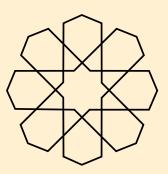
Scientific Method for Wikimedians

Defining Research Question



Michel BAKNI

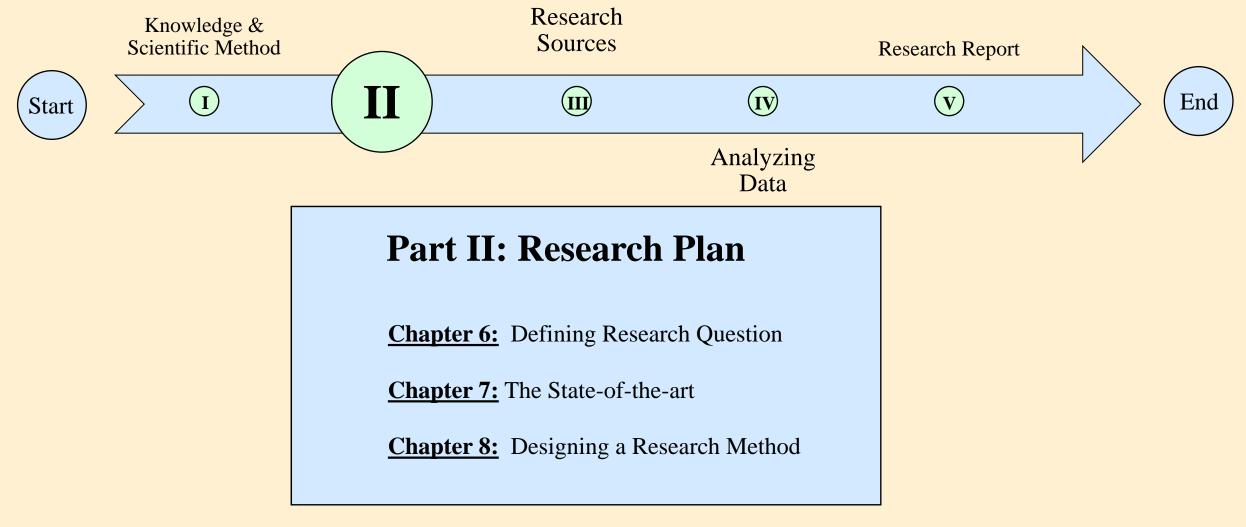
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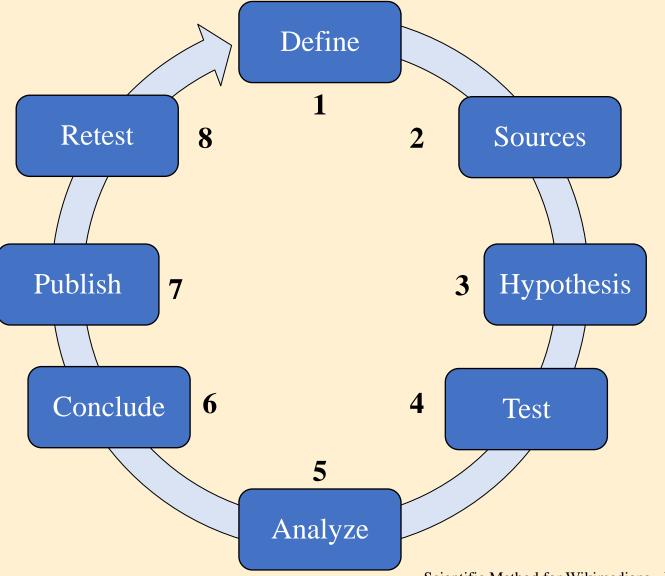
***** Reminder: Scientific method & research question

 \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

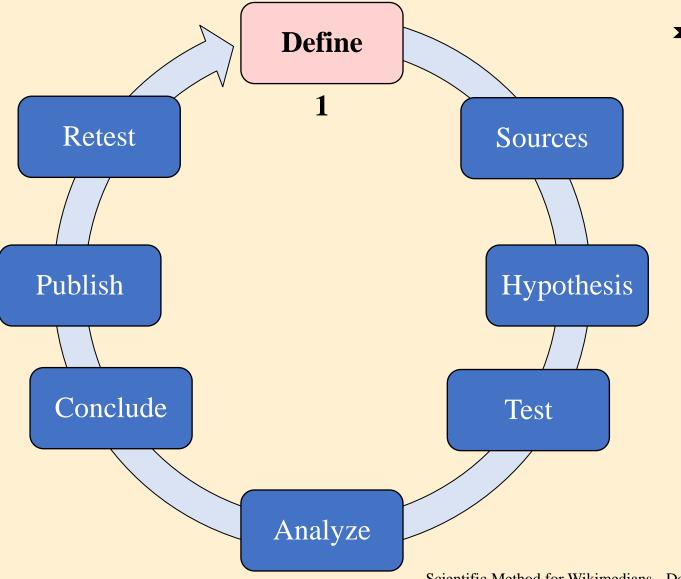


- 1. Define problem
- 2. State-of-the-art
- 3. Form hypothesis
- 4. Test hypothesis
- 5. Analyze data
- 6. Interpret data & draw conclusions
- 7. Publish results
- 8. Retest



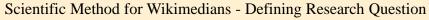
Scientific Method for Wikimedians - Defining Research Question

I Reminder: The scientific method



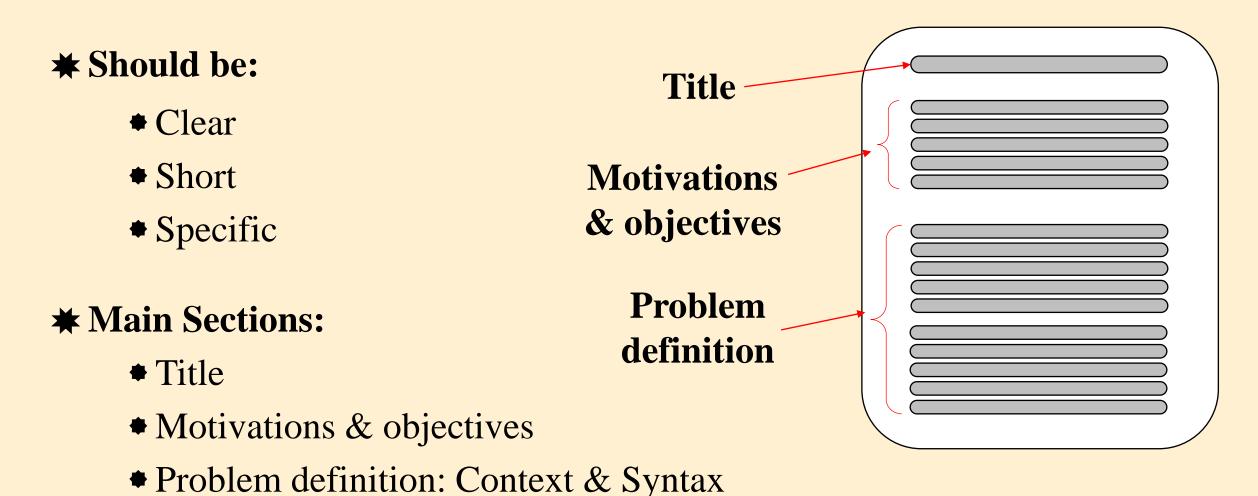
***** Define research problem

- 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

Course Creator: Michel BAKNI

Film Editing : Sandra HANBO

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