

# The Research Question



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# The Research Question

- ❖ The first thing to know is what is and is not a research question.

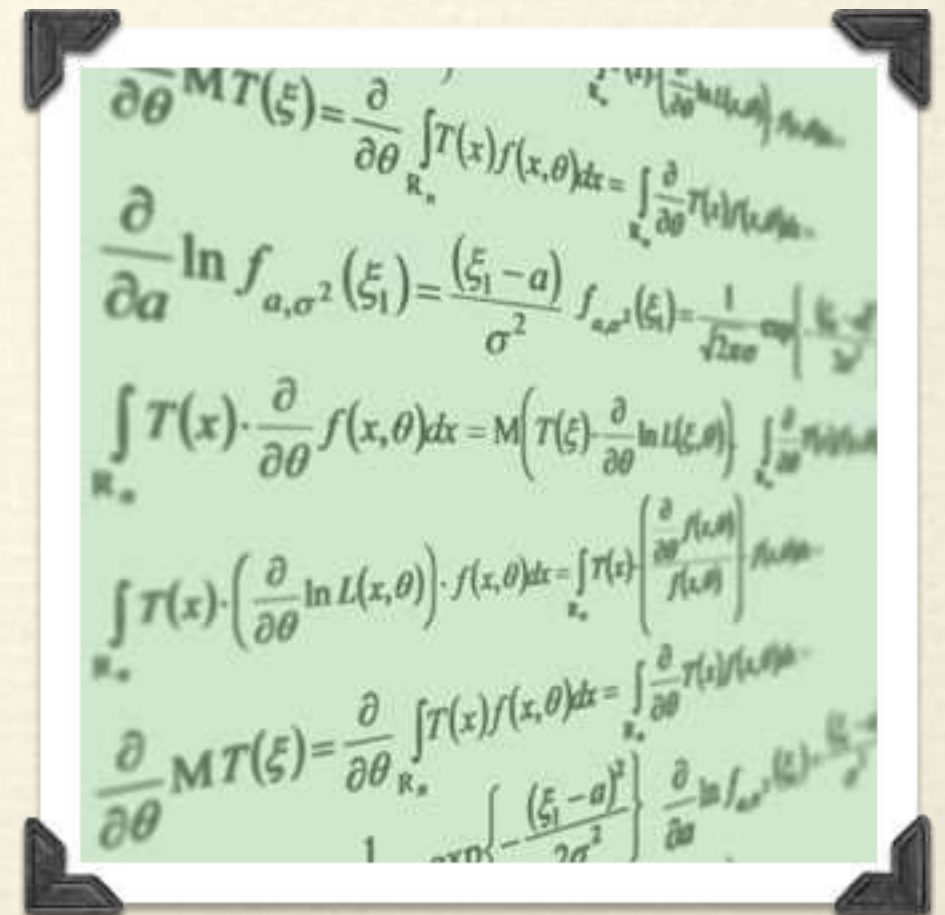




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# The Research Question

❖ A research question is not statistical analysis.





# The Research Question

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- ❖ A research question is not knowing the literature of your field.



# The Research Question

- ❖ Data, analysis, and literature are all important things.
- ❖ But only so far as they support the **argument** you want to make.





# The Research Question

❖ The **argument** is the answer you will promote for the **research question**.



# The Research Question

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- ❖ The research question comes before the argument, before the data, and before analysis.
- ❖ For example:



# Dinosaurs!

❖ For decades, there was lively debate about what killed the dinosaurs.



# Dinosaurs!

- ❖ Some argued that cold blooded dinosaurs couldn't compete with warm blooded mammals.





# Dinosaurs!

- ❖ Others argued that a gradual release of gasses from the Deccan traps polluted the atmosphere.





# Dinosaurs!

- ❖ Others argued that a Maastrichtian sea level regression destroyed many habitable areas.





# Dinosaurs!

❖ But there was a thin black layer of sediment that appeared world-wide, known as the K-T boundary.



# Dinosaurs!

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- ❖ The K-T boundary, by itself, doesn't do anything without an argument.





# Dinosaurs!

- ❖ A specific type of element, iridium, was found in high concentrations in this layer.
- ❖ Iridium is commonly found on asteroids.



[illegible]

Each blue dot below represents a cenote such as the one to the left.



The map displays the Yucatán Peninsula with a dense distribution of blue dots representing cenotes. A red dot indicates the location of the study area, which is labeled 'CHICHILUB'. An inset map in the bottom left corner shows the location of the study area within the state of Yucatán, Mexico.



# Dinosaurs

❖ Then a better **argument** came into play that combined these types of analysis.



# Dinosaurs!

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- ❖ Break down the research question “What killed the dinosaurs?”
  - ❖ Time - is it an event or a process?
  - ❖ Why just the dinosaurs?



# The Research Question

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- ❖ By breaking down the implications and assumptions of your research question, you can better understand it's most significant parts.

# Dinosaurs!

- ❖ So the research question “what killed the dinosaurs” is answered by the argument “an asteroid!” with data collected from the Yucatan peninsula and from the K-T boundary.





# The Research Question

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- ❖ A good argument should ask more questions than it answers. For example:

# Dinosaurs!

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- ❖ “Why didn’t dinosaurs evolve after the asteroid?”
- ❖ “Why did mammals survive?”
- ❖ “Why did crocodiles and turtles survive?”
- ❖ “Birds descended from dinosaurs, why were they different?”



# The Research Question

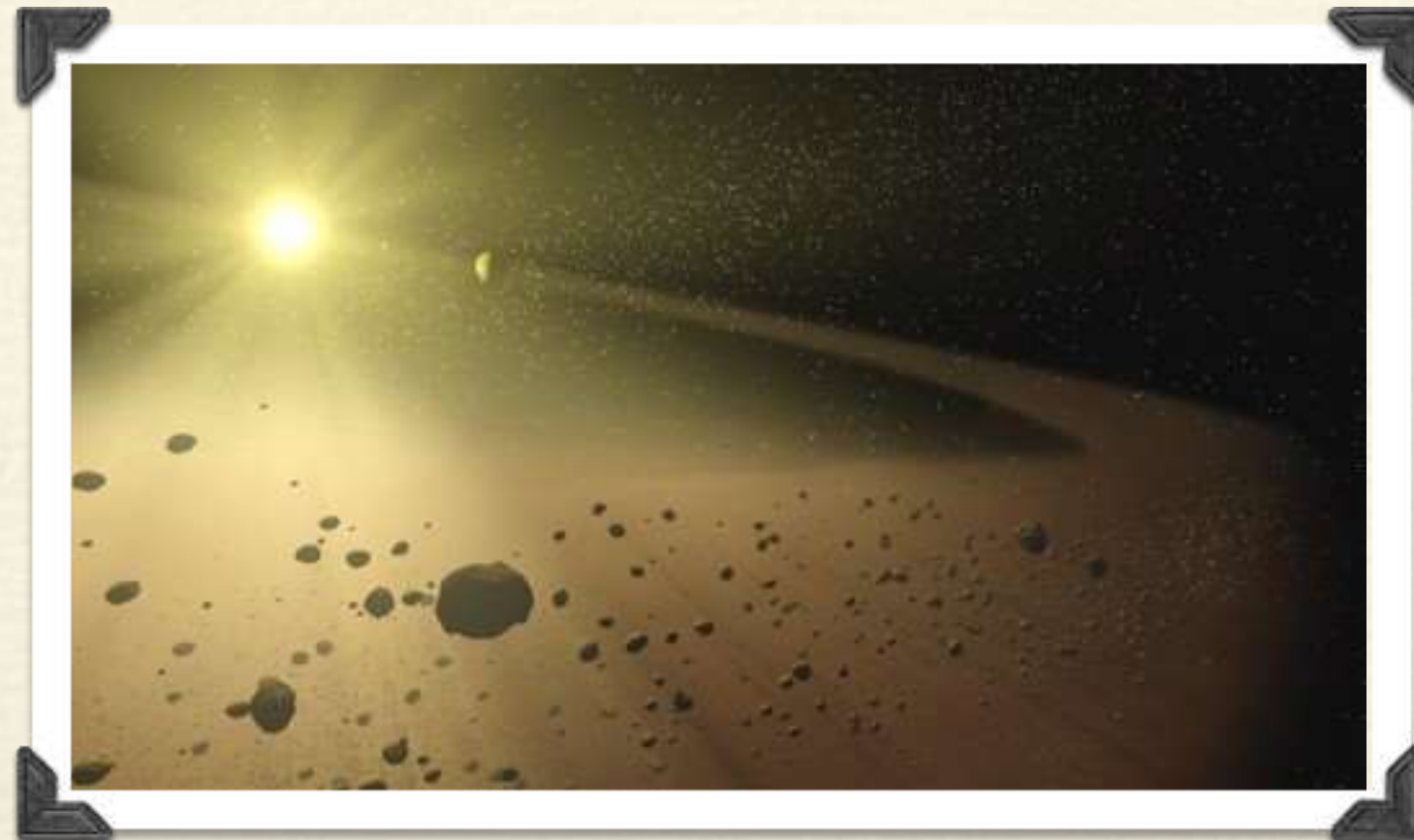
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- ❖ In other words, the research question should pass the “**so what?**” test without the need for elaboration.

# The Research Question

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- ❖ A key element, and a word that should be used: is the question **compelling**?





# The Research Question

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❖ What about your question is compelling?  
What makes it interesting?



# The Research Question

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❖ Parts of a #winning research question:

❖ Does it address outstanding theoretical issues in your field?

❖ Does it have significance?

❖ Can it be solved?



# The Research Question

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❖ To get at these broader issues, you need to do these things:

# The Research Question

- ❖ Survey the top papers in your field
  - ❖ First, look at the 20 most cited papers
  - ❖ Then, look at the 20 most recent papers





# The Research Question

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- ❖ After reading the literature in your field, ask yourself:
  - ❖ Is there an aspect to your subject of interest that hasn't been explored yet?
  - ❖ Is there something in your data that could address multiple questions?

# The Research Question

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## ❖ Significance

❖ Why does your research matter?

❖ Who does it matter to? (**audience**)



# The Research Question

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- ❖ Can it be solved?
- ❖ Can you address the research question?
- ❖ What kind of data do you need to gather?
- ❖ What kind of analysis do you need?

# The Research Question

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## ❖ IMPORTANT

❖ Can you frame your research question in a way that you can test **before** you have data?





# The Research Question

Research  
Question

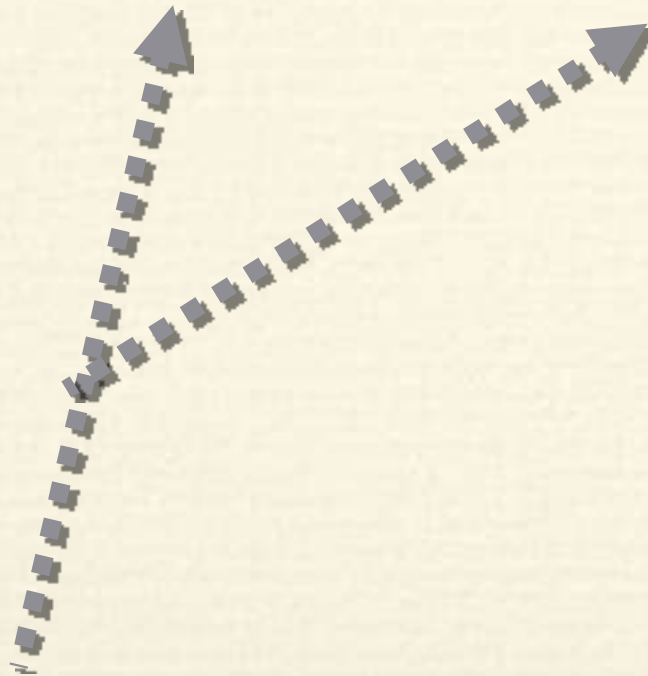
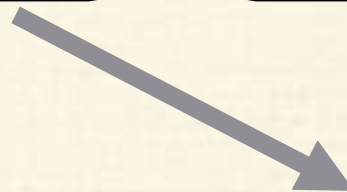
$H_1$ : There is a  
Relationship

$H_0$ : It's Random

Data  
Collection

Data  
Analysis

Validation  
n



# Important Points

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- ❖ Is your question too broad? Too narrow?
  - ❖ A question that is too broad will not be answerable.
  - ❖ A question that is too narrow will not be compelling or generalizable.



# Important Points

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- ❖ Can the topic be researched?
- ❖ Can your research question be answered by you? Otherwise it will be very hard to form an argument.



# Important Points

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❖ Is the question timely?

❖ Is your question implied in current literature? Does it engage contemporary researchers in your field?





# Important Points

❖ Is the research question reasonable?

❖ Does your research question have a clear answer? Can you be the one to answer it?

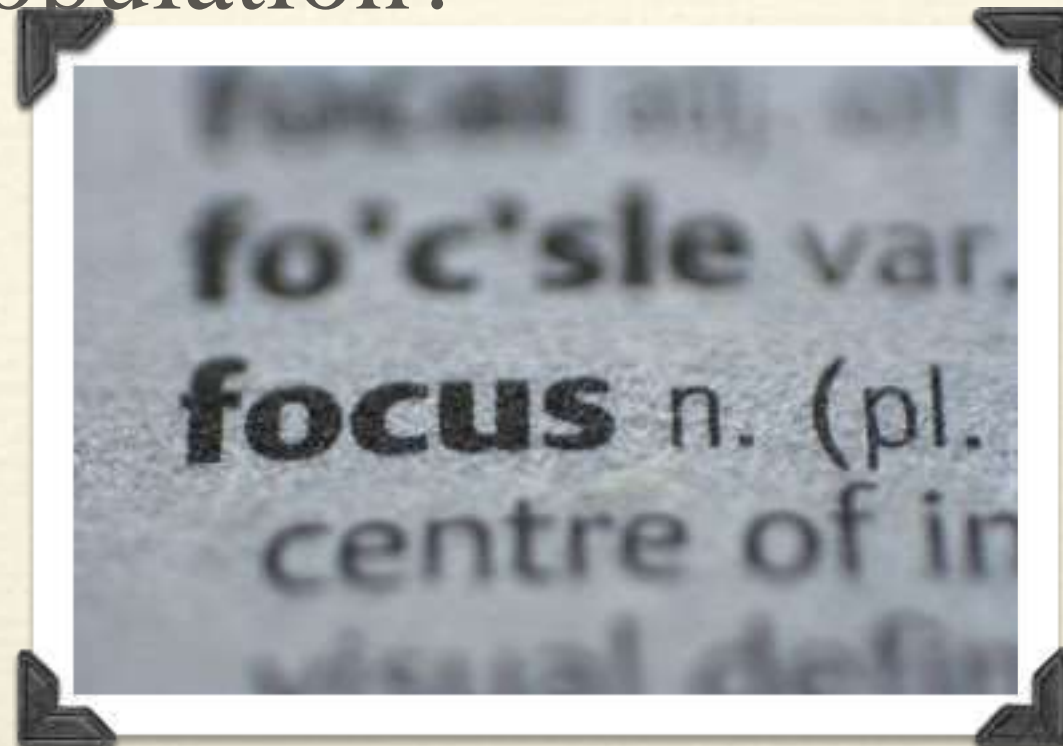


# Too Broad?

❖ Let's try to narrow it.

❖ Can you focus on a specific region?

❖ Can you focus on a specific population?





# Too Narrow?

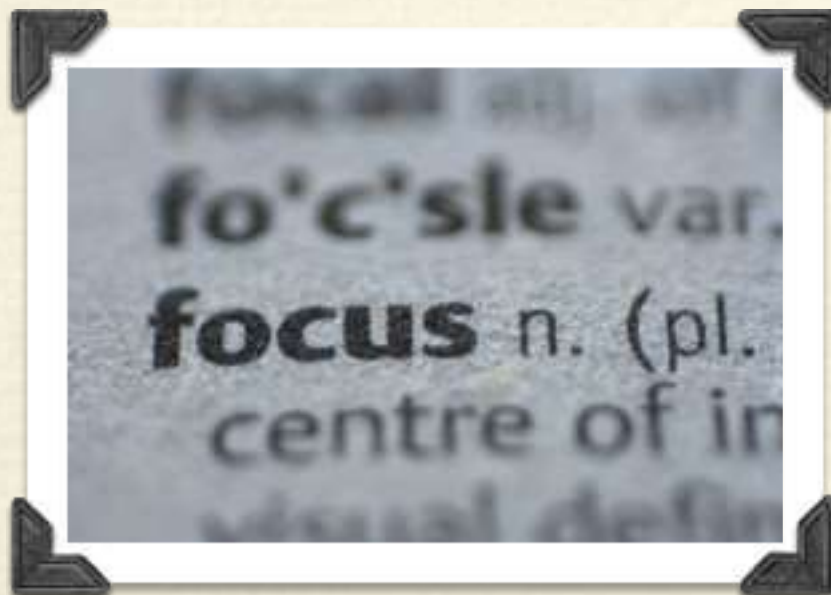
❖ Let's broaden it.

❖ Are their implications to your study that extend past the sample you are looking at?



# The Research Question

- ❖ Good research questions strike a balance between broad implications that are attractive to general audiences, and specific studies that build confidence and significance by using a manageable population.





# The Research Question

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❖ In other words...

❖ A good researcher thinks globally,  
acts locally.

