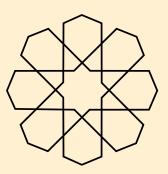
Scientific Method for Wikimedians

Defining Research Question



Michel BAKNI

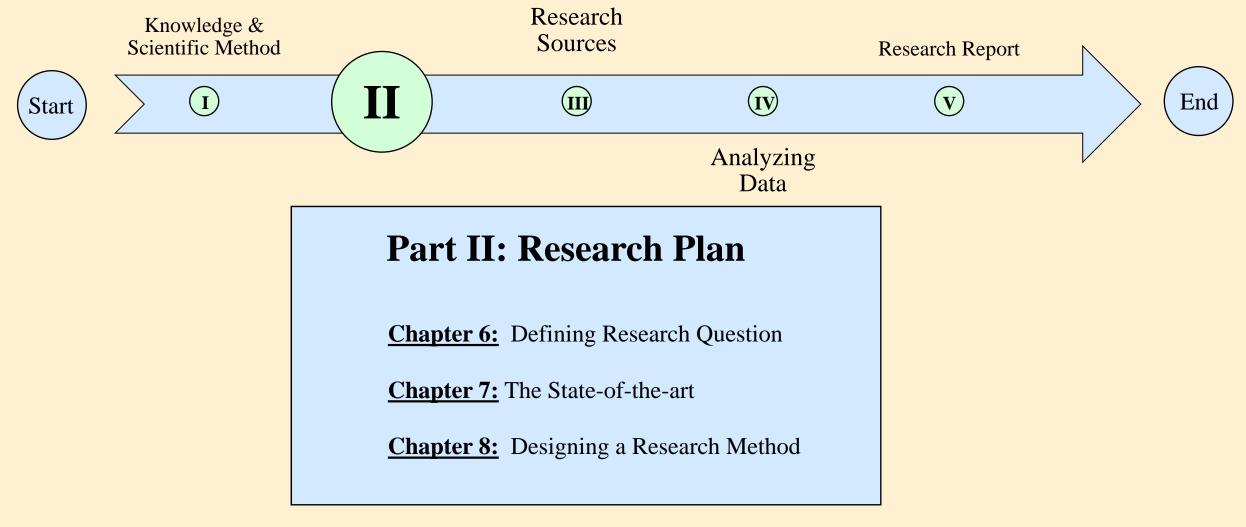
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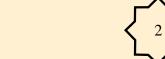














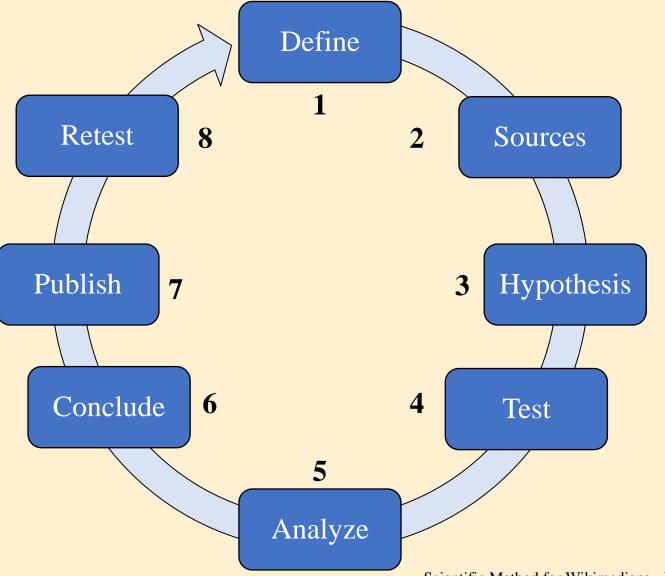
***** Reminder: Scientific method & research question

 \checkmark

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- ***** Structure of the research question
- ***** Title constructing
- ***** Motivations & objectives
- ***** Problem definition
 - Context
 - Syntax (Questions, description & hypotheses)
- ***** Notes of defining research question

I Reminder: The scientific method

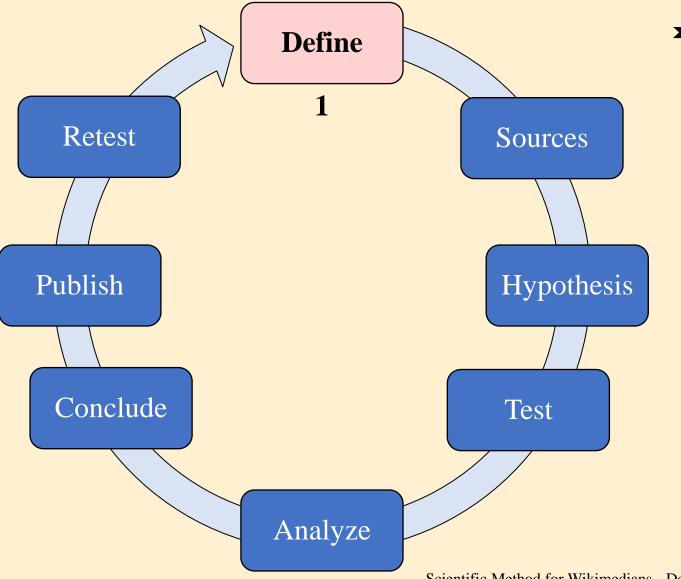


- 1. Define problem
- 2. State-of-the-art
- 3. Form hypothesis
- 4. Test hypothesis
- 5. Analyze data
- 6. Interpret data & draw conclusions
- 7. Publish results
- 8. Retest



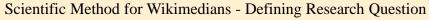
Scientific Method for Wikimedians - Defining Research Question

I Reminder: The scientific method



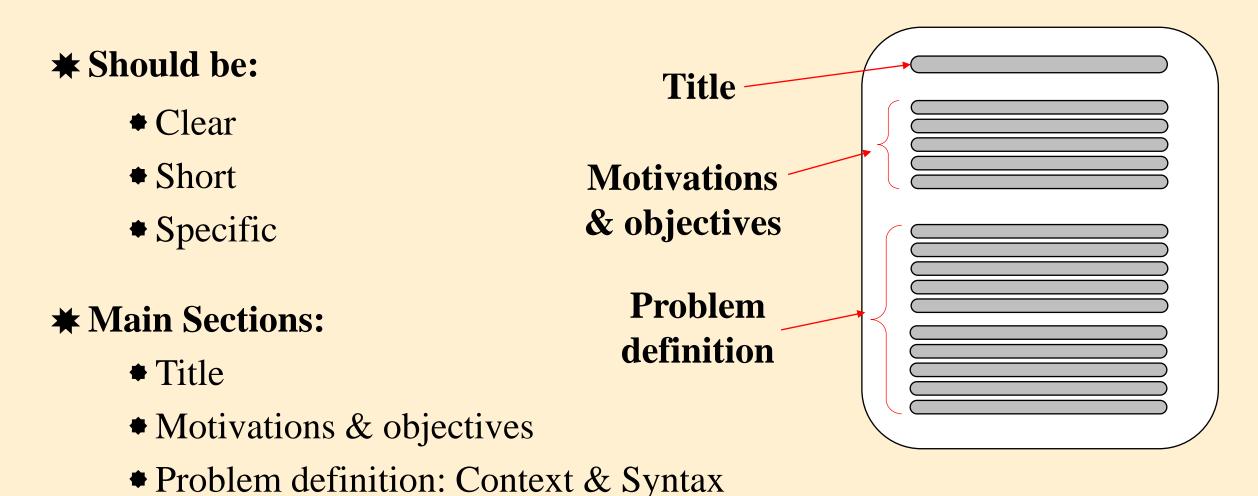
***** Define research problem

- Detailed & clear problem
- Must be based on others' work
- Hardest step & large impact
- Main topic: Gender gap in English Wikipedia













- ***** 1-2 lines of texts
- ***** Top of the question
- ***** Need to be:
 - Simple & Clear
 - Direct
 - Comprehensive
 - Reference to research method
 - Short

Gender Gap: Knowledge problem in English Wikipedia

Gender Gap: a Comparative Study on Knowledge problem in English Wikipedia





***** Motivations

- Personal reasons
- Your professors
- Yourself

***** Objectives

- Objective of your research
- Application of your Research
- Research position: current knowledge
- Time frame





- ***** Continues what title started
- ***** Based on other's work
- ***** Definition by context
 - Describe the background
 - Time & space frame
- ***** Definition by syntax
 - Using description
 - Using questions
 - Using hypotheses



v Problem definition: Definition by context

- ***** Different aspects
- * Not a must to use all together
- ***** Aspects:
 - Time
 - Space or place
 - Studied subject itself
 - Available sources



$\langle \hat{\mathbf{V}} \rangle$ Problem definition: Definition by syntax

- ***** 3 ways: questions, description & hypotheses
- ***** Conditions to keep in mind:
 - Essential idea
 - Based on other's work
 - Continuous of science
- ***** Gender Gap: Knowledge problem in English Wikipedia



V Problem definition: Definition by syntax

***** By description

The researcher will try to discover:

- Relationship between gender & amount of biography
- Types of gender gap
- Differences & similarity
- Properties of gender gap (women compared to men)

***** By questions

The researcher will try to answer:

- Is there a Relationship between gender & amount of biography?
- What are the Types of gender gap?
- What are the Differences & similarity?
- Are there Properties of gender gap (women compared to men)?



V Problem definition: Definition by context

- ***** Definition by Hypothesis
 - ***** A way to inductive research method
 - ***** Hardest way + solid knowledge
 - ***** Relationship: two variables or more
 - Causal: a => b
 - Direct proportion: $a \land b \land$
 - Inverse proportion: $a \land b \lor$
 - & Vice versa



V Problem definition: Definition by syntax

- ***** Definition by Hypothesis
 - *** Properties of hypothesis:**
 - Standalone & present
 - Clear options: no gray area
 - Close to reality: physical implementation
 - Predict future results
 - Simple & easy to understand
 - ***** Explain how & why
 - ***** One hypothesis or central hypothesis



V Problem definition: Definition by syntax

***** Definition by Hypothesis

1st Hypothesis

Month (yr)	# bio ♂	# bio ♀	# total
Jan (12)			
Feb (12)			
Mar (12)			
:	:	:	:
Jan (22)			

66The total number of men biographies is directly
proportional to the total number of women
biographies as the size of English Wikipedia
grows between Jan 2012 and Jan 2022 on a
monthly basis.

2^{ed} Hypothesis

Month (yr)	# bio ♂	# bio ♀
Up to 18		
18 - 40		
40-60		
+60		
Dead		

The gender gap in the number of biographies in English Wikipedia is a function of people's age. \Im



VI Notes of defining research question

*****Not a question Title *****3 main parts **Motivations** & objectives ***** Definition by Context **Problem *** Definition by syntax definition Using description Using questions Using hypotheses



<u>Course Title:</u> Scientific Method for Wikimedians

<u>Video Title:</u> Defining Research Question

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