



Scientific Method in Quality Assurance: Gateway to Transparency or Threat to Data Protection?

Pegi Pavletić, Ph.D.
University of Rijeka, Croatia

Agenda



1. Scientific method
 2. Scientific method & QA
 3. Practical task 1
 4. Practical task 2
-

Scientific method



Scientific method

Scientific method includes several logical steps:



1. Asking a question;
 2. Performing background research;
 3. Forming a hypothesis;
 4. Conducting experiments to test hypothesis;
 5. Analysing data and drawing conclusions;
 6. Communicating the results.
-

Scientific method

Findings that are communicated often aim to align with the 3 Rs of research:



1. **Reproducibility:** obtaining consistent results using the same research procedures/approaches.
2. **Repeatability:** obtaining consistent results across studies aimed at answering the same scientific question.
3. **Robustness of data:** obtaining consistent and reliable results in cases of small deviations from the initial assumption, or in the presence of errors and outliers in the data.

(the definitions can vary across different study disciplines)

Scientific method

The importance of applying the scientific method lies in understanding the benefits of its application:



- **Objectivity:** removal of personal bias.
 - **Systematic approach:** structured and logical approach to research and forming conclusions.
 - **Reliability of obtained outputs.**
 - **Flexibility across disciplines.**
 - **Fostering innovation and scientific advancement.**
-

Scientific writing

Scientific writing is not writing about science, rather a technical type of writing to communicate research results.



Scientific writing is based on scientific rigor and it reflects the same precision that the research method applies.

Main purpose of scientific writing: recording data (observations and findings).

Clear scientific writing: contains defined subsections within a written research.

Scientific writing

Scientific writing is often based on several aspects:



1. **Tone of the written research:** formal, often in plural.
 2. **Objectivity:** personal reflections and opinions are mostly excluded, depending on the type of a written research.
 3. **Conciseness:** The text should be as concise as possible, without repeating previously drawn findings.
 4. **Clarity:** the information contained in the research should not be unclear, confusing or open to interpretation.
-

Scientific writing and academic integrity

Scientific writing and academic integrity are intertwined due to similarities:

- Both are founded on **honesty and accuracy** of the reporting process;
- Both require **proper attribution and avoiding plagiarism** (including AI plagiarism);
- Both require **transparency and reproducibility** of research through clear descriptions of the methodology;
- Both strive to **improve objectivity** by limiting or removing personal bias;
- Both require **personal accountability and responsibility** for the written research.



A large light green circle is positioned on the left side of the slide. To its left, a smaller, semi-transparent green circle overlaps it. Further to the left, a portion of a laptop keyboard and a hand typing are visible, partially obscured by the green circles.

Scientific method & QA

What does scientific writing have to do with QA?

Identified overlaps



Scientific method

- ▶ Asking a question;
- ▶ Performing background research;
- ▶ Forming a hypothesis;

QA

- ▶ Main question is often whether the institution under the review complies with the standards generally.
 - ▶ Previous reports and SAR are pre-analysed.
 - ▶ Based on initial findings, questions for each standard are set and priorities are identified.
-

Identified overlaps



Scientific method

- ▶ Conducting experiments to test hypothesis;
- ▶ Analysing data and drawing conclusions;
- ▶ Communicating the results.

QA

- ▶ Conducting site-visit interviews to answer the questions.
 - ▶ Analysing site-visit and additional information and forming judgements on compliance.
 - ▶ Publishing the report.
-

Identified overlaps



Scientific writing

- ▶ **Tone:** **formal**, often in plural.
- ▶ **Objectivity:** personal reflections and opinions are **mostly excluded**.
- ▶ **Conciseness:** **limited repetition** of previously drawn findings.
- ▶ **Clarity:** the information **is not unclear**, confusing or open to interpretation.

QA

- ▶ **Tone:** **formal**, often in plural.
 - ▶ **Objectivity:** opinions are mostly **included**.
 - ▶ **Conciseness:** **some repetition** of previously drawn findings or descriptions in the report.
 - ▶ **Clarity:** the information is **most often not unclear**, confusing or open to interpretation.
-

Identified overlaps



Academic integrity

- ▶ Honesty and accuracy.
- ▶ Proper attribution and avoiding plagiarism.
- ▶ Transparency and reproducibility of research.

QA

- ▶ Reviewers adhere to policies and principles of honesty.
 - ▶ Reviewers acknowledge the sources of evidence. Reports are not usually checked for plagiarism but there are usually not such concerns present.
 - ▶ Reviewers support their findings by collected evidence and present their analysis of the evidence.
-

Identified overlaps



Academic integrity

- ▶ Removing personal bias.
- ▶ Personal accountability and responsibility for the written research.

QA

- ▶ Usually personal bias is removed by accepting the Col policies, through trainings and checking the report for such instances.
 - ▶ Usually the review panel or the organization is responsible for the report produced.
-

Identified overlaps



Academic integrity

- ▶ Removing personal bias.
- ▶ Personal accountability and responsibility for the written research.

QA

- ▶ Usually personal bias is removed by accepting the Col policies, through trainings and checking the report for such instances.
 - ▶ Usually the review panel or the organization is responsible for the report produced.
-

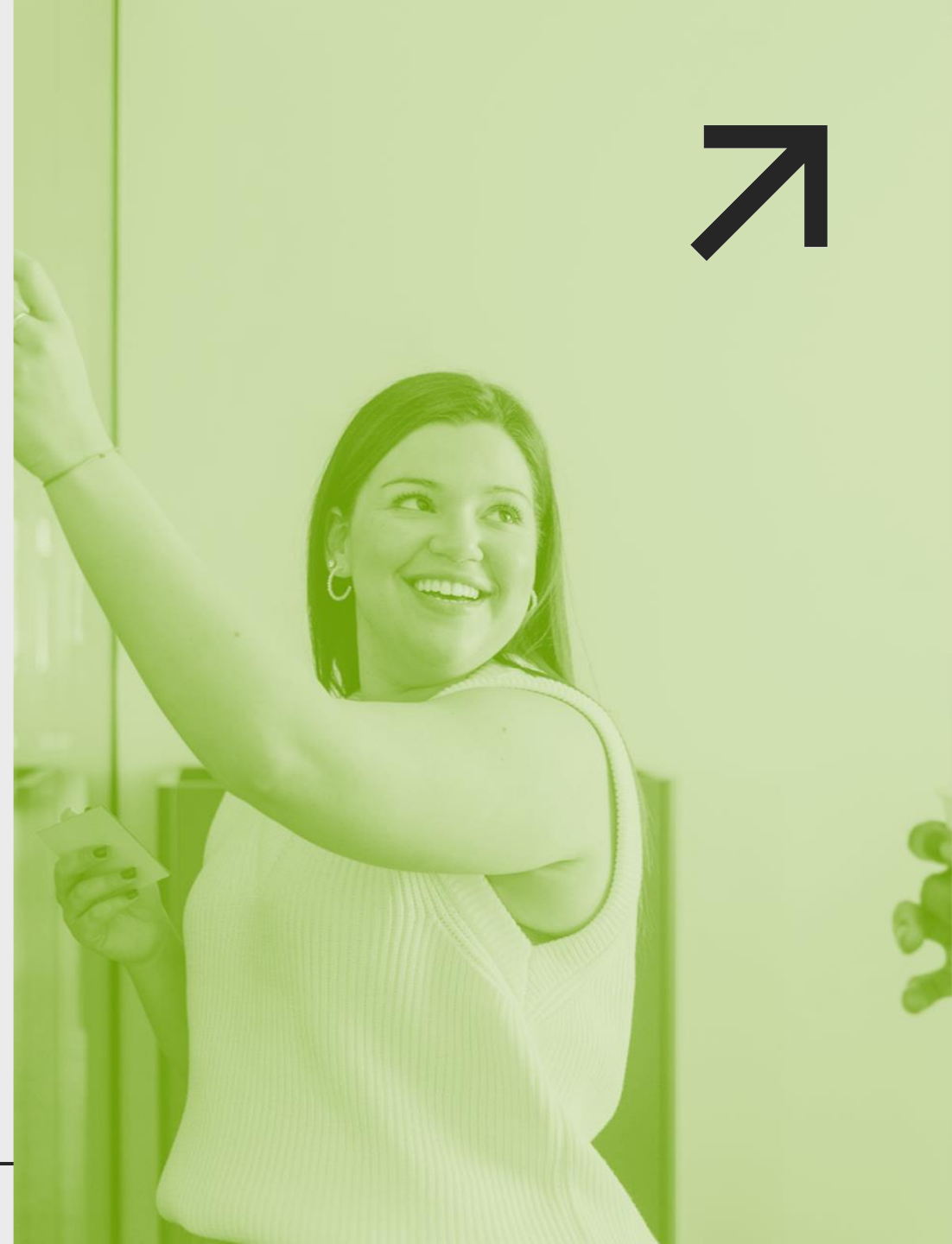
Initial perspective



- ▶ QA does not define the methodology applied to the evaluation process, but many parallels can be drawn to the scientific method.
 - ▶ Through ESG, QA is defined by standards applicable to multiple levels of QA work, and relevant stakeholders (like HEIs', students' and labour market representatives) are engaged.
 - ▶ QA is less formal: the panels are allowed to give their perspective on compliance, voice their understanding on certain aspects (etc.) and that perspective counts toward the final judgement.
 - ▶ Information contained in the reports does not have to be always supported by evidence in the report itself (eg. if the institution has a policy in place that is not public, and it cannot be shared within the report).
-

Practical tasks

- ▶ **Practical task 1** (15 min)
 - ▶ **Debriefing** (10 min)
 - ▶ **Practical task 2** (30 min)
 - ▶ **Final debriefing** (10 min)
-



Practical task 1

(15 min)

- Divide into smaller groups (3-5 participants).
- Discuss the following questions:
 1. *How would applying a scientific method change QA practice, reporting, or stakeholder engagement in your institution/organisation?*
 2. *Are there any ethical dilemmas present in QA that the scientific method could mitigate? (e.g. use of personal data, staff/student performance metrics, demographic data)*
- Share your group's perspectives (2-3 min).



Practical task 2

(30 min)

- Read the case shared with you and discuss your perspectives.
- Fill-in the tables and identify high-risk areas for the use of personal data in QA.
- Identify strategies to mitigate the concerns related to the QA process in question.
- Share your group's perspectives (3 min).



Thank you



uniri

EQAF
European Quality Assurance Forum

Pegi Pavletić | pegi.pavletic@uniri.hr
