, the thoughts and emotions of the individuals involved, and the outcome of the scenario, what is going to happen in that scenario.

So, like this, some prompts are also additionally given to create the story. So, this TAT has been utilized not only in clinical settings but also in experimental research. Particularly in the study of human motivation, to understand the motivation of human beings. One particular researcher named David McClelland used these thematic apperception tests to understand human motivation, particularly the motivation to achieve something. And he found that this test could be very useful in terms of understanding human motivation, particularly the motive to achieve in life.

Whatever they want to achieve, this test could reflect motivation, also apart from just personality traits and so on, mostly the underlying motivations, deeper motivations of human beings. Again, the interpretation of responses has some structured elements; responses are scored systematically according to the scheme developed by Murray and his colleagues on certain criteria, or sometimes we will use just an impressionistic basis of interpretation. In clinical settings, psychologists analyze TAT responses considering various factors like personal relationships depicted, character motivations, and level of contact with reality as described in the story and so on. So, all this information could be depicted from and can be understood from, the TAT tests and so on.

Another projective test which is also very, these are not that popular, but people sometimes use them also. These are very small kinds of tests. These are called, one is called a word

association test. So, in the word association test, the personality assessment was originally developed by Francis Galton in the late 19th century. However, Carl Jung, who is one of the most prominent psychologists, significantly expanded and popularized the use of this word association test in psychology, particularly in exploring the unconscious mind and diagnosing psychological complexes of people. So, in the word association test, individuals are presented with a list of words, one at a time, and asked to respond to each with the first word that comes to mind.

So, a word is given to the person and asked to respond as soon as possible with whatever comes to their mind when they look at this word or hear this word. Anything that comes to their mind without thinking about it. So, a word is given, and they are asked to respond to this word as quickly as possible, whatever comes to their mind when they hear about this word. So, again, the idea is very simple and similar to other projective tests. When people come out with this kind of association of words, a lot of their unconscious ideas come into the picture. So, standard association tests involve timing quick responses to trigger words. Most of the earlier researchers, like Galton and others, used this test to understand cognitive fitness and how quickly one can come up with responses. So their idea was very different. However, Jung developed and used this test for further understanding of the personality of the person. For example, he innovated by concentrating on what kind of mistakes people make while responding to these word associations, what delays, how much delay they have, and how many distorted answers they come up with. All these kinds of responses are reflective of the personality of the person. So Jung used these kinds of other aspects to understand the personality. So basically, Jung used this test to understand the human unconscious aspect of the mind. Another test that is also used as a projective test is the sentence completion test. Again, it is also very similar to the idea here. Some vague, ambiguous sentences will be given, and then you need to fill in where some parts of the sentence will be given, and you need to fill in the other part. For example, my ambition is _____. What worries me is _____, some kind of response where everybody can give their answers. So again, by this sentence completion test, the idea is the person's characteristics come into the picture. One can analyze the personality. Responses to this prompt so far provide insight into individual thoughts, feelings, and concerns.

Interpretation of these responses in sentence completion test can be subjective like other projective tests. But people can look at some aspects of the personality through this test. Now, the main question is, are these tests valid? A lot of controversies and debates have already happened around these tests, whether they are valid or not.

The projective tests have been extensively used by various psychologists, including clinical psychologists, over the last 50 years. These tests have been administered to millions of people. So, these tests are used very frequently, but again, their validity has always been questioned. The key question is whether these tests are effective at predicting important life outcomes, which is connected to whether they are valid or not. Now, this question is not easy to answer because the complexities around this question are due to diverse things that are involved in the test. Few things are like variable predictive validity. Now, the projective test might be effective at predicting something and may not be effective at predicting something else. So, that is why a straightforward yes or no answer cannot be given in this context.

So, these tests are good at predicting a few things and not good at predicting other things. So, thus it may not be possible to give a straightforward answer. Their validity may depend on the specific outcomes being studied. Also, there are different scoring systems developed, and people use different scoring systems; which scoring system is used, their validity also depends on that. So, because of the different scoring systems used to analyze the data, their validity also changes from one scoring system to another scoring system.

Now, in that context, just to understand the validity of it, one of the most comprehensive studies was done by Lilienfeld and colleagues in 2000, who conducted extensive reviews of various projective tests that are used in research and clinical settings, including the Rorschach test and the thematic apperception test, and their scoring methods. Their findings show a nuanced picture of the validity of such tests. Now, some of the positive findings that they found are that some scoring methods are valid for specific purposes. For instance, scoring TAT stories for themes related to achievement motivation, as proposed by David McClelland, has shown that the TAT responses can be correlated with measures of motivated behavior. So, in particular aspects of motivation, or particularly in the achievement motivation context, TAT tests have been found to reliably predict certain life outcomes. So, in that particular context, they are reliable or valid. Additionally, TAT motive measures have been found to predict how well individuals remember daily events related to their motivations.

So, basically, in some motivational aspects, TAT tests are valid and reliably predict life outcomes. However, there is a general limitation that has been observed in this review study, which is that, despite some of these positive results, the review indicated that projective tests generally do not perform well in predicting outcomes. Most of the other outcomes generally, most of these projective tests are not very strongly predictive, and

their strong validity has been questioned. For example, various scoring methods for the Rorschach test did not consistently relate to relevant outcomes, suggesting that the choice of scoring system has minimal impact. Irrespective of different scoring systems, most of the scoring systems could not predict very strongly the different outcomes studied by this test in terms of personality traits and so on.

Similarly, while some scoring methods of TAT achievement themes showed validity, most other TAT scoring systems, like the Rorschach test, also lacked consistent validity. Sometimes they predicted, sometimes they did not, and so on. So, that consistency was missing. Most of these negative conclusions about the validity of these tests align with some other independent studies by scholars, who also critically examined this research and these tests, and they found that generally, they performed poorly in clinical use and so on.

Because of this limitation, even some bodies like the American Psychological Association also agreed that projective tests should not be included in modern psychological training. They should not be made a very formal kind of testing system for personality and so on. But despite that, they are still very popularly used in different settings, and some people use them more than others because they can be helpful in certain aspects of understanding a few things when used with other additional assessment tests and so on. So, these are called projective tests; this is about projective tests.

The next is clinical interviews and behavioral assessment, another way of assessing personality. Clinical formal interviews are mostly used for identifying the personality aspects of patients with certain psychological disorders and so on. So here, the assessment includes interviews. So, face-to-face interviews are done with the person. One can obtain valuable information by talking to the person rather than asking very specific questions and responding to the scales and so on. In detail, you ask face-to-face about different aspects of the person, and this is how clinical interviews are done.

Then the person is evaluated on relevant questions about past, and present, life experiences, social and family relationships, problems that they face, seeking psychological help, and so on. The objective of the interview is that they will ask those relevant questions and try to find detailed answers from the person themselves rather than very specific questions as in self-report questionnaires. So this allows a much deeper exploration of the behaviors, emotions, and thoughts of the person. In clinical interviews, behavioral assessments are also done by observing their behavior, body postures, how they respond, and so on. That also reflects a lot of things about the person. So behavioral assessments are generally

associated with clinical interviews also. So basically, a lot of these findings of structured self-reports like the MMPI. People also, to get more specific insight, could conduct clinical interviews to target specific issues and understand more about them. So mostly, these tests are used in combination.

So interpretation of interview data is again subjective but it is more in terms of because you are asking very specific questions and the answers will give more specific information about it. Even though they are more subjective, they are not as subjective as projective tests. So, it may be influenced by the interviewer's theoretical perspective and personal kind. It may be influenced by the person who is interviewing. So that is something given. Mostly, a lot of these clinical interviews are associated with other kinds of tests like self-report tests. Behavioral assessment, as I said, is many times with interviews and is kind of additionally used to evaluate a person's actions. While talking and so on, or even observing actions in real life. Accuracies of this kind are enhanced with the familiarity and frequency of interaction. The more you know about the person, the better you can judge from the behaviors. The frequency of interaction also increases, and more accurate behavioral assessment can be done. Similarly in clinical interviews, counselors also regularly observe clients' behaviors about body language, facial expressions, nervous gestures, overall appearance, and so on. All this also gives a lot of information about the person.

The last one is biological measures. Personality tests are not very frequently used by personality psychologists. Biological measures are more expensive, require more specific training, and more understanding is required. But still, a lot of people also use biological measures to understand personality. Let us see some of the biological tests that are used to understand human personalities. One is neuroimaging techniques which take a map of the human brain itself using things like MRI, functional magnetic resonant imaging (fMRI), and positron emission tomography which is also called PET scans. These are typically used by neurosurgeons, in hospitals, and so on. So, the idea is, using these techniques, you can map the structure of the brain or what is happening in the brain; you can see the functioning aspect also. So that is what neurosurgeons find defects or problems in the brain functioning. And accordingly, you know, these are the kinds of tests used. So, by analyzing brain regions' activations in response to various stimuli or tasks, researchers can infer individuals' tendencies towards stress, such as impulsivity, empathy, and risk-taking. Certain brain areas' functioning are associated with this kind of personality disorder.

People who are impulsive or maybe risk-taking or somebody with high empathy. So certain brain areas are associated with this functioning. Using this neuroimaging technique, one

can understand and identify those brain areas or at least you can make certain conclusions based on that. So fMRI and PET scans can provide detailed images of the brain activity in response to various stimuli and tasks. So, when you give certain people certain questions or some stimuli, the brain starts functioning. And this imaging technique can give you the details of what is going on in the brain itself. And from there, we can understand certain aspects of the person also. Some brain activities can be correlated with certain specific personality traits, such as extroversion, neuroticism, and conscientiousness. All these traits we will be talking more in detail in the upcoming trait theories and so on.

So the idea is that certain personality traits can be linked to certain parts of the brain functioning. For example, increased activity in brain regions associated with reward processing. This is a part of the brain that may be linked to extroversion. Heightened activity in certain regions of threat detection, like the amygdala, is a part of the brain region. Part of the brain associated with neuroticism or more anxiety or nervous behavior is linked to the hyperactivation of certain brain regions like the amygdala. If it is too active, then the person is mostly very nervous and a lot of this neuroticism trait is present. More worries, more tension, and more emotional instability are more likely to occur. So, certain brain functions may be connected to certain traits.

In biological assessments, people also use genetic markers sometimes. In genetic studies, people identify specific genes or segments or genetic variations associated with certain personality traits. Examining the specific genetic makeup of an individual using certain techniques like genotyping or genome sequencing, which are highly expensive, is something very few researchers do. Researchers can identify genetic markers linked to certain traits, which certain genes could be responsible for certain kinds of behavioral expression including personality traits.

Genetic studies have identified candidate genes associated with personality traits, including genes involved in neurotransmitter functioning like the serotonin transporter gene and neural development; specific genes have already been identified related to certain personality traits. By examining these genes through genetic testing, researchers can assess individual genetic predispositions. Sometimes genes may not directly cause certain behaviors, but they may make you more vulnerable if certain genes are present in that person. However, the problem with genetic marker research is that no single gene has been generally found for particular traits. Mostly, personality traits are polygenic. So, many genes are associated with the expression of one particular trait. So, it is generally known that people have not found one specific gene for one particular trait, and so on. Many genes

are responsible for one function and so on. So, because of this aspect, many times this genetic marker is not easy and not very clearly defined in finding any specific genes related to personality traits and so on.

People also do neurochemical analysis to understand personality, which includes understanding neurotransmitters and hormones that also play a significant role in human behavior. Mood and emotions, and understanding their functions, could also reflect human personality. Analyzing the level of certain neurotransmitters like dopamine, and serotonin, or hormones like cortisol and oxytocin through blood tests and saliva samples can provide insight into an individual's emotional regulation, social behavior, and stress response. For example, cortisol is directly related to a stress response. When people are highly stressed, cortisol is released in large amounts in the blood, and it brings about a lot of changes in the body. So they will reflect certain characteristics. Dopamine and serotonin have also been linked to depression and other anxiety disorders, and so on. So they change moods and patterns of behavior, along with certain neurotransmitters and hormones, and so on. For instance, low serotonin levels have been associated with impulsivity and aggression. When people have low serotonin levels in their bodies, it leads to more impulsive actions and more aggressive kinds of actions. While higher levels of cortisol are linked to chronic stress and anxiety. People who are highly stressed and have very high anxiety levels generally. One of the reasons is that the cortisol level in the blood is very high. So that could also influence your mood and behavior. Psychophysiological measures are also used in analyzing certain personality aspects.

Psychophysiological measures like heart rate variability, skin conductance, and pupil dilation. These all reflect the functioning of the nervous system. The autonomic nervous system is not in our control. The nervous system allows us to move our bodies and perform other actions because these are in our control. A lot of the functioning of the nervous system pertains to the autonomic nervous system which controls a lot of functions that are not in our control. Like the heartbeat, we cannot control it, pupil dilation, skin conductance, resistance levels, and so on. These are automatically controlled by autonomic nervous system activity. And their activity reflects a lot of our characteristics. Because they also influence your moods, emotions, and thought processes. So this measure can also provide real-time assessment of emotional arousal, attentional processes, and stress reactivity. For example, increased skin conductance in response to aversive stimuli may indicate heightened emotional arousal, while changes in pupil dilation may reflect a shift in cognitive processing. So, a lot of mental and emotional functions could be associated with

a lot of these functions, a lot of these physiological parameters, which are measured using psychophysiological measures. EEG, and ERP analysis, are also part of this is how EEG measures brain electric activity. ERP measures neural response to certain stimuli. So when certain, let us say somebody is reading something, and then what happens in the brain. So, in response to a stimulus, the ERP Test measures the response of the neural stimuli of the brain when certain stimuli are given. So, these are also used to reflect a certain understanding of human personalities.

So these are also linked to studies that have linked EEG and ERP parameters. So I will not go into all these technical aspects of it to certain personalities like extroversion, neuroticism, and impulsivity. Certain parameters of these measures are also connected to personality aspects. For instance, greater left frontal EEG activity has been associated with positive affect, meaning positive emotions and approach motivation. Whereas greater right frontal activity, right frontal means it is a part of the brain. So, this is the frontal part; this is the left, and this is the right. Based on which one is more active, certain emotions and characteristics will be reflected in your behavior. So, right frontal activity has been linked to negative effects and withdrawal tendencies, and so on. So, this could be measured using EEG and ERP analysis. So, these are some of the measures that are used for the assessment of personality-specific methods.

So, with this, I will stop here in terms of personality assessment. We will talk about other aspects, more specific theories of personality, in the upcoming lectures. Thank you.