Think Critically with Data | Critical Thinking

Research Questions

Key Concept
What do you want to know about your topic? What makes the topic interesting to you? What opinions and points of view are relevant to the topic? What do you need to know about the topic to poll other students about it?

Before you begin your research decide exactly what you want to know. You can easily get lost in a complex topic. Writing a few good research questions keeps you focused. Writing good research questions is an art form all its own.

Did you know there are many different types of questions? What types of questions you ask depends on what kinds of answers you need. An interesting topic usually requires more than one type of information to understand it. That means you will need to ask different types of questions.

Look Ahead

Task: Write some questions to guide research on your topic.

Goal: Show that you understand how to use different types of questions effectively.

You may want to review an example of research questions before you begin.

See the example: Research Questions
Vocabulary

Words to Remember
This page gives basic definitions for some important terms that can help you learn about research questions. You can get a more complete definition of each term from Fact Monster*.

New Words
Convergent: Moving toward one direction or having a limited number of answers.

Divergent: Moving in many directions or having many answers.

Evaluative: Requiring judgment to decide among various opinions or answers.

Review Words
Complex: Consisting of many parts that are connected or related to one another.

Data: Information collected by observation or measurement.

Fact: Information widely believed to be true and supported by objective data.

Information: Anything that can be used to create knowledge. For example, words, numbers, images, audio, and video can all contain information.

Objective: Able to put aside personal feelings and opinions.

Opinion: Beliefs that may or may not be supported by facts.

Point of View: The way a person tends to think about people, places, and events based on individual experiences.

Poll: Ask people questions about themselves or what they think about an idea or topic.
Exploration

Learning from the Web
What do you want to know about your topic? Developing good research questions will guide your research. Explore some Web sites about different types of research questions. Learn what types of questions to ask about your topic.

While you explore the following Web sites, think about the guiding questions. You may want to take notes to help you answer the questions. If you think of other questions about how to write effective research questions, keep those in mind too.

Guiding Questions

- What types of questions should you ask to help you find out what you want know about your topic?
- How does the type of question you ask affect the type of information you get?
- Why do you need different types of information?

Web Sites

- What Is the Question? from Fact Monster*
- How to Impress Your Teachers by Asking Good Questions!* from the Big6*
- Creating Research Questions* from Wheeling High School*
- Asking Good Questions* from the Interaction Design Institute*
Information

What to Know
This page summarizes some of the information from the Web sites you explored. This information helps you learn what you need to know for this activity about research questions. You may want to take notes to help you remember the most important points. You can return to the Web sites for more exploration if you want to learn more.

Effective Research Questions
Effective research questions are big enough to hold your interest and small enough to answer. Many questions focus on facts that can be memorized. These memory questions are very useful, but they may not provide enough information.

Most people usually cannot understand complex topics just by asking memory questions. Other types of questions can help you dig deeper into a topic. These include convergent, divergent, and evaluative questions.

Fact Questions
Fact questions always have a correct answer and usually start with words like:

- Who...?
- What...?
- Where...?
- When...?

Some examples of memory or fact questions are:

- Who invented the computer?
- What is copyright?
- Where is Iraq?

Convergent (Why) Questions
Convergent questions require more explanation than fact questions, but they usually have correct answers. They often start with words like:

- Why...?
- How...?
- According to...?

Some examples of convergent or why questions are:

- Why do we have copyright laws?
- How is a PC different from a Macintosh?
- According to most scientists, what is the most likely impact of greenhouse gases?
Divergent (Idea) Questions
Divergent questions usually have many acceptable answers and often include words like:

- What if...?
- How could...?
- How would...?

Some examples of divergent or idea questions are:

- What would your life be like if you lived in Mexico?
- How could greenhouse gases affect the weather in Chicago?
- How would research be different if copyright laws did not exist?

Evaluative (Opinion) Questions
Evaluative questions require judgment to decide among various opinions or answers. They often include words like:

- Do you think...?
- Why should...?
- How well...?

Some examples of evaluative or opinion questions are:

- Do you think downloading music and graphics from the Internet is always OK?
- Why should educational use of copyrighted materials have different rules than commercial use?
- How well did the author support her point of view?
Task

What to Do
Complete the following task to show what you have learned about writing research questions. While you work through the task, think about whether you are achieving the goal. You may want to review an example of research questions before you begin.

Task: Write some questions to guide research on your topic.

Goal: Show that you understand how to use different types of questions effectively.

See the example: Research Questions

1. Start a new word processing document. Always remember to type your name and the date at the top of the document.
2. Type a title for the document. You may want to include your topic, such as Research Questions for ________________.
3. Use critical thinking skills to write some effective research questions. Make sure you address each of the following questions:
   - What is the purpose of your research?
   - How do your research questions address the purpose of your research?
   - What kind of information do your research questions provide?
   - What ideas or concepts can you develop from the information?
   - What conclusions might you be able to draw from your research?
4. Remember to save your document often while you work.
5. Check with your teacher to make sure you have written effective research questions. You may want to ask your teacher if you have too few or too many questions.
6. Check the spelling and grammar of your research questions.
7. Double-check your work by reading the document carefully one more time.
8. Review the checklist and revise your research questions to make sure they are complete.
Task Example

Student Name

Date

My Research Questions on Choosing the Best Classroom Pet

The purpose of my research is to determine what would be the best pet for our class. The research questions will guide me in learning more about this subject. Important issues in choosing a pet are determining who can care for the pet, how much time is needed to care for the pet, where the pet will live, and what the cost of having the pet will be.

Here are research questions:

1. What kinds of pets work best in a classroom?
2. How much care is needed for different kinds of pets?
3. How much time is needed each week to take care of the pet?
4. Where in the classroom should the pet live?
5. What are the costs of taking care of the pet?
6. Will the pet need daily exercise and grooming?

When I have answered these questions, I will be able to identify four types of animals that would be best as a pet for our class and to develop a list of the care, cost, and container requirements for each type of animal.