

Research questions, objectives and hypothesis

[Science](#), [Statistics](#)



Research objectives are the goals of the research study. Research objectives specify the reason researchers are conducting research. For example, researchers may want to better understand the difference in pain scale results among subjects with a diagnosis of moderate traumatic brain injury. In this case the research objective would cause researchers to take steps to conduct scientific analysis to determine the variations in pain experienced between a group of individuals without a diagnosis of TBI and a group of individuals with TBI.

The research objective is to determine if there is a difference in perceived pain levels among patients with a diagnosis of moderate traumatic brain injury as compared with individuals without a diagnosis of moderate traumatic brain injury. The objective is the reason researchers are conducting the research. Farrugia et al. cites Hayes in saying when formulating a research objective it is essential to know “ where the boundary between current knowledge and ignorance lies. ” (Farrugia 2010).

Understanding the missing component among previously conducted research and current observations is a key component when formulating a research objective. Research questions are the questions asked in order to achieve the objective. According to Farrugia et al. , an effective research question should “ specify the population of interest, be of interest to the scientific community and potentially to the public, have clinical relevance and further current knowledge in the field” and be compliant with current ethical standards (Farrugia et al. 2010).

The study authors further suggest using the FINER criteria in order to develop an effective initial research question. This delineates the research question into several component parts to analyze in detail the efficacy of the research question and if, among all the available or visible possible questions, the question chosen is the most effective research question to guide the study. For example, according to Jackson, a research question may state “ do sciencemajors score higher on intelligence tests than students in the general population” (Jackson 2011).

This question guides the course of the research study and guides researchers in setting up the study effectively and accurately. It is important, throughout the course of research, to ensure that additional questions do not cloud the initial research question (Farrugia et al. 2010). This requires a focus on the original research question and the ability of researchers to set aside additional questions that may arise for later research studies.

A research hypothesis or alternative hypothesis is the hypothesis which researchers “ want to support that predicts a significant difference exists between the two groups being compared” (Jackson 2011). For further description, Farrugia et al. describes the research hypothesis a hypothesis developed “ from the research question and then the main elements of the study — sampling strategy, intervention (if applicable), comparison and outcome variables — are summarized in a form that establishes the basis for testing, statistical and ultimately clinical significance” (Farrugia et al. 2010).

The research hypothesis differs from the null hypothesis and sets the course of the study, the study details and types of measures used during the study. Jackson provides an example of a research hypothesis being derived from an <https://assignbuster.com/research-questions-objectives-and-hypothesis/>

initial research objective when a researcher wants to illustrate that children who attend educationally-based after school programs have higher IQ scores compared to children who do not attend educationally-based after school programs.

The alternative hypothesis in this case would be that the researcher wants to prove that children who attend educationally-based after school programs have higher IQ scores. In order to accomplish this, because of the nature of proving and disproving facts and the impossibility of proving the truth of the hypothesis through statistics, the researcher would have to construct a null hypothesis “ the hypothesis predicting that no differences exists between the groups being compares” (Jackson 2011).

In this case the null hypotheses would perhaps say that children who attend academically-based after school programs have the same IQ scores as children who do not attend such programs. This would then allow the researcher to attempt to disprove the null hypothesis using inferential statistics to reject the null hypothesis, which in turn would mean the research or alternative hypothesis, is potentially supported by the data gathered by the researcher. Another important consideration is weather the hypothesis will be one-tailed or two-tailed.

A one-tailed hypothesis is an hypothesis “ in which the researcher predicts the direction of the expected difference between the groups” (Jackson 2011).

A two-tailed hypothesis is “ an alternative hypothesis in which the researcher predicts that the groups being compared differ but does not predict the direction of the difference. ” Whether one-tailed or two tailed (Jackson 2011)

the hypothesis gives credence to the research and provides the schema on which researchers build their research study.