Research Question and Objective

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Research Question

▲ A statement that identifies the phenomenon to be studied.

▲ The fundamental core of a research project, study, or review of literature. It focuses the study, determines the methodology, and guides all stages of inquiry, analysis, and reporting.

Research Question

Characteristics of a good research question:

▲ Feasible

▲ Clear

▲ Significant

▲ Ethical

▲ Meet the requirement of funder

Research Question

Examples:

1. The following question is too broad and does not define the segments of the analysis:

▲ Why did the chicken cross the road?

(*The question does not address which chicken or which road.*)

Research Question

Examples:

2. The following question could be answered by a hypothetical Internet search:

▲ How many chickens crossed Broad Street in Durham, NC, on February 6, 2014?

(*This question could be answered in one sentence and does not leave room for analysis. It could, however, become data for a larger argument.*)

Research Question

Examples:

3. A more precise question might be the following:

▲ What are some of the environmental factors that occurred in Durham, NC between January and February 2014 that would cause chickens to cross Broad Street?

(*This question can lead to the author taking a stand on which factors are significant, and allows the writer to argue to what degree the results are beneficial or detrimental.*)

Research Question

Evaluate the question by using the following list of guidelines:

* Is the research question one that is of <u>interest to the researcher and potentially to others</u>?

* Is it a <u>new issue or problem</u> that needs to be solved or is it attempting to <u>shed light on previously researched topic</u>?

* Is the research question <u>researchable</u>?

Research Question

Evaluate the question by using the following list of guidelines:

✸ Is the methodology to conduct the research <u>feasible</u>? (Consider the available <u>time frame</u> and the required <u>resources</u>.)

✸ Is the research question <u>measureable</u> and will the process produce data that can be supported or contradicted?

✸ Is the research question <u>too broad or too narrow</u>?

จงพิจารณาว่าคำถามการวิจัยของงานวิจัยต่อไปนี้คืออะไร?

- การเปรียบเทียบผลการทำหมันหญิงด้วยวิธี Laparoscope กับ Minilaparotomy

- ความสัมพันธ์ระหว่าง Endometrial Cancer กับการใช้ยาเม็ดคุมกำเนิด

- พยาธิไส้เดือนกับการเจริญเติบโตของเด็กนักเรียน

- ทัศนคติของนักศึกษามหาวิทยาลัยเชียงใหม่ต่อการใช้ชีวิตคู่ในระหว่างการศึกษา

- ปัจจัยเสี่ยงของการเกิดมะเร็งเต้านมในสตรีวัยก่อนหมดประจำเดือน

Research Hypothesis

❋ The statement created by researchers when they speculate upon the outcome of a research or experiment.

❋ The hypothesis is generated via a number of means, but is usually the result of a process of <u>inductive reasoning</u> where observations lead to the formation of a theory.

❋ Scientists then use a large battery of <u>deductive methods</u> to arrive at a hypothesis that is <u>testable, falsifiable and realistic</u>.

Research Hypothesis

❊ <u>Inductive reasoning</u> is the process where a small observation is used to infer a larger theory, without necessarily proving it.

❊ <u>Deductive reasoning</u>, by contrast, starts with a general principle and deduces that it applies to a specific case.

❊ <u>Inductive</u> reasoning is used to try to <u>discover a new piece of information</u>; <u>deductive</u> reasoning is used to <u>try to prove</u> it.

Research Hypothesis

❄ The precursor to a hypothesis is a research problem, usually framed as a question.

❄ Mostly derived from literature review or theory.

❄ If it is the new study, research hypothesis is not necessary.

Research Hypothesis

Example:

We might wonder why the stocks of cod in the North Atlantic are declining. The problem question might be 'Why are the numbers of Cod in the North Atlantic declining?'

❋ This is too broad as a statement and is not testable by any reasonable scientific means.

❋ It is merely a tentative question arising from literature reviews and intuition.

Research Hypothesis

Example:

❋ This might be a statement or an 'If/Or' statement. Some examples could be:

- ✓ Over-fishing affects the stocks of cod.

- ✓ If over-fishing is causing a decline in the numbers of Cod, reducing the amount of trawlers will increase cod stocks.

❋ Science tends to formalize things and use the 'If' statement, measuring the effect that manipulating one variable has upon another.

❋ But the other forms are perfectly acceptable: an ideal research hypothesis should contain a prediction, which is why the more formal ones are favored.

Research Hypothesis

❆ A hypothesis must be <u>testable</u>, taking into account current knowledge and techniques, and be <u>realistic</u>.

❆ A hypothesis must be verifiable by statistical and analytical means, to allow a <u>verification or falsification</u>.

❆ In fact, a hypothesis is never proved, and it is better practice to use the terms 'supported' or 'verified'. This means that the research showed that the evidence supported the hypothesis and further research is built upon that.

❆ A research hypothesis, which stands the test of time, eventually becomes a <u>theory</u>, such as Einstein's General Relativity. Even then, as with Newton's Laws, they can still be falsified or adapted.

Research Objectives

❋ The objectives provide an accurate description of the specific actions you will take in order to reach the aim of research.

❋ Start from <u>the overall objective</u> that should be framed in a single sentence.

❋ The overall objective states exactly how you intend to address your problem: "I want to find the answer to problem A, by completing action B".

❋ You then have to explain or detail action B through a set of <u>specific objectives</u> (usually between two and four).

Research Objectives

❋ Each specific objective consists of one infinitive sentence and should be phrased in a way that makes it possible to draw a conclusion from within the scope of the research.

❋ The more precisely you formulate your specific objectives, the simpler it will be to define the type of study and which method(s) you will use in your further research.

Research Objectives

Example:

"Is the level of knowledge on recommended nutritional practices related to the nutritional status of pregnant women attending antenatal care (ANC) in Northern Uganda?"

Research Objectives

Overall objective:

"To analyze the association between nutritional knowledge and the nutritional status of pregnant women attending ANC in Northern Uganda."

Research Objectives

Specific objectives:

1. To assess the knowledge level among ANC attendees on the recommended nutritional practices during pregnancy

2. To assess the nutritional status of pregnant women attending ANC

3. To analyze the statistical association between nutritional knowledge level and nutritional status in pregnant women attending ANC.

References

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