



Research Question Workshop

Praxis der Forschung

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Goal of scientific research



Goal of scientific research



Gain of knowledge

Topic  Research Question

No research goal without a
research question!

Preparatory Work: State of the Art

So far: Answers to ...

- **What** has already been researched on a topic?
- **How** was it made known and by **whom**?
- Where has no research been carried out so far? (or as well ...)
- Where do the existing findings not yet build on each other seamlessly?



Research gap / desideratum identified!

Nine Structuring Questions (1/2)

1. Which topic area is it about?
2. Why is it relevant to address this topic area?
3. Which insights has the research within this topic area gained?
4. How were the existing results obtained?
5. Which questions have remained unanswered or unaddressed so far?

Nine Structuring Questions (2/2)

6. Which of these open questions is the subject of this study?
7. How will the new findings be obtained?
8. What or which new findings shall be gained?
9. How are the new findings to be assessed or compared in relation to the already existing findings?

A suitable research question ...

- narrows down the topic area,
- takes into account the current state of research,
- can be answered with reasonable effort,
- can be answered using the available sources and the literature obtained,
- has not been answered by anybody else in this way,
- is clearly and precisely formulated, unambiguous and not contradictory,
- does not contain any unclear terms,
- is differentiated.

Base Types of a Research Question

Question Type	Leading Question	Example
Description	What is the case? (“reality”)	How has student mobility changed since Bologna?
Explanation	Why is something the case?	Why has student mobility (not) changed in a certain way since Bologna?
Prediction	What is the future development?	How will student mobility change in the future?
Design	Which measures lead to the goal?	How can student mobility be promoted?
Critique/Valuation	How is a certain condition to be assessed?	How can the measures for student mobility be assessed in terms of equal opportunities?

Elements of a Research Question

- **Object of Investigation:**

Who or what shall be examined?

- **Investigation Method and Research Design:**

How shall it be examined?

- **Result:**

What shall be determined?

First Example: Archimedes

King Hieron II. of Syracuse wanted to know, whether his crown was made of pure gold. He commissioned Archimedes to check the gold content, however without damaging the crown. When Archimedes lay in a full tub and saw how his body displaced the water, he had found the solution. He realized that the amount of water that had overflowed corresponded to the volume of his body. This observation helped him to determine the gold content of the crown. He immersed the crown in water and measured the displaced volume. In combination with the weight, he was thus able to deduce the material of the crown. According to the tradition, he then ran naked through the streets of Syracuse shouting “Heureka” (“I have found it”) (Engelen et al., 2010, p. 206).

First Example: Archimedes

■ Free Research Question:

Is the crown made of pure gold?

■ Structured Research Question:

Can the material of the king's crown be determined by measuring the volume through displacement? By comparing the displaced volume of the crown with that of pure gold, it is possible to deduce the density of the material when the weight is known and thus answer whether the crown is made of pure gold.

First Example: Archimedes

Object of Investigation	Material of the king's crown
Investigation / Method	Volume measurement by displacement
Result	Density of the material of the crown, Density of pure gold
Research Design	Comparison

Second Example: Endurance Training

■ Free Research Question:

Does endurance training influence the cognitive performance of young adults?

■ Structured Research Question:

In **young adults** (age range 18–30 years) who are healthy and have no functional or cognitive impairments, does **endurance training** (twice a week over a period of 12 weeks using the *Duration Method*) have an influence on **cognitive performance** (here the number of errors in working memory performance recorded with the test battery for recording attention performance)?

For this purpose, a **randomized, controlled intervention study** is conducted in which the participants are randomly assigned to the training group or the control group (receiving no interventions) and the effect of the intervention on cognitive performance is determined.

Second Example: Endurance Training

Object of Investigation	Young adults (age range 18–30 years) who are healthy and have no functional or cognitive impairments
Investigation / Method	Endurance training (twice a week over a period of 12 weeks using the <i>Duration Method</i>)
Result	Cognitive performance (here the number of errors in working memory performance recorded with the test battery for recording attention performance)
Research Design	Randomized, controlled intervention study in which participants are randomly assigned to the training group or the control group (receiving no intervention) and the effect of the intervention on cognitive performance is determined

Exercise: And now it is your turn!

- 1) Formulate your research topic
- 2) Formulate your free research question
- 3) Formulate your structured research question
- 4) Individually present your research question to the group via flipchart sheets

Bibliography

- [1] Axel Bänsch and Dorothea Alewell, eds. *Wissenschaftliches Arbeiten*. 10. Auflage. München: De Gruyter Oldenbourg, 2009. DOI: 10.1515/9783110692013.
- [2] Doris Berger-Grabner, ed. *Wissenschaftliches Arbeiten in den Wirtschafts- und Sozialwissenschaften: Hilfreiche Tipps und praktische Beispiele*. 2. Auflage. Wiesbaden: Springer Gabler, 2013. DOI: 10.1007/978-3-658-13078-7.
- [3] Eva-Maria Engelen, Christian Fleischhack, C. Giovanni Galizia, and Katharina Landfester, eds. *Heureka – Evidenzkriterien in den Wissenschaften: Ein Kompendium für den interdisziplinären Gerauch*. Heidelberg: Spektrum Akademischer Verlag, 2010. DOI: 10.1007/978-3-8274-2657-4.
- [4] Bernd Heesen, ed. *Wissenschaftliches Arbeiten: Methodenwissen für das Bachelor-, Master- und Promotionsstudium*. 3. Auflage. Berlin: Springer Gabler, 2010. DOI: 10.1007/978-3-662-62548-4.