

ACADEMIC SKILLS: HOW TO WRITE A RESEARCH REPORT? HOW TO GIVE AN ORAL PRESENTATION?

Recent Topics in Knowledge Graphs

Philipp Hanisch

TU Dresden, Knowledge-Based Systems Group

10th July 2025

EXAMINATION

Examination

Participants will analyse a selected paper in the field of Knowledge Graphs and present their results in a written report and an oral presentation, which

- demonstrate an understanding of the selected paper,
- provide an overview of the selected paper, including, e.g., research question and proposed solution, positioning in the research field, or weak/strong points,
- feature in-depth explanations of (parts of) the paper, and
- demonstrate the students' ability to give an oral presentation and write a report.

Presentations will take place 17th July, 14:50, APB 3027 and must not exceed 15 minutes.

Written reports (about 5 pages) are to be submitted as pdf via philipp.hanisch1@tu-dresden.de by 7th August.

WRITING

Objectives

Remember why you write:

- **Inform readers** (research guided tour for your former self)
- Paper: **convince** reviewers of the **worthiness of your results**
→ relevance, significance, originality, correctness, readability
- Thesis: **convince** examiners of your **competence**
→ expertise (in topic area), competent use of methods, professional skills

Keep this in mind while writing!

Narrative

A clear and logical structure is essential to research reports

- One topic per section
- The length of each part is adequate and balanced
- Sections must be useful
- One idea per paragraph
 - think of a headline for each paragraph as you write
 - maybe use the headlines as placeholders/todos in writing
 - use short paragraphs
- Follow a logical train of thought
- Avoid forward-references (avoid relying on content not covered yet)
- No surprises

Efficiency

Say exactly what needs to be said, in the simplest possible form.

- Use the **simplest words** that capture your intent exactly
- Use **one word for one concept**, especially for technical concepts
- Prefer **shorter sentences** (but avoid staccato sequences of very short sentences)
- **Avoid redundant or meaningless** expressions, drop empty qualifiers
- Ask if each sentence is really needed
→ **cut away the deadwood**

Efficiency

Say exactly what needs to be said, in the simplest possible form.

- Use the **simplest words** that capture your intent exactly
- Use **one word for one concept**, especially for technical concepts
- Prefer **shorter sentences** (but avoid staccato sequences of very short sentences)
- **Avoid redundant or meaningless** expressions, drop empty qualifiers
- Ask if each sentence is really needed
→ **cut away the deadwood**

Note: Explaining an important idea twice for clarity is useful repetition. Redundancy is repetition that does not add anything.

The Right Tone

Research reports should sound like research reports:

- No buzzwords, clichés, slang or colloquialisms
- No popular science or dumbed-down language
- No artistic or intellectual excesses (don't show off)

Select words that are specific and familiar.

Researchers use cautious, precise language for claims and conclusions.

Active voice is mostly preferable. “We” is common even for a single author.

Mind cultural sensitivities; avoid being obscure or offensive to some readers.

Structure

Split long sentences that are several sentences joined by “and” (or similar)

- Consider using bulleted or numbered lists for sequences of important points
- Unravel complicated nested sentence constructions
- Avoid parenthetical remarks that distract from the main point
 - often you can just drop them
 - alternatively give the information in main text (earlier or later)
 - possibly use a footnote (but sparsely)

Every paragraph should have a single, clear purpose.

It requires effort to write text that transports a clear, unambiguous message.
Readers often misunderstand your writing in unexpected ways.

PRESENTING

Objectives

Main goals of oral presentations:

- **Inform**: teach the audience something new
- **Impress**: commend yourself as a skilful/competent/likeable person
- **Persuade**: convince the audience of an idea or product
- **Entertain**: make the audience have a good time
- **Learn**: get feedback from audience

Many talks pursue several goals, but with different priority

Preparation

Most presentations can be prepared in the following main phases:

1. Analyse the task
2. Plan story
3. Prepare slides
4. Prepare words
5. Practice
6. Retrospective analysis

This sequence is not a one-way street

→ return to a previous phase if necessary

Brevity

A talk never allows you to discuss everything you know and did!

→ What are the **important ideas, techniques, and results**?

Brevity

A talk never allows you to discuss everything you know and did!

→ What are the **important ideas, techniques, and results**?

Decide what you want to say:

- What is most important to you? What do you want people to remember after your talk?
- Which other details are needed to understand you?
- Do this based on your goals, the audience, and the time

→ phrase a **take-away message** that captures what you hope people will get

Brevity

A talk never allows you to discuss everything you know and did!

→ What are the **important ideas, techniques, and results**?

Decide what you want to say:

- What is most important to you? What do you want people to remember after your talk?
- Which other details are needed to understand you?
- Do this based on your goals, the audience, and the time

→ phrase a **take-away message** that captures what you hope people will get

The audience has a limited capacity for appreciation and understanding.

→ The more ideas you include, the less of this limited resource remains for each idea

Brevity

A talk never allows you to discuss everything you know and did!

→ What are the **important ideas, techniques, and results**?

Decide what you want to say:

- What is most important to you? What do you want people to remember after your talk?
- Which other details are needed to understand you?
- Do this based on your goals, the audience, and the time

→ phrase a **take-away message** that captures what you hope people will get

The audience has a limited capacity for appreciation and understanding.

→ The more ideas you include, the less of this limited resource remains for each idea

However: Some ideas make no sense on their own and need other content to create a logical and catching story

Structure

Every talk tells a **story**.

Suggestion for talks up to 30min:

- Start by stating the problem and giving an outlook on the main results
- End with your take-away message, and brief list of achievements or next steps

Start and end are also the defining points of the story you tell

- Stories are more coherent, memorable, and logical if start and end connect
- Your story should **make sense as a whole**, and not start in one direction and end somewhere totally different

Talks greatly benefit from good examples.

Presentation

Learn how to use your voice

- **Volume:** Speak loud but comfortably; do not shout
- **Speed:** Speak slow, but not monotonously; speed up to convey excitement
- **Pitch:** Prefer lower pitches; keep steady
- **Pronunciation:** Enunciate your words (open your mouth; use your lips and tongue)
- **Pauses:** Highly effective for emphasis; do not fear pauses – no need for “um” or other fillers
- **Tone:** A relaxed, friendly voice is most pleasant to listen to
- **Consistency:** Maintain your voice over time; do not accelerate during talk

Presentation

Learn how to use your voice

- **Volume:** Speak loud but comfortably; do not shout
- **Speed:** Speak slow, but not monotonously; speed up to convey excitement
- **Pitch:** Prefer lower pitches; keep steady
- **Pronunciation:** Enunciate your words (open your mouth; use your lips and tongue)
- **Pauses:** Highly effective for emphasis; do not fear pauses – no need for “um” or other fillers
- **Tone:** A relaxed, friendly voice is most pleasant to listen to
- **Consistency:** Maintain your voice over time; do not accelerate during talk

Move! But don't move too much!

- More movement: excitement, enthusiasm, energy
- Less movement: credibility, strength, certainty

Slides

Slides must serve your story and your presentation style, as they:

- **help the audience** to focus on your message
- **complement** your speech with visual information (“1 picture > 1000 words”)
- **surprise and entertain** the audience
- **ease listening** by recording information that would be hard to keep in mind

Slides

Slides must serve your story and your presentation style, as they:

- **help the audience** to focus on your message
- **complement** your speech with visual information (“1 picture > 1000 words”)
- **surprise and entertain** the audience
- **ease listening** by recording information that would be hard to keep in mind

Making slides takes time – do not start too late!

- Turn your story into a skeleton first (slides with titles)
- Then fill everything with content
- Slides are rarely done until the talk – start with the essentials & polish later

Slides

Slides must serve your story and your presentation style, as they:

- **help the audience** to focus on your message
- **complement** your speech with visual information (“1 picture > 1000 words”)
- **surprise and entertain** the audience
- **ease listening** by recording information that would be hard to keep in mind

Making slides takes time – do not start too late!

- Turn your story into a skeleton first (slides with titles)
- Then fill everything with content
- Slides are rarely done until the talk – start with the essentials & polish later

It is helpful to prepare some phrases to use during your talk.

Slides

MUST haves:

- Title slide: Your name, talk title, affiliation, coauthors – put this first!
- Footer: Your name, title hint, page number, maybe affiliation (on each slide!)

Slides

MUST have:

- Title slide: Your name, talk title, affiliation, coauthors – put this first!
- Footer: Your name, title hint, page number, maybe affiliation (on each slide!)

SHOULD have:

- Summary slide at the end (for those waking up only afterwards to get all of your message)
- Clear, specific problem statement at the beginning

Slides

MUST haves:

- Title slide: Your name, talk title, affiliation, coauthors – put this first!
- Footer: Your name, title hint, page number, maybe affiliation (on each slide!)

SHOULD haves:

- Summary slide at the end (for those waking up only afterwards to get all of your message)
- Clear, specific problem statement at the beginning

Not needed/potentially harmful:

- Table of contents (can sometimes make sense for longer talks)
- LaTeX Beamer navigation buttons
- Anything not contributing to your storyline

Preparation

Practice!

- Practice your timing (going overtime is rude, and you might even be cut off)
- Identify timing checkpoints and make plans for slowing down or speeding up if needed (minimum: where do you plan to be after half the time is over?)
- Practice your phrases (esp. the trivial ones: start and end!)
- Practice to stick to your narrative (avoid skipping back or forth; stay with your slides)
Rehearsing is in no way related to your level of skill/experience!
- Ask friends/colleagues to attend a test talk; encourage critical feedback World-class speakers take their speeches very seriously and will rehearse intensively.

Preparation

Practice!

- Practice your timing (going overtime is rude, and you might even be cut off)
- Identify timing checkpoints and make plans for slowing down or speeding up if needed (minimum: where do you plan to be after half the time is over?)
- Practice your phrases (esp. the trivial ones: start and end!)
- Practice to stick to your narrative (avoid skipping back or forth; stay with your slides) Rehearsing is in no way related to your level of skill/experience!
- Ask friends/colleagues to attend a test talk; encourage critical feedback World-class speakers take their speeches very seriously and will rehearse intensively.

Right before the talk:

- Familiarise yourself with the stage
- Talk to the chair – who will keep time for you?
- Check the beamer, have a backup (PDF) copy of your slides on a stick

Improving

Chances for giving talks are relatively rare – use them.

- Seriously work on “unimportant” talks to be ready for the important ones
- Consciously try out hints and new ideas; experiment with the audience
- Analyse what worked and what didn't after the talk

Improving

Chances for giving talks are relatively rare – use them.

- Seriously work on “unimportant” talks to be ready for the important ones
- Consciously try out hints and new ideas; experiment with the audience
- Analyse what worked and what didn't after the talk

Attending talks of others is almost as good:

- Analyse every talk you see (strong points? what could be improved?)
- Pay attention to details (gestures, movement, voice control, etc.)
- Also look at the audience's reaction
- Ask questions (a mini-exercise in public speaking)

→ you can learn something from every talk, especially from bad ones