

# Scientific method of research

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A scientific method of research can be described as a means which assists researchers to make conclusions about their study with minimum bias. This ensures that researchers do not incorporate their personal stake into the research that they are carrying out. Therefore applying a scientific method of research is indispensable in making sure that any opinion researchers make in a given study is always supported by concrete evidence (Wilson 2006). To ensure that researchers do not incorporate their personal stake or biased opinion in a research, usually a standard method is employed in testing hypothesis. Scholars concur that scientific methods of research are effective channels of ensuring development of reliable knowledge.

According to Wilson (2006) a scientific research method is indispensable in ensuring development of theories as it ensures that interpretations by researchers are not influenced in any way by their personal or cultural beliefs. Kuhn (2006) says that these influences are minimized or eliminated by employing standard methods and criteria in a research. Components of a scientific method of research The following form the major components of a scientific method of research: 1. Defining the question: The first step of applying a scientific method of research requires one to form a basis of conducting his research. According to Kuhn (2007) this step involves making observations about a phenomenon that is either directly or indirectly connected with the specific subject matter of the intended research.

This enables one to narrow the possible research topics and choosing a question to focus on in a research. It is required that the research question chosen must be specific. According to Kuhn (2007), a researcher should consider several factors before settling on a given research question. The

following are some of the factors to be considered: What you want to know from the research question The purpose of the research question What the answers will tell about the research question Can the question be answered through a research? Feasibility of the research in question 2. Forming hypothesis: The next step in using a scientific method of research is to come up with a hypothesis on the proposed research to explain some aspects of observation on a proposed research.

According to Barrow (2002) hypotheses is a list of things that the researcher speculates from his proposed research subject or a provisional explanation into what a researcher believes is true. In coming up with hypothesis a researcher should consider the things he expects to find out from a researcher he intends to conduct (Barrow 2002). 3. Testing hypothesis: After coming up with a hypothesis, the next step is to test it prior to which a researcher must develop a method of testing the hypothesis. This requires a researcher to employ the hypothesis in predicting other phenomena that are yet to be observed (Barrow 2002).

After formulating a hypothesis the scientific method of research requires that it must be rigorously tested. While testing your prediction on a given research subject matter it is required that a researcher cannot “ prove” his hypothesis but can only fail to “ disapprove” it (Barrow 2002). Cooper (2004) says that in a scientific research method, it is required that predictions in a hypothesis to be eliminated if they continuously contradict with experimental results. Cooper further states that “ while formulating a hypothesis a researcher must ensure that it is both testable and quantitative”. 4. Locating resources: Locating resources forms a critical component of a scientific <https://assignbuster.com/scientific-method-of-research/>

method of research and it involves gathering of information or materials that the research intend to use.

A better research question depends on the number of research materials one has (Gall 2006). According to Cooper (2004) the following are some of the factors should be considered when locating sources or gathering information: What you know about the research question Addition information that will help in the research How to use different sources of information to get the required information Resources available (money, facilities, equipments, people etc...) 5. Research planning: Gall (2006) explains research planning as a component of a scientific method of research that involves developing a specific plan on how the research is going to be carried out.

The plan or procedure laid down must be clear and precise so that another person can follow it accurately. According to Gall (2006), the following factors should be put into consideration when developing a research plan: Method of testing hypothesis Type of data to be collected and method to be employed Equipments or supplies that are required Reference point for data comparison Tests, sample or sites required Time plan 6. Collecting, organizing and interpreting data: All data that affect the research question should be collected and written down. Relevancy and objectivity are major consideration that researchers need to take into account when collecting data. Organizing data involves comparing and contrasting the information gathered from a research. Data collected should posses the following characteristics: relevant, timeless and complete (Kuhn 2007).

7. Data interpretation and drawing conclusion: This involves critical evaluation of data collected and deciding the conclusion that is required to be drawn. This requires a researcher to consider other alternative hypotheses that might explain the results obtained. The effect of sampling and data collection techniques on the results must also be considered. The researcher should also evaluate to what extent the results have answered the research question and how the results compare with the hypothesis (what was anticipated to happen).

The implication of the conclusion to be drawn should also be considered (Barrow 2002). 8. Communicating the results: This forms the final step of a scientific method of research. The following factors should be put into consideration when communicating the result: The audience and ways of communicating results. The researcher should ensure that all components of his research are affectively communicated to relevant audience (Wilson, 2006). Conclusion Scientific method of research therefore acts as an indispensable tool in research especially in development of theories.

This is because it employs standard procedures and tools that ensure personal prejudice is minimized. Therefore this produces a research that is free from bias and that is based on facts which can be relied upon to explain a given phenomenon.