

Research skills

ACE - Grow Your Skills



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Research skills

Skills to conduct (scientific) research according to the empirical cycle.

Description


When you do research, you go through six steps:

- 1. Wondering:** In this phase you look at the world around you with a curious eye. You ask curious questions about everything, including other perspectives. You wonder about your own environment, but also about abstract subjects. You choose a subject about which you wonder and want to know more.
- 2. Exploring:** In this phase, you explore what research has already been done that relates to your chosen topic. You read and review many sources and write down the information in an organized manner. When you use the information from those sources, you do so according to an appropriate source reference. You ask questions about what has not yet been researched. Finally, you formulate a research question that forms the starting point of your own research.
- 3. Setting up research:** In this phase, you create a research plan where you describe what you will research and exactly how you will do it. You determine any test subjects, materials needed and testing space. You think about how to conduct reliable and valid research.
- 4. Conducting research:** In this phase, you conduct the research as you have devised in your research plan. You systematically collect the results and record the results accurately. Then you analyze the results thoroughly.
- 5. Concluding:** In this phase, you summarize the results and draw conclusions. Where possible, you link the information to the existing literature. Next, you are critical: You determine the shortcomings of your research and you give an opinion on the reliability and validity of your research.
- 6. Presenting:** In this phase, you share the results and conclusions of your research with others so they can learn from it and/or do follow-up research. You determine the target audience, the purpose of the presentation and the best form of presentation to reach the audience (PowerPoint presentation, article, video, et cetera). Finally, as a result of your research, you formulate questions that invite new research.

Doing research is important to answer a question. Only with systematic research following a step-by-step plan will you get a well-founded answer. Doing research often also creates efficiency. Through research, you can figure out the best, cheapest or fastest way to achieve a result.



Watch this video



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Assignment 1 *Research starts with curiosity*

Spark your curiosity.

Step 1: Look at the world around you. When you're on the go, when you watch TV or when you're on social media. What do you see? Do you know how everything works? Do you know where it comes from? What is actually very normal to you, but when you think about it, is very bizarre?

Step 2: Write down all curious questions that came to mind last week.

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Step 3: Add to your curious questions from above with the **6W+H formula**. The 6W from the formula stands for: **Who**, **What**, **Which**, **Where**, **When** and **Why**. H stands for: How. Using each interrogative pronoun above, formulate three curious questions for each question you wrote down in Step 2.

Tip: This methodology also helps to make your research question more specific.

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Tips

- Conducting research is a big project. Try to break it down into small steps to make it manageable. To do this, check out: www.eur.nl/media/2021-09-34279posterstappenplan2
- Study the structure of good sample papers online.
- Utilize resources developed by universities. For example:
 - www.profielwerkstuk.nl
 - www.eur.nl/pws
 - www.tilburguniversity.edu/nl/onderwijs/bacheloropleidingen/studiekeuze/profielwerkstuk
 - Tutorials.library.maastrichtuniversity.nl/Profielwerkstuk/



Assignment 2 *Think beyond the obvious*

Learn to think critically in the profile project.

You are working on your profile paper. Be sure to take time at various steps in the process to think critically using the assignments below.

- 1. Inspect everything:** Inspect all information for accuracy. Verify that the (source of the) information is reliable. Pass judgment on the quality of the sources.
- 2. Think beyond the obvious:** Constantly check that everything you see, hear or read from others is correct. Be careful in your statements, check your own statements for accuracy and also know how to refute yourself. Think carefully about "what if...".
- 3. Find evidence and counter-evidence:** Support your own findings with evidence while naming counter-evidence. Check findings of others by looking for evidence and counter-evidence in other sources.



Assignment 3 *Look for connections*

Look for cause-and-effect relationships and coherence.

Find connections in the sources you read and in the research you conduct yourself. See how the data are related. Look for appropriate explanations.

- 1. Find connections** between data. Discover how things affect each other.
- Use **models** (e.g., diagrams, graphs, and tables) to visualize coherence.
- 3. Argue** why a particular connection exists or is lacking.
- Carefully **explain** connections and relationships. Use appropriate reasoning. Whenever possible, use different explanations for the effects you discover. Also argue why coherence may be lacking.

Literature

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