A Scientific Review

Review.

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Many students have wasted hours on research projects that should never have been started in the first place. A more thorough and impartial review would have told them that their project idea had already been done, or that the new approach they believed they were undertaking is not as valid as the literature suggested. Research question according to that niche.

Consider the following activities. Which do you think counts as "research"?

- Listening to the news
- Reading a journal article
- Conducting an interview
- Going to a museum
- Watching a YouTube video
- Watching people in an airport
- Reading a book
- Surfing the internet
- Consulting a dictionary
- Reading a Wikipedia article

Paradigm they're operating from within. While many people use the word "research" to loosely mean "gathering information" scientists use this word in a more specific way.

Research is conducted according to the researcher's intention, their purpose, and the economic or historical, requires some kind of interpretation and an opinion from the researcher from the very beginning. In other words, the researcher conducts a literature review with some pre-conceived idea of a hypothesis. This vague notion of the hypothesis must then gradually work to refine from that data a research question that will later become a hypothesis.

Research question generally states that in an experiment, a variable and purely observable is manipulated and measured. Qualitative research, however, may rely on case studies and purely observational data.

DEFINITIONS

A Scientific Review

The term "research" in a scientific context usually refers to the entire scientific method from start to finish. The information gathering portion of the scientific method is more properly defined as a 'review' of the existing literature. A more thorough and impartial review would have told them that their project idea had already been done, or that the new approach they believed they were undertaking is not as valid as the literature suggested. Research question according to that niche.

Having a firm idea of what you're looking for before you find it is not usually a problem so long as you take care to avoid confirmation bias and be sure to also seek information that contradicts your hypothesis.

But to arrive at that hypothesis takes some understanding of what is known in the area already. As you read the above list, perhaps you thought, "it depends." A Historian may be interested in a museum visit or dictionary definitions, but an experimental biologist would reject all of these as valid research sources except for the journal article. Wikipedia may be a good resource for early on in a literature review to give an outline, and a book may be more or less valuable as a resource depending on who it was written by and when.

The strict definition of scientific research (i.e. the scientific method) is performing a methodical experiment in order to prove or disprove a hypothesis.

This can be done by considering limitations or inconsistencies in previous research, or by willing to abandon one's hypothesis if the data forces it. Research is more or less abstract, often being defined in the form of a "gap in the literature" and formulated as a research hypothesis.

Research hypothesis generally states that in a experimental process, two variables will have a specific relationship depending on the conventions of that field of science. This relationship will then shapes the kind of information the researcher looks for.

This is why it's crucial to start any experiment with a mind as open as possible, so that you can then follow a series of steps of the scientific method in order to prove or disprove a hypothesis.