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ASSIGNMENT WEEK 5

When testing any experimental hypothesis, Why is it essential that the test you use to measure the outcome be both reliable and valid.

To answer this question, one must first define what a hypothesis is. A hypothesis has been defined as a guess but an educational one of events and activities happening around. To qualify as a hypothesis, it should be testable, observable, and experimental.(Salkind,2017)

A hypothesis should usually come in the form of a statement, examples If the researcher increases the amount of food given to cows then the cows will become drowsy and overweight. Or If the researcher lives in Nigeria instead of America, then the researcher will make more money

A good hypothesis statement should include the dependent and independent variables. It should be testable by experiment, survey, or other scientifically sound techniques.

It should contain an if and then statement.

Hypothesis testing in statistics is a way for the researcher to test the results of a survey or experiment to see if there is a meaningful result or outcome, what has been tested basically is whether the results are reliable or valid by taking out the odd thoughts or impression that it probably just happened by chance. If the outcome just happened by chance, then the experiment

would not be repeatable and consistent. Where it is indeed repeatable and consistent, it will not bring out the desired outcome or results; therefore, it has little use or no use.

An experimental set up with the collection of observational data to test a hypothesis or theory which has been developed previously in the experimental hypothesis which states that the expected difference is between the groups, if the theory is correct, The null hypothesis will automatically state that the predictions from the theory are incorrect since they are both working at cross purposes(opposite directions)

When testing for an experimental hypothesis, it is important that the instrument or outcome should be both reliable and valid. Still, the non-reliability and validity of the instruments will always leave the results of the experiment in doubt and often useless. One can have a test that is reliable but not valid however one cannot have a valid test that is not reliable, A test can do whatever it does over and over but still not do what it is meant to do, but if a test does what it is supposed to, then it has to do it consistently to work.(Salkind,2017)

There is a strong relationship between reliability and validity. But the relationship is that the highest level of validity is equated to the square root of the reliability coefficient, for example, if the reliability coefficient for a test of mechanical aptitude is.87, the validity coefficient can be no longer than.93(which is the square root of .87)what this means is that validity of a test is limited or closely related by how reliable it is, and what makes perfect sense if we stop to think that a test must do what it repeatedly does before we are sure it does what it says it does, One cannot have a valid instrument without it first being reliable because in order for something to do, what is supposed to do. It must first do it consistently right, so; they work hand in hand.(Salkind,2017)

What the verdict, in essence, is that for any experimental hypothesis to be so regarded, it is important for the outcome to be both reliable and valid otherwise has not fulfilled all of the requirements for an acceptable experimental hypothesis.