Subject: Research Technique in HR

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**Q. No 1st: what are scales in research kindly explain with reference to your research paper?**

**Q. NO 2nd explain the following terminologies with reference to research.**

**a. Content validity**

**b. Criterion related validity**

**c. Construct validity**

**C. Reliability**

**Q. No 3. Personal interviewing method is not feasible for students what is your opinion about this statement?**

**scales in research:**

is the procedure of measuring and assigning the objects to the numbers according to the specified rules? In other words, the process of locating the measured objects on the continuum, a continuous sequence of numbers to which the objects are assigned is called as scaling.Scaling is considered as the extension of measurement. Scales of measurement in research and statistics are the different ways in which variables are defined and grouped into different categories. Sometimes called the level of measurement, it describes the nature of the values assigned to the variables in a data set.The term scale of measurement is derived from two keywords in statistics, namely; measurement and scale. Measurement is the process of recording observations collected as part of a research.

Scaling, on the other hand, is the assignment of objects to numbers or semantics. These two words merged together refers to the relationship among the assigned objects and the recorded observations.

**What is Measurement?**

 The measurement is the process of assigning numbers or symbol to the characteristics of the object as per the specified rules. Here, the researcher assigns numbers, not to the object, but to its characteristics such as perceptions, attitudes, preferences, and other relevant traits.A measurement scale is used to qualify or quantify data variables in statistics. It determines the kind of techniques to be used for statistical analysis.

There are different kinds of measurement scales, and the type of data being collected determines the kind of measurement scale to be used for statistical measurement. These measurement scales are four in number, namely; [nominal scale](https://formpl.us/blog/nominal-data), [ordinal scale](https://formpl.us/blog/ordinal-data), [interval scale](https://formpl.us/blog/interval-data), and ratio scale.

The measurement scales are used to measure [qualitative and quantitative data](https://www.formpl.us/blog/qualitative-quantitative-data). With nominal and ordinal scale being used to measure qualitative data while interval and ratio scales are used to measure [quantitative data](https://www.formpl.us/blog/quantitative-data).

**For example**,

consider a scale from 1 to 10 for locating consumer characteristics (preference for the product). Each respondent is assigned a number from 1 to 10 denoting the degree of favorableness for the product, with ‘1’ indicating extremely unfavorable and ’10’ indicating extremely favorable. Here, the measurement is the process of assigning the actual number from 1 to 10 to each respondent while the scaling is a process of placing respondents on a continuum with respect to their preference for the product.

In research, usually, the numbers are assigned to the qualitative traits of the object because the quantitative data helps in statistical analysis of the resulting data and further facilitates the communication of measurement rules and results.

All the scales used in scaling techniques can be explained in terms of four basic characteristics., Viz. **Description, Order, Distance, and origin**. These characteristics collectively define the [**Levels of Measurement**](https://businessjargons.com/levels-of-measurement.html)of scale.  The level of measurement indicates that what properties of an object are measured or not measured by the scale.

**Characteristics of a Measurement Scale**

**Identity**

Identity refers to the assignment of numbers to the values of each variable in a data set. Consider a questionnaire that asks for a respondent's gender with the options Male and Female for instance. The values 1 and 2 can be assigned to Male and Female respectively.Arithmetic operations cannot be performed on these values because they are just for identification purposes. This is a characteristic of a nominal scale.

**Magnitude**

The magnitude is the size of a measurement scale, where numbers (the identity) have an inherent order from least to highest. They are usually represented on the scale in ascending or descending order. The position in a race, for example, is arranged from the 1st, 2nd, 3rd to the least.

This example is measured on an ordinal scale because it has both identity and magnitude.

**Equal intervals**

Equal Intervals means that the scale has a standardized order. I.e., the difference between each level on the scale is the same. This is not the case for the ordinal scale example highlighted above.

Each position does not have an equal interval difference. In a race, the 1st position may complete the race in 20 secs, 2nd position in 20.8 seconds while the 3rd in 30 seconds.

A variable that has an identity, magnitude, and the equal interval is measured on an interval scale.

**Absolute zero**

Absolute zero is a feature that is unique to a ratio scale. It means that there is an existence of zero on the scale, and is defined by the absence of the variable being measured (e.g. no qualification, no money, does not identify as any gender, etc.

**Levels of Data Measurement**

The level of measurement of a given data set is determined by the relationship between the values assigned to the attributes of a data variable. For example, the relationship between the values (1 and 2) assigned to the attributes (male and female) of the variable (Gender) is "identity". This via. a nominal scale examples.By knowing the different levels of data measurement, researchers are able to choose the best method for statistical analysis. The different levels of data measurement are: nominal, ordinal, interval and ratio scales

### ****Nominal Scale****

The[nominal scale](https://formpl.us/blog/nominal-data)is a scale of measurement that is used for identification purposes. It is the coldest and weakest level of data measurement among the four.

Sometimes known as categorical scale, it assigns numbers to attributes for easy identity. These numbers are however not qualitative in nature and only act as labels.

The only statistical analysis that can be performed on a nominal scale is the percentage or frequency count. It can be analyzed graphically using a bar chart and pie chart.

For example: In the example below, the measurement of the popularity of a political party is measured on a nominal scale.

Which political party are you affiliated with?

* Independent
* Republican
* Democrat

Labeling Independent as "1", Republican as "2" and Democrat as "3" does not in any way mean any of the attributes are better than the other. They are just used as an identity for easy data analysis.

### ****Ordinal Scale****

Ordinal Scale involves the ranking or ordering of the attributes depending on the variable being scaled. The items in this scale are classified according to the degree of occurrence of the variable in question. The attributes on an [ordinal scale](https://www.formpl.us/blog/ordinal-data) are usually arranged in ascending or descending order. It measures the degree of occurrence of the variable.

Ordinal scale can be used in market research, advertising, and customer satisfaction surveys. It uses qualifiers like very, highly, more, less, etc. to depict a degree.

We can perform statistical analysis like median and mode using the ordinal scale, but not mean. However, there are other statistical alternatives to mean that can be measured using the ordinal scale.

For example: A software company may need to ask its users:

How would you rate our app?

* Excellent
* Very Good
* Good
* Bad
* Poor

The attributes in this example are listed in descending order.

**Interval scale:**

The [interval scale of data measurement](https://www.formpl.us/blog/interval-data) is a scale in which the levels are ordered and each numerically equal distances on the scale have equal interval difference. If it is an extension of the ordinal scale, with the main difference being the existence of equal intervals.

With an interval scale, you not only know that a given attribute A is bigger than another attribute B, but also the extent at which A is larger than B. Also, unlike ordinal and nominal scale, arithmetic operations can be performed on an interval scale.

It is used in various sectors like in education, medicine, engineering, etc. Some of these uses include calculating a student's CGPA, measuring a patient's temperature, etc.

A common example is measuring temperature on the Fahrenheit scale. It can be used in calculating mean, median, mode, range, and standard deviation.

### ****Ratio Scale****

Ratio Scale is the peak level of data measurement. It is an extension of the interval scale, therefore satisfying the four characteristics of measurement scale; identity, magnitude, equal interval, and the absolute zero property.

This level of data measurement allows the researcher to compare both the differences and the relative magnitude of numbers. Some examples of ratio scales include length, weight, time, etc.

With respect to market research, the common ratio scale examples are price, number of customers, competitors, etc. It is extensively used in marketing, advertising, and business sales.

The ratio scale of data measurement is compatible with all statistical analysis methods like the measures of central tendency (mean, median, mode, etc.) and measures of dispersion (range, standard deviation, etc.).

For example: A survey that collects the weights of the respondents.

Which of the following category do you fall in? Weigh

**Q. NO 2nd explain the following terminologies with reference to research.**

**a. Content validity**

**b. Criterion related validity**

**c. Construct validity**

**C. Reliability**

## Content Validity Definition

When it comes to developing measurement tools such as intelligence tests, surveys, and self-report assessments, validity is important. A variety of types of validity exist, each designed to ensure that specific aspects of measurement tools are accurately measuring what they are intended to measure and that the results can be applied to real-world settings.

Before we move into discussing content validity, it is important to understand that validity is a broad concept that encompasses many aspects of assessment. For example, face validity describes the degree to which an assessment measures what it appears to measure, concurrent validity measures how well the results of one assessment correlate with other assessments designed to measure the same thing, and predictive validity measures how well the assessment results can predict a relationship between the construct of being measured and future behavior.

So, what about content validity? Content validity refers to how accurately an assessment or measurement tool taps into the various aspects of the specific construct in question. In other words, do the questions really assess the construct in question, or are the responses by the person answering the questions influenced by other factors?

Content validity is the extent to which the elements within a measurement procedure are **relevant** and **representative** of the construct that they will be used to measure (Haynes et al., 1995). Establishing content validity is a necessarily initial task in the construction of a new measurement procedure (or revision of an existing one). However, the validity (e.g., construct validity) and reliability (e.g., internal consistency) of the content (i.e., elements) selected should be tested before an assessment of content validity can be made. If you are unfamiliar with the idea of concepts and constructs in research, it is probably worth you first reading the section on [Concepts, constructs and variables](http://dissertation.laerd.com/concepts-constructs-and-variables.php). In this article, we explain what content validity is, providing some examples. We do this by discussing the relationship between **constructs** and **content validity**, as well as highlighting to important aspects of content validity: **relevance** and **representativeness**.

**b. Criterion related validity**

Also known as *criterion-related validity*, or sometimes *predictive* or *concurrent validity, criterion validity* is the general term to describe how well scores on one measure (i.e., a *predictor*) predict scores on another measure of interest (i.e., the *criterion*). In other words, a particular criterion or outcome measure is of interest to the researcher; examples could include (but are not limited to) ratings of job performance, grade point average (GPA) in school, a voting outcome, or a medical diagnosis. *Criterion validity*, then, refers to the strength of the relationship between measures intended to predict the ultimate criterion of interest and the criterion measure itself. In academic settings, for example, the criterion of interest may be GPA, and the predictor being studied is the score on a ...

**c. Construct validity**

The operational definition of some constructs can be very straightforward, making it relatively easy to be confident that a measurement procedure (e.g., a survey, structured observation, structured interviews) is content valid. For example, we can suggest measuring the construct height using centimeters, or a person's weight using kilograms. These are operational definitions of constructs that are quite obvious, where it is easy to come up with a single operational definition. However, it is often far more challenging to create reliable operational definitions for more complex constructs like anger, depression, motivation, and task performance [see the section on [Concepts, constructs and variables](http://dissertation.laerd.com/concepts-constructs-and-variables.php)]. The relative complexity of these types of construct reflects a number of factors: (a) the number of dimensions and measures a construct has; (b) the number of ways constructs can be operationally defined; and (c) the potential for a construct to be confounded. Each is discussed in turn:

Simple constructs such as weight and height are fairly **one-dimensional**, but other more complex constructs are **multi-dimensional**. By **multi-dimensional**, we mean that these more complex constructs (e.g., anger, depression, motivation, sleep quality, etc.) consist of a number of components, each of which describe a different aspect of the construct.

For example, take the construct, **sleep quality**, whose content validity has been demonstrated through a questionnaire known as the **Pittsburgh Sleep Quality Index (PSQI)**, a 19-item questionnaire that consists of 7 components: (1) subjective sleep quality, (2) sleep latency, (3) sleep duration, (4) habitual sleep efficiency, (5) sleep disturbances, (6) use of sleeping medication, and (7) daytime dysfunction (Buysse et al., 1989). Each of these 7 components aims to measure a different **dimension** of the construct, **sleep quality**.

This leads onto the idea of the **number of measures** a construct has. Simple constructs like weight and height may have just **one measure** (e.g., kilograms, centimeters, etc.). However, for more complex constructs, **multiple measures** may be required, each with different **elements**. Note that **elements** are all of those aspects of the measurement procedure that affect the data being collected. In terms of **measures**, these elements include things like **questionnaire items**(e.g., the number of questions used for each dimension of a construct) and **coding criteria** (i.e., what types of measures are used, including factors like the types of variables - nominal and continuous variables - and the **scales** used - continuous scales, Likert scales, and so forth). The more dimensions and measures a construct has, the more difficult it is likely to be to ensure that the measurement procedure you are trying to create is **content valid**.

#### **The number of ways constructs can be operationally defined**

The **operational definitions** of **constructs** are based on the **concepts** you are trying to study [see the section on [Concepts, constructs and variables](http://dissertation.laerd.com/concepts-constructs-and-variables.php)]. However, concepts can be studied using a wide range of constructs, and these constructs, in turn, can be explained using a number of operational definitions.

For example, the concept of **poverty** could be viewed from a range of perspectives (e.g., poverty **gap**, **economic** poverty, poverty and **welfare**, etc.). When we focus in on one of these perspectives of poverty, we may choose to create a measurement procedure to examine the construct, **economic poverty**. However, there are a number of ways that the construct, **economic poverty**, can be operationally defined. For example, we could use an operational definition that examines how a **person behaves** through some characteristic of economic poverty (e.g., deprive the person of a wage for a month and measure how they respond/cope), or look at the **intrinsic properties** of economic poverty (e.g., how much money a person has in the bank, how indebted they are, etc.). However, these different operational definitions will affect **(a)** the way that the construct, **economic poverty**, is measured and **(b)** the way that we interpret the results about **economic poverty**.

From the above example, we can see that the ways that constructs are operationally defined may reflect **(a)** the **context** in which a construct is being applied (e.g., types of poverty and their relative operational definitions), but also **(b)** a general **lack of agreement** between academics concerning the **content** of a particular construct (i.e., what **elements** should and should not be included in a given construct). These factors make is more difficult to ensure that the measurement procedure you are trying to create is **content valid**.

#### **The potential for a construct to be confounded**

There is a lot of **ambiguity** not only in the way that constructs can be operationally defined, but also how different constructs **relate** to one another (e.g., how the construct, **anger**, relates to the construct, **depression**). What are the **boundaries** between these different constructs? Where does one construct start and the other end?

When different construct **overlap**, the results that we generate when measuring these construct can become confounded [see the article: [Extraneous and confounding variables](http://dissertation.laerd.com/extraneous-and-confounding-variables.php)]. The same can be said about the **content validity** of a measurement procedure. How do we know that the **elements** we include in a measurement procedure are **relevant** and **representative** of the construct we are trying to measure?

**C. Reliability**

# **Research Reliability**

Reliability refers to whether or not you get the same answer by using an instrument to measure something more than once. In simple terms, research reliability is the degree to which research method produces stable and consistent results.

A specific measure is considered to be reliable if its application on the same object of measurement number of times produces the same results.

Research reliability can be divided into three categories:

**1. Test-retest reliability**relates to the measure of reliability that has been obtained by conducting the same test more than one time over period of time with the participation of the same sample group.

Example: Employees of ABC Company may be asked to complete the same questionnaire about   employee job satisfaction two times with an interval of one week, so that test results can be compared to assess stability of scores.

**2. Parallel forms reliability**relates to a measure that is obtained by conducting assessment of the same phenomena with the participation of the same sample group via more than one assessment method.

Example: The levels of employee satisfaction of ABC Company may be assessed with questionnaires, in-depth interviews and focus groups and results can be compared.

**3. Inter-rater reliability** as the name indicates relates to the measure of sets of results obtained by different assessors using same methods. Benefits and importance of assessing inter-rater reliability can be explained by referring to subjectivity of assessments.

Example: Levels of employee motivation at ABC Company can be assessed using observation method by two different assessors, and inter-rater reliability relates to the extent of difference between the two assessments.

**4. Internal consistency reliability** is applied to assess the extent of differences within the test items that explore the same construct produce similar results. It can be represented in two main formats.

a) average inter-item correlation is a specific form of internal consistency that is obtained by applying the same construct on each item of the test

b) split-half reliability as another type of internal consistency reliability involves all items of a test to be ‘spitted in half’.

**Q. No 3. Personal interviewing method is not feasible for students what is your opinion about this statement?**

# **Personal Interview Method**

A personal or face to face interview is one that employs a standard structured questionnaire (or interview schedule) to ensure that all respondents are asked the same set of questions in the same sequences.

It is a two-way conversation initiated by an interviewer to obtain information from a respondent. The questions, the wording, and their sequence define the structure of the interview, and the interview is conducted face-to-face.

Studies that obtain data by interviewing people are called surveys. If the people interviewed are a representative sample of a larger population, such studies are called sample surveys.

Thus, a sample survey is defined as a method of gathering primary data based on communication with a representative sample of individuals.

The number of questions and the exact wording of each question incorporated in a questionnaire is identical to all respondents and is specified in advance.

The interviewer merely reads each question to the respondent and usually restrains from providing explanations of the questions if the respondent asks for clarification.

## Advantages of Personal Interviews

**Flexibility**

Flexibility is the major advantage of the interview study. Interviewers can probe for more specific answers and can repeat and clarify a question when the response indicates that the respondents misunderstood the question.

**Response rate**

The personal interview tends to have a higher response rate than the mail questionnaire.

Illiterate persons can still answer questions in an interview, and others who are unwilling to spend their time and energy to reply to an impersonal mail questionnaire may be glad to talk.

**Nonverbal behavior**

The interviewer is personally present to observe nonverbal behavior and to assess the validity of the respondent’s answer directly.

**Control over the interview environment**

An interviewer can standardize the interview by making certain that the interview was conducted in privacy, that there was none to influence the respondent, nor there was anyone to dictate.

He can prescreen to ensure that the correct respondent is replying, and he can set up and control the interviewing condition.

This is in contrast to a mailed study, where the questionnaire may be completed by people other than the respondent himself/herself under drastically different conditions.

The respondent is thus unable to ‘cheat’ by receiving prompting or answers from others.

**Spontaneity**

The interviewer can record spontaneous answers. The respondent does not have the chance to retract his or her first answer and write another, while this is possible in the mail questionnaire.

Spontaneous answers are generally more reliable and informative and less normative than answers about which the respondent has had time to think.

**Completeness**

In a personal interview, the interviewer can ensure that all of the questions have been answered.

This reduces the chances for item non­response, which refers to the collection of incomplete or missing data for one or more (but not all) characteristics of the individuals.

**Scope to deal with greater complexity of the questionnaire**

A more complex questionnaire can be used in an interview study. A skilled, experienced, and well-trained interviewer can fill-in with a questionnaire that is so full of skips, arrows, and detailed instructions that even a well- educated respondent would feel hopelessly lost in a mail questionnaire.

**Recording of time to conduct an interview.**

The interviewer can record the time required to complete the interview. This record can be of great help in subsequent surveys to prepare a budget, particularly in the determination of the optimum size of the sample in terms of cost.

## Disadvantages of Personal Interviews

**High cost**

Interview studies can be extremely costly

Costs are involved in selecting, training, and supervising interviewers; in paying them; and also in the travel, accommodation, and time required to complete the fieldwork.

In many interview studies, even public relations personnel need to be paid for their help.

**Lack of anonymity**

The interview offers less assurance of anonymity than the mail questionnaire study, particularly if the latter includes no follow-up. The interviewer typically knows the respondent’s name and address and sometimes information of all members of the household.

This lack of anonymity is a potential threat to the respondent, particularly if the information is damaging, embarrassing, or otherwise sensitive. This may lead to refusal from the respondent to participate in the interview.

**Interviewer bias**

The very flexibility that is the chief advantage of interviews may be a potential source of interviewer’s influence and bias.

Although interviewers are instructed to remain objective and avoid communicating personal views, they nevertheless often give cues that may influence respondents’ answers.

Sometimes even the interviewer’s sex, race, social class, age, dress, and physical appearance or accent can influence respondents’ answers.

**Prolonged time**

Interviews are often lengthy and require the interviewer to travel miles. Further, it is not uncommon that the interviewer has to make several callbacks before an interview is finally granted.

## Interviewing Techniques

Research interviewing is not such an easy task as it might appear at the beginning. Respondents often react more to their feelings about the interviewer than to the content of the questions.

It is also very important for the interviewer to ask the question properly, record the responses accurately, probe meaningfully, and motivate unbiasedly.

To achieve these aims, the interviewer must be trained to carry out those procedures that foster a good relationship.

The first goal in an interview is to establish a friendly relationship with the respondent. Three factors help in motivating the respondents to cooperate:

* The respondents must believe that their interaction with the interviewer will be pleasant and satisfying. Whether the interaction will be pleasant and satisfying largely depends on the interpersonal skills of the interviewer.
* The respondents must think that answering the survey is an important and worthwhile use of their time. To ensure this, some explanation of the purpose of the study is necessary. It is the interviewer’s responsibility to ascertain what explanation is needed and to supply it.
* The respondents must have any mental reservation satisfied. This arises when respondents have misconceptions and thus might have reservations about being interviewed. The interviewer’s responsibility is to remove these misconceptions.

The survey research center of the University of Michigan’s Institute for Social Research provides some guidelines on how the interviewer should approach a respondent (University of Michigan 1969, pp,3.2-3.3):

1. Tell the respondent who you are and whom you represent (show your identification card, if needed).
2. Check if the respondent is busy or away. If it is obvious that the respondent is busy, give a general introduction, and try to stimulate enough interest to arrange an interview at another time. If the respondent is not at home, keep provision for a revisit.
3. Tell the respondent what you are doing in a way that will stimulate his or her interest.
4. Tell the respondent how he or she was chosen, emphasizing that he or she was chosen in an impersonal way merely because a cross-section of the population is needed.
5. Adapt your positive approach to the situation. Assume that the respondent will not be too busy for an interview. Approach him or her as follows:

I would like to come in and talk to you about this,” rather than saying, “May I come in?” “Should I come later?” or “Do you have time now?” or any other approach that gives the respondent a chance to say “no.”

1. Try to establish a good relationship. This is what we call rapport building, meaning a relationship of confidence and understanding between interviewer and respondent.
2. Adopt probing whenever necessary. The technique of stimulating respondents more fully and relevantly is termed. The chief function of a probe is to lead the respondent to answer more fully and accurately, or at least to provide a minimally acceptable answer. A second function is to structure the respondent’s answer and make sure that all topics of interest to the interviewer are covered and the amount of irrelevant information reduced. Since a probe presents a great potential for bias, a probe should be neutral and appear as a neutral part of the conversation. Appropriate probes should be specified by the designer of the data collection instruments.

## Conditions for Successful Interviews

Three broad conditions must be met to have a successful personal interview: They are

* Availability of needed information from the respondent;
* An understanding of the interviewer’s role by the respondent, and
* Adequate motivation by the respondent to cooperate.

Motivation, in particular, is a task for the interviewer. Good rapport with the respondent should be quickly established, and then the technical process of collecting data should begin.

The latter often calls for skillful probing to supplement the answers volunteered by the respondent. In addition to these precautions, a few more strategies must be followed for a successful interview. We enumerate these points below:

 Thanks