



Research Methods in Science in Engineering

Choosing a Research Topic

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1

Do Not Pick a Topic at the Beginning



If you can at all avoid it, do not pick a research topic right away.

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2

Read...a lot


Pick a different subject every few days and read everything you can about it.



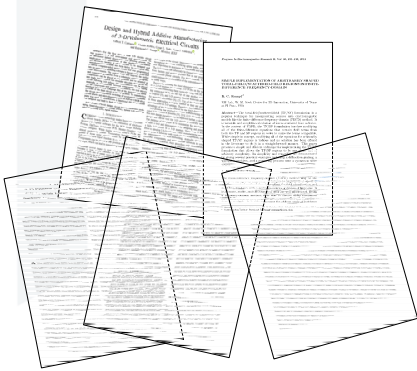
Textbooks




Websites



MS theses and
PhD dissertations



Journal Articles




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3

Best Resources When New to a Subject


Look first at textbooks, theses, dissertations, and the internet.



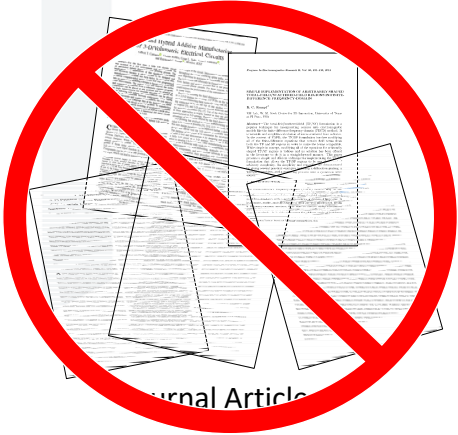
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4

Only Read the Good Stuff

Observe what subjects interest you the most. Dig deeper into those subjects and keep reading those.



Stop reading the stuff you do not like.



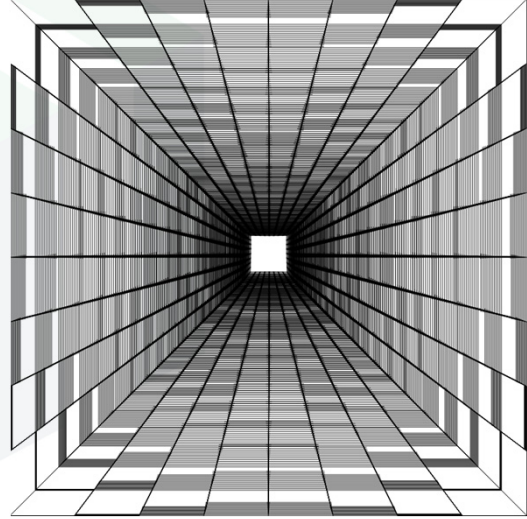
Read more of the things you like.

Keep Reading



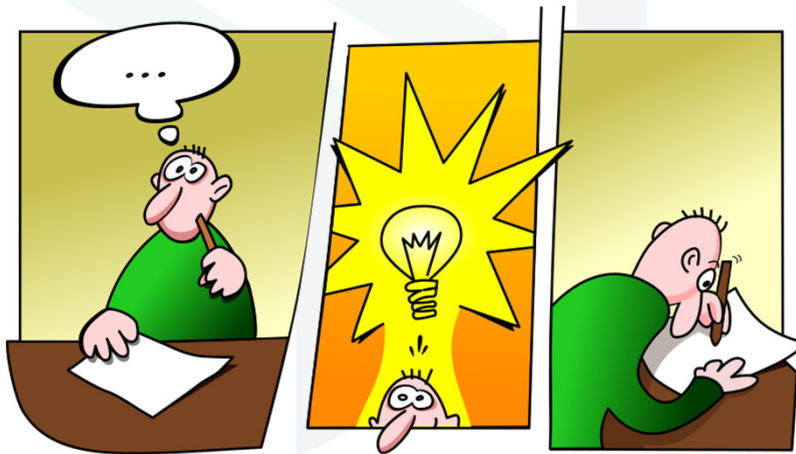
Nearing the End

At some point, it will become difficult to find new information. You will be left with curiosities and unanswered questions you cannot find answers to.



The Beginnings of a Research Topic

Let the curiosities and unanswered questions be the seeds of your eventual research topic.



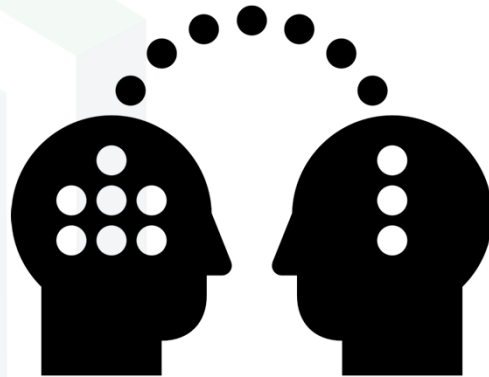
The Ideal Research Topic

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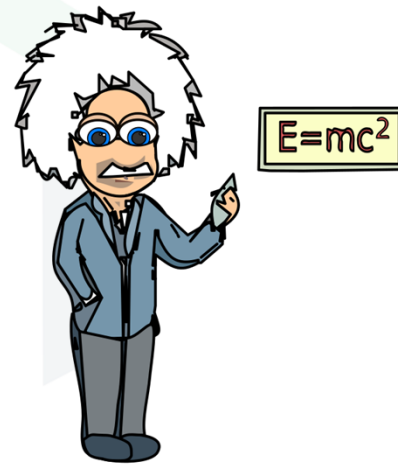
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- Is a significant topic with lots of interest from others.
- Your university and advisor have all the resources you need to do research in that area.



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- Is an emerging area with excellent potential for your future career.
- Is a significant topic with lots of interest from others.
- Your university and advisor have all the resources you need to do research in that area.
- Your university or advisor has a strong reputation in your topic area.




DANGER

Be Careful...

Be cautious about interpreting any of the following as signs of being a good subject.

- Mature subject area.



You will have much more to learn before you are able to contribute new knowledge.

EMPossible

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DANGER

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- Mature subject area.
- Lots of learning materials.

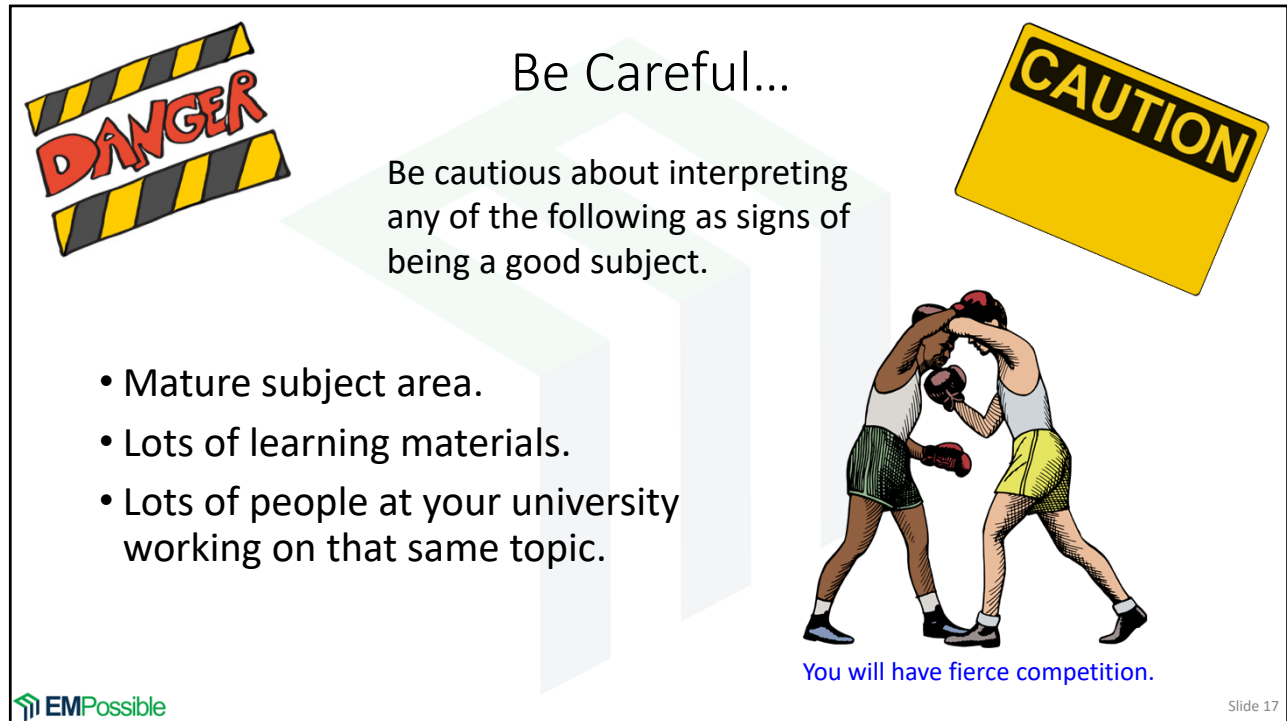


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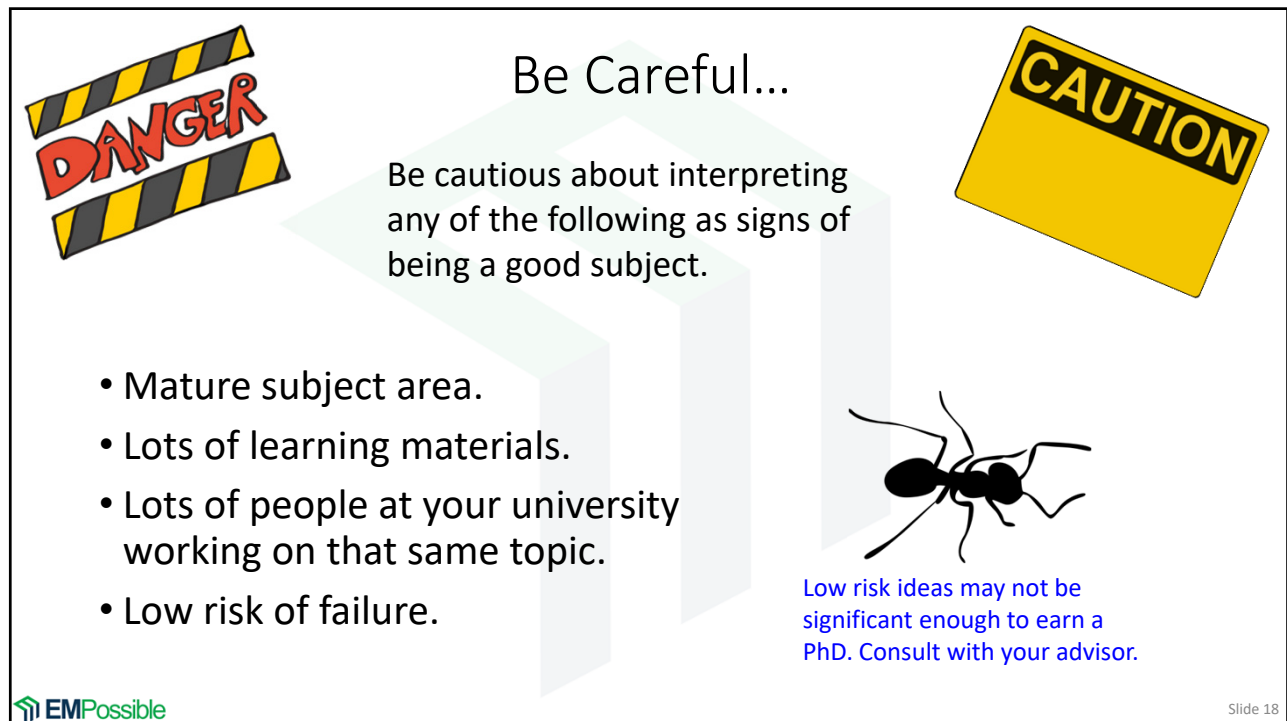
- Mature subject area.
- Lots of learning materials.
- Lots of people at your university working on that same topic.

You will have fierce competition.

EMPossible

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Be Careful...

Be cautious about interpreting any of the following as signs of being a good subject.

- Mature subject area.
- Lots of learning materials.
- Lots of people at your university working on that same topic.
- Low risk of failure.

Low risk ideas may not be significant enough to earn a PhD. Consult with your advisor.

EMPossible

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