**Subject: Research techniques in HR**

 **Final exam/paper**

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**Questions**

**Q.No.1:**

**What are scales in research kindly explain with reference to research papers?**

**Answer:**

**Research:**

Research is the combination of two words. Re means again and again and search basically means to find out, finding solutions to a problem if it arises. Research means to gather the data or information, facts and figures and to find solutions for particular problems.

Research means gathering of different data, information and facts etc. and if any problem arises so as to solve that problem. Research basically means to predict, describe and explain phenomena or to further elaborate a problem.

There are two types of research one is called basic research and the other is called applied research. Basic research is when you conduct a research for the 1st time on the already existing knowledge and your main aim is simply to expand it. Applied research is when you solve problems and find its solutions.

**Framework for research:**

Defining clearly your goals, research questions.

Adapting different strategies and using methodologies.

**Scales in Research:**

**Introduction:**

Stats are one of the branches of mathematics that only deals with the collecting, analyzing, interpretation of results, and lastly coming to the conclusion part. Whereas different statistical techniques and procedures are used in order to reach to a final conclusion part. Scales in research are very important from research point of view because it helps a researcher in collecting of data or information needed, analyzing the results obtained and lastly conclusion.

**Scales of measurement**

Scales of measurement refers to the certain ways by which the variables or numbers in a data set are clearly defined and categorized each scale of measurement consists of some properties. Scales of measurement are important for research. However, many people are confused about what type of tools or different statistical techniques one should apply when compiling the data of the research conducted. The decision is made on the basis of the types of data and objective of the research. Statistics usually are done on the basis of a data set provided. The data set is often seen or viewed in a separate matrix which is exactly same as a spreadsheet of Microsoft office software. The rows are called number of observations in a data set.

**Types of scales in a research**

**There are four different types of scales in a research. These are:**

1. Nominal scale
2. Ordinal scale
3. Interval scale
4. Ratio scale
5. **Nominal scale:**

The word nominal is derived usually from the latin word *nomen*, which means name.

It’s a scale of measurement in research in which different number serve as tags or labels for the identification or when we want to classify an object on the basis of some scale. Such scale where numbers have no value and not given an importance. And it only possesses the quantitative number. One the characteristics of nominal scale are that the data cannot be arranged in an order form and therefore it is not measured.

**Examples**:

Suppose when we say a student gender i.e. it may be either male or female student.

Religion preferences by different people i.e. Muslim, Hindu, Jewish, Christian etc.

Hair color of a person: black, brown, red, others.

1. **Ordinal scale:**

Such scale of measurement in a research in which we use labels for classifying cases into ordered classes. When there is an ordinal relation within the categories defined then we say that the variable is said to be an ordinal scale.

Ordinal scale is usually used for marketing, research purposes, for advertising and when we want to conduct a survey in a research process. It is used like when we want to rate a product or anything let’s say we use like very, highly, more, less to classify an object.

**Examples**:

When we want to know someone level of knowledge he/she gained: good, excellent, average, poor etc.

When we want assign grades to a class students like higher marks, lower marks or average.

Degree obtained by a student: matric, undergraduate, graduate, P.HD etc.

1. **Interval scale:**

The [interval scale](https://www.formpl.us/blog/interval-data)  is a scale in which the all the levels are ordered separately on the scale, but the only main difference is the existence of equal intervals. This type of scale is deprived of 0 on the point. It is widely used in most commonly sectors like in education level, medicine, engineering etc.

**Examples:**

When we want to calculate the CGPA of a university student we use interval scale of measurement. Similarly when we are measuring the temperature of a patient we use a scale for measuring called Fahrenheit scale. It can be widely used in calculation of mean, median, mode, range, and standard deviation in statistics and mathematics etc.

1. **Ratio scale:**

It is almost similar to the interval scale but the only difference it contains is that the ratio on the scale do not exists.

**Examples:**

Weight of a person. Similarly, the age of an individual person. Some other examples also includes age, weight, height of a person, yearly sales figures of any company, income earned by an individual during weekly, quarterly or on the basis of monthly etc.

**Relationship between Scales of Measurement and Statistical Methods**

Statistical methods or techniques are very important from research point of view. for example when we obtained the result from a data set is continuous variable then we use the following tests for analyzing and interpreting of results i.e tests used are *t*‑test, ANOVA test, linear regression, and Pearsoncorrelation.

But when the data is in discrete variable form we cannot use the above testing techniques or procedures for conducting our research we only use the following tests in contrast to the above that includes Mann–Whitney U‑test, Kruskal–Wallis H‑test, Wilcoxon test, Friedman test, Chi‑square test, logistic regression, and Spearman correlation) are used.

**Conclusions:**

For any research to be conducted data is an important concept for statistics. we should have the right knowledge or information about the tools how to use them wisely in our research. this not only enhances your ability to prove yourselves but it also helps us in our outcomes the result which we obtain by using the different statistical techniques. We should use and make appropriate and correct diagrams for our data interpreted or results.

**Q.No.2:**

 **Explain the following terminologies with reference to research.**

**a. Content Validity**

**b. Criterion Related Validity**

**c. Construct Validity**

**d. Reliability**

**Answer:**

**Introduction:**

**Reliability and validity**, these are two different concepts that are used to identify or differentiate the quality of your research. They usually tells that how a method that is used in research, technique or a procedure measures something. Reliability is when you want to measure the consistency of a something that can be any variable or relatable to research. Validity is all about the accuracy of a measure.

1. **Content validity:**

Content validity is the type of validity that considers and measures all aspects or parts of the concepts in research that needs to be measured accurately and by making sure that everything is accurate.

**Example:**

Suppose if there is a test that is conducted for the class of students let’s say of Spanish language so the Spanish should contain all aspects of the language like reading, writing, comprehension and listening but it lacks the listening factor or component . so in order to measure the validity of the test it should contain all the aspects of the Spanish in order to rate the overall level of ability in Spanish. In order to ensure the validity in research one should choose the appropriate methods of measurements.

1. **Criterion Related Validity:**

Criterion validity is another type of validity which helps a person in measuring the predictions for another measure. This type of validity is useful from research point of view because it tells us about the present, past or future i.e. in predicting the performance etc.

**Example:**

* An example is that a graduate student taking the GRE tests. If the GRE test shown is an effective tool (i.e. it has criterion validity).
* One example is related to a person interview for a job. If the interview that is conducted tells us that how well an employee will perform his job or the duties assigned to him so the test is said to have criterion validity.

## Types of Criterion Validity

* [**Predictive Validity**](https://www.statisticshowto.com/predictive-validity/): if the test tells us what it is supposed to predict.
* [**Concurrent Validity**](https://www.statisticshowto.com/concurrent-validity/): when the predictor and criterion data are collected at the same time.
* **Post-directive validity**: if the test is a valid measure of something that happened before.
1. **Construct validity:**

**What is a Construct?**

When we talk about a construct with the testing concept and the construct validity, it has nothing to do with the way a test is designed or constructed. A construct is something that happens in the brain, like a human skill, level of emotion, ability or proficiency. For example, command on any language is a construct.

Construct validity is the type of validity that is used in general to check the validity of a test. This validity type is usually used in education sector, like social sciences and psychology subject. In order to check the construct validity, you have to make sure that you have gathered all the relevant or the existing data or information needed. Construct validity is basically the already existing knowledge or theory in research that is being commonly being measured.

1. **Reliability:**

Reliability refers to that how much you are consistent over time means to your measure. If you get the same result under some situations by using the accurate methods within a time frame then the tool or let’s say the measurement is said to be reliable. For example you want to measure the temperature of a given liquid by your instructor under the same conditions you get the same readings then we say that the measuring tool is reliable that’s why you get the outcomes that are reliable.

**Types of reliability:**

1. **Test-retest reliability**
2. **Inter-rater reliability**
3. **Internal consistency**
	1. **Test-retest reliability**

It’s the type of reliability when you get the same results again and again when you measure over a period of time.

**For example**, a group of researchers conduct a survey from the different persons and fill questionnaires from them so if you again and again fill out these survey forms from them either its on weekly, monthly basis if you get the same result or outcomes with the passage of time then we say its test-retest reliability.

* 1. **Inter-rater reliability**

Inter-rater reliability is same as the test-retest but the only difference is that when you conduct this test you get same results from different people.

**For example:** Five examiners submit different results for the same student project. This shows the level that it has low inter-rater reliability.

* 1. **Internal consistency**

That type of reliability that when you get the same results from different parts of a test that are designed to measure the same thing.

**For example:** You design a questionnaire to measure productivity and job satisfaction. If you randomly split the results into two parts, this indicates that there is a [strong relation](https://www.scribbr.com/methodology/correlational-research/)ship between the two dataset of results. If the two outcome or results don’t match with each other, this indicates that it has low internal consistency.

**Q.No.3:**

 **Personal Interviewing method is not feasible for students what your opinion about this statement is.**

**Answer:**

**Interview**:

An interview is commonly a subjective exploration strategy which includes asking open-finished inquiries to talk with respondents and gather inspire information about a subject.

## Types of Interviews in Research

A researcher has to carry out interviews with a group of members at a moment in the research where information or data can only be obtained by meeting and personally connecting with panel of and target audience. Interviews offer the researchers with a stage to involve their participant and obtain outcomes from them in the desired detail. There are three kinds of interviews in research.

1. **Structured interviews:**

Interview type defined as the as research tools that are extremely strict in their operations and allows very little or no scope of prompt to the participants to obtain and analyze results. It is also known as a standardized interview and is significantly [quantitative](https://www.questionpro.com/blog/quantitative-market-research/). Structured interviews are excessively used in [survey research](https://www.questionpro.com/tour/survey-research.html) with the intention of maintaining uniformity throughout all the interview sessions. They can be closed-ended as well as open-ended.

**Advantages of structured interviews:**

Difficult type of data can be gathered easily. The results are easy and quick to obtain. The relationship between the researcher and the respondent is not formal due to which the researcher can clearly understand the error.

**Disadvantages of structured interviews:**

Limited scope for evaluation of desired results. Respondents have no choice so he select from the answer provided. Time consuming as a lot of time is required for this type of interview to gather information.

### Unstructured Interviews:

It is also called as in-depth interviews. They are usually described as conversations held with a purpose to collect data about the research study. These interviews have the less number of questions. The main objective of using unstructured interviews is to build a link with the respondents due to which there are high chances that the respondents will be 100% honest with their answers. There is no guiding principle for the researchers to follow and so, they can approach the participants in any ethical manner to gain as much information as they possibly can for their research topic. Since there are no guidelines for these interviews, a researcher is predictable to keep their strategies in check so that the respondents do not stay away from the main research purpose.

#### Advantages of Unstructured Interviews:

* Easy to build a friendly relationship with the participants.
* The participants can clarify all their fears about the questions and the researcher can take each opportunity to explain his/her intention for better answers.
* There are no questions which the researcher has to abide by and this usually increases the flexibility of the entire research process.

**Disadvantages of Unstructured Interviews:**

* Take time to develop or execute a plan.
* The reliability of unstructured interviews is doubtful.

**Different methods for research interviews:**

**Personal interviews:**

Most common type of research interview in which there are direct questions. Takes time to conduct personal interviews.

**Telephonic interview:**

Information or data is collected very easily within minutes or less time. It usually have low cost as it doesn’t require a lot of time.

**Email interviews:**

Data can be collected within seconds because of speed.

**Personal Interviewing method is not feasible for students:**

* My opinion regarding the above statement is that personal interviewing or the face-to-face interviewing is that:
* Its cost is high.
* Some people feel shy or are unwilling to speak with the unknown persons.
* It will require a lot of time. So in my opinion it’s more time consuming rather than a panel of interviewers who take interviews.
* Geographical limitations and many more factors.