Presentation and publication of scientific research

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PDF of this slideshow:
http://www.allpsych.uni-giessen.de/thomas/teaching/

Outline

Morning Session

I. Writing papers
II. Time-scheduling your dissertation years: Group work and discussion

Afternoon Session

I. Giving talks
II. When things go wrong: Group work and discussion

Part I: Writing papers

Why write papers?

- Because it‘s the ultimate purpose of research: An unpublished result doesn‘t help anybody.

- Because it helps you organize and clarify your own thoughts and theories.

- Because publications are the currency of science, the most important measure of scientific success.

- Because sometimes it‘s fun!

The policies of publication

- Face it: It‘s „publish or perish“.

- Exponential increase of scientific papers; diminishing quality control (major problem for high-ranking journals like „Nature“ and „Science“).

- Academic institutions emphasize the rank of the journal rather than the scientific content of the paper.

- Leads to all sorts of favoritism, even corruption.

Journals

Impact factors

- Impact factor of a journal: (number citations)/(number papers) over a 2-year period.

- IF is determined by Thomson Scientific (aka ISI, Web of Science), a private company

- Other statistics: Citation index, citation half-life

- Heavy criticism: stresses quantity over quality

Which journal?

• Remember: Journal articles are much more prestiguous than book chapters.

• Avoid publications without peer review.

• Hallmarks of a „good“ journal: Impact factor, recognizability in the field, size of the audience.

• Some journal have a high level of recognition in specific fields despite a moderate impact factor.

High-ranking journals

• High-ranking journals can have very high rejection rates (e.g., 95% in „Nature“).

• Their impact factors are fantastic, but difficult to interpret: Papers are cited *just because* they are in „Nature“, so that the I.F. is self-inflating.

• Two-stage review system: (1) global screening for general interest, (2) actual peer review (not much more critical than in normal journals). The first stage is essentially a lottery based on surface features of the paper, leading to rejection within 48 hours.

Online and Open-Access Journals

• Electronic journals and preprint servers become more and more important and high-ranking, e.g., „PLoS“.

• Open access journals place costs on the authors, but give away the papers for free.

• Advantage: publishing system might get independent from current cutthroat publishers (e.g., Elsevier).

• Disadvantage: Can become just as exploitative in the long run, raises financing issues for many authors and institutions.

Publication Strategies: Quantity or Quality?

- Some institutions will rank your application quantitatively (e.g., number of publications weighted by impact factor, divided by number of authors…).

- However: Quality is also important! Many other institutions are willing to look at the scientific content of your papers. Some take well-established journals in their field more serious than high-impact journals.

- A good long-term strategy: Try to make your three best papers rank higher and higher.

Authorship

• Ethical guidelines dictate who has a claim to authorship. Only people who actually contribute do.

• The person who writes the paper (you!) should generally be the first author. It‘s customary that the instructor is senior author. In some fields, the first and last positions are considered equally important.

• Authorship should be negotiated before the paper gets written!

Which format for the paper?

- Large, multi-study paper? Good if you want to increase your impact in your field.

- Better for younger researchers: Several smaller papers. (Worse for the scientific community in general, though, because of the paper inflation.)

- Try to find a balance between larger and smaller papers, but keep the overall number high.

Generating a manuscript

- Avoid blank pages. Start with a formal template. Use placeholders and gradually replace them with text elements.

- Inside-out strategy: Write the easy stuff first. Start with the methods and data sections. Then discussion. Finally introduction.

- Writing doesn‘t have to be unpleasant! Do it when it‘s most fun, and try to replicate the conditions.

Designing figures

- Figures have to look good; they determine the reader‘s first impression.

- Should be well-organized, clear, not too crowded, with readable text. Use color only if really helpful.

- Try out different display formats.

- Use professional graphics programs.

- Take care that stylistic elements are consistent.

From submission to the press I

1. The paper is submitted to the editor along with a cover letter.

2. Most journals send out most of the submitted papers for peer review. Some high-ranking journals have a multistage review process, where the first stage is more or less mysterious.

3. After some months, you receive reviews. If the reviews are OK, the editor will ask you to „revise and resubmit“ your paper. Sometimes, additional experiments are required.

From submission to the press II

4. You revise and resubmit, along with a cover letter and detailed replies to reviewers. Sometimes it gets reviewed once more by the same reviewers.

5. If the editor accepts it, the production office will prepare it for print. They may have small questions in the process and may spoil things up quite a bit.

6. Finally, you will have to check the proofs and sign the copyright agreement. The whole process takes about a year. After that, it may take several months before your paper appears in print.

Submitting the paper

- Write a good cover letter where you briefly explain why your paper is great.

- Write a good abstract. Many journals have an initial screening process where only the abstracts are considered.

- Figures should look professional and convincing.

- In sum: Your paper should make a good first impression!

Dealing with reviews

Peer reviews: The pain in the a**

- Be warned: reviews always sound nasty, even the positive ones. They will always spoil your day.

- Hallmarks of a good review:
  - well-informed
  - fair and balanced
  - constructive and informative
  - no apparent self-interest
  - brief and ordered
  - not aggressive, ignorant, intolerant or insulting
  - seeks to advise the editor, not to control the contents of the paper

- Now imagine a bad review…!

Your paper is rejected.

- Without reviews: Send it elsewhere.

- After reviews: Did the editor invite you to revise it anyway („reject and resubmit“ policy)? If so, it‘s actually the standard revision process.

- Otherwise, revise it and send it elsewhere. Don‘t send the identical manuscript again because you might encounter the same reviewers.

Revising and resubmitting

- Try to do everything the reviewers wanted, even if it‘s painful.

- Together with your cover letter, provide a detailed response to the reviewers.

- If you are convinced that a reviewer is really wrong (it happens!), you have to convince either the reviewer or the editor!

Final step: Checking the proofs

- Proofs must be checked carefully and often returned very quickly.

- Check position and numeration of figures, technical symbols, equations.

- Check whether the text is still intact. Production offices often rewrite some phrases.

- Order some reprints (or leave it), sign the copyright assignment.

Copyright

- By signing the copyright agreement, you waive your copyright to the publisher. Read it!

- Usually no problem: You can still use figures etc., sometimes upon request.

- Legal issues: Check whether you are allowed to distribute the PDF via your homepage!

- Subscribe to collecting societies (e.g., „VG Wort“) to get at least some money for your efforts.

Part II: Time-scheduling your dissertation years

Write enough papers!

- You should produce at least two or three journal papers during your dissertation time. Set a reasonable margin with your instructor.

- Segment your work so that you can generate papers from intermediate results.

- In long-term projects, it is often possible to generate papers from side aspects (e.g., simulation studies, mathematics, methodological stuff).

Publishing delays

• Remember that it takes time to publish a paper: typically, the delay is about 1 year

• Try to submit something at the end of your first year.

• Publication times can be a problem for cumulative dissertations. Discuss with your instructor whether the dissertation must be ***completely*** or only ***partly cumulative***, and whether the papers must be ***published*** or only ***accepted***.

Time management tips

• Analyze data in time. Create figures in time that can serve multiple purposes (talks, posters, papers, dissertation).

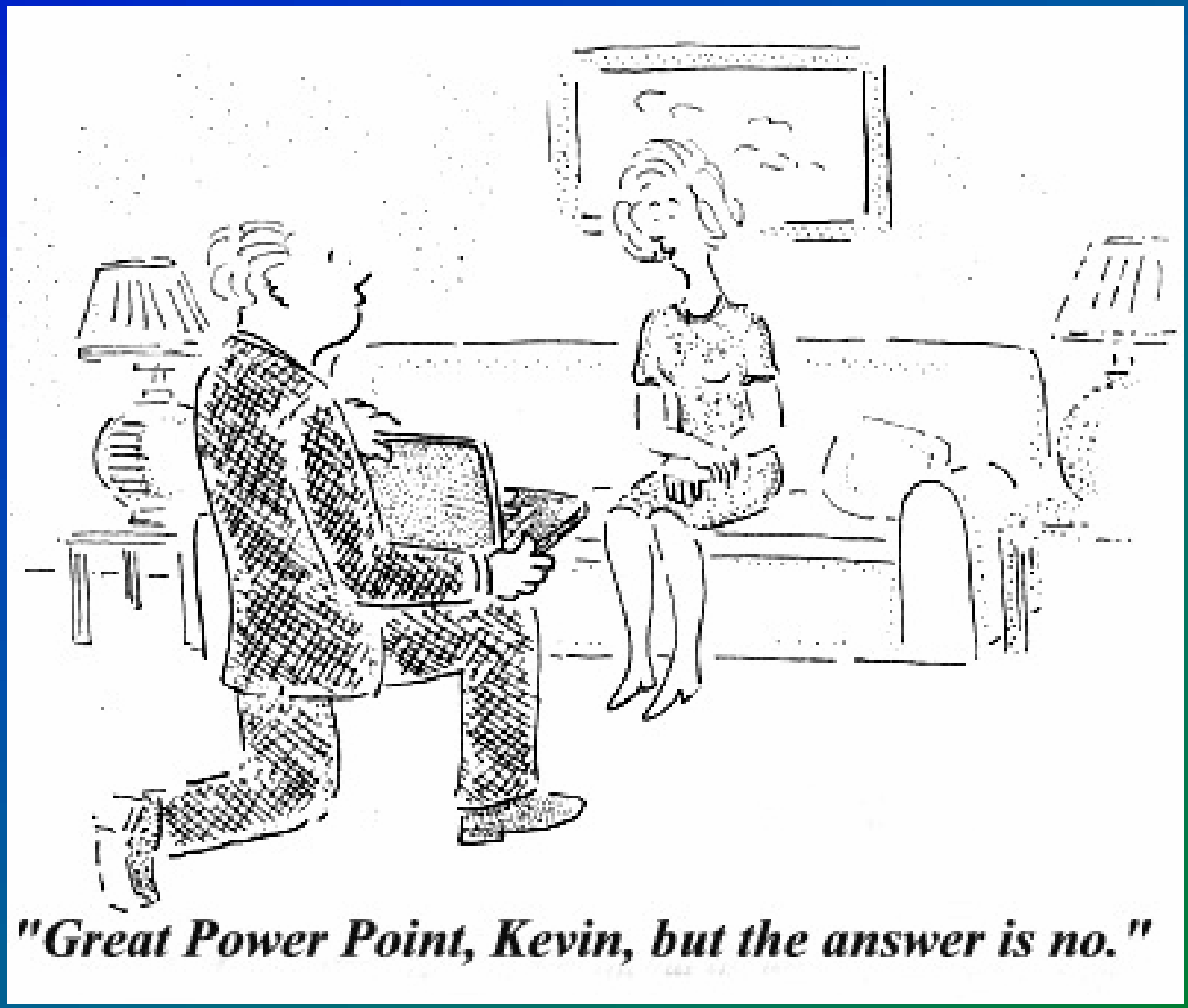
• Stay organized, avoid time pressure. Start assignments way before they‘re due. Know your deadlines and don‘t come too close.

• Stay fresh. Don‘t overwork, don‘t burn out. Creative writing requires a lot of energy. Have a private life and private interests.

A time-schedule for your dissertation years: Group work and discussion

Lunch break!

Part III: Giving Talks



"Great Power Point, Kevin, but the answer is no."

Why give talks?

- Because it‘s essential to communicate

- Because it‘s good PR: People have to see you to remember you

- Because you have to build up networks with many other scientists

Some Do‘s and Don‘ts of Slideshows

- Use color carefully, maintain good contrast (e.g., no yellow on white, no blue on black).
- Fonts must be large enough, also in figures.
- Don‘t overcrowd the slides.
- Good figures are the most important items! Use many figures, few and short text elements.

Dealing with time constraints

- How many slides can you show? My rule of thumb: 9 in 12 minutes, 12 in 15 minutes, 15 in 20 minutes

- What are you willing to leave out?

- Multiple findings: Take the time to explain the first dataset, then use an analogous format for the others.

- Focus on the most important and most illustrative findings – leave the rest out!

Practicing the talk I

- Remember: Everybody needs practice talks!

- Give a first practice talk in front of an audience. It will be quite bad.

- The practice talk is always too long. Some slides are always in the wrong order.

- Practice talks always improve greatly in the second run!

Practicing the talk II

- In general, two practice talks are enough.

- Don‘t overlearn your talk. Speak freely, don‘t learn the entire talk by heart.

- Rehearsing the first two sentences. It helps to get into the talk.

At a conference

Audience

- Professionals, students, or mixed?
- Formal or informal setting? Application talk?
- What do people in the audience know? What do they expect?
- Will they ask questions during the talk or afterwards?

- Never assume much prior knowledge, even when talking to experts. Explain things carefully, try to take the perspective of a beginner.

What if you‘re anxious?

- You can‘t do much against it, and it doesn‘t matter anyway.

- Don‘t resort to heavy drinking or medication the night before.

- Don‘t think too much about your talk; a few rehearsals is all the preparation you can do.

Nervousness doesn‘t harm your talk!

- The audience is sympathetic, tries to ignore your anxiety.

- Nervousness fades very quickly once the talk is on the way.

- Nervousness generally energizes a talk, prevents a speaker from appearing dull and unengaged.

Performing the talk

- Use simple phrases, put important thoughts in new sentences:

  „In the figure you see an interesting thing, namely that if the dotted line…“

  „In the figure you see an interesting thing (pause): If the dotted line…“

- If you‘re running out of time: Skip things, it doesn‘t help to speed up!

- Decide beforehand which contents could be skipped.

But what if I look silly?

- Don‘t care for small ideosyncrasies, everybody has them. The audience probably likes them.

- Some people tend to blush at the start of a talk, even professional speakers. It doesn‘t matter.

- If your hands are shaky, you can use a mouse cursor instead of a laser pointer. (But use an external mouse then, not a touchpad.)

- **Important: Address the audience, look at them, don‘t talk to the wall!**

Taking questions

- It‘s a good sign when people start asking questions.

- Anticipate the most likely questions, bring backup slides.

- Some questions will be impossible to answer – answer a similar question then. Always act as if the question was interesting.

- Keep contact with people who want to discuss with you.

Practical stuff

- Take care that movies, simulations, demos embedded in your presentation run properly on a new machine. Can you use your own laptop?

- Use a compatible data format. Check which formats are admitted. Bring „safe“ formats, like .pdf, .ppt (not .pptx)

- Keep a backup copy ready for download.

Chairing a session

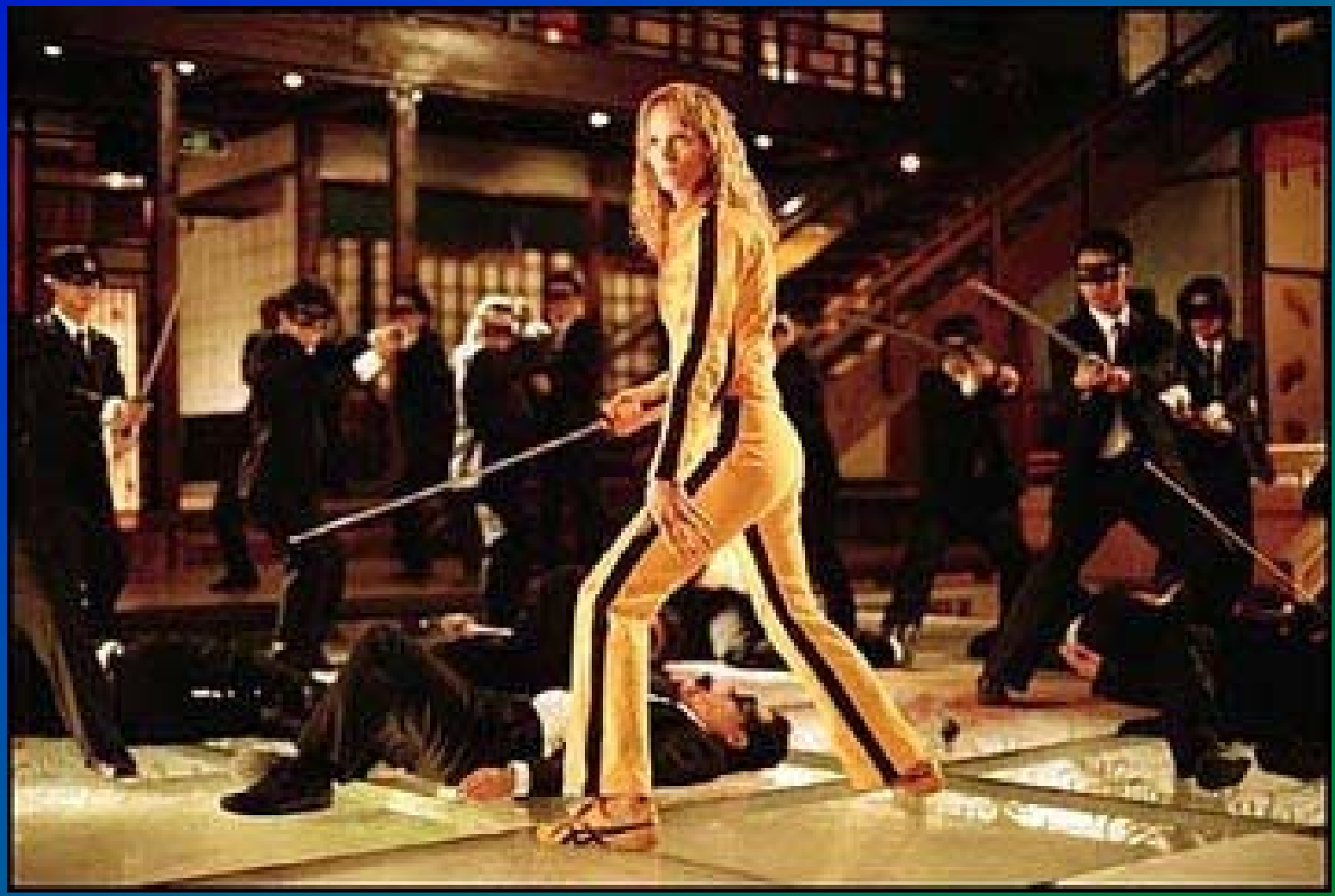
- You don‘t need to be senior to be asked to chair a session.

- Prepare cards for time-out signals (5 min., 2 min., over). Sit directly in front of the speakers so that they can see your signs. Bring a clock!

- Never change the time schedule of your session.

- Read the abstracts for your session; have a question ready for each talk.

Defending your dissertation



Defending your dissertation I

• You probably cannot fail. But don‘t underestimate it: this is a situation of limited control, therefore worse than a conference talk!

• Audience will be even more sympathetic than at usual talks, but also more evaluating, which increases social pressure.

• Remember: The committee wants you to succeed, because it‘s good for them, for the institute, for the faculty. They will do anything to allow you to pass!

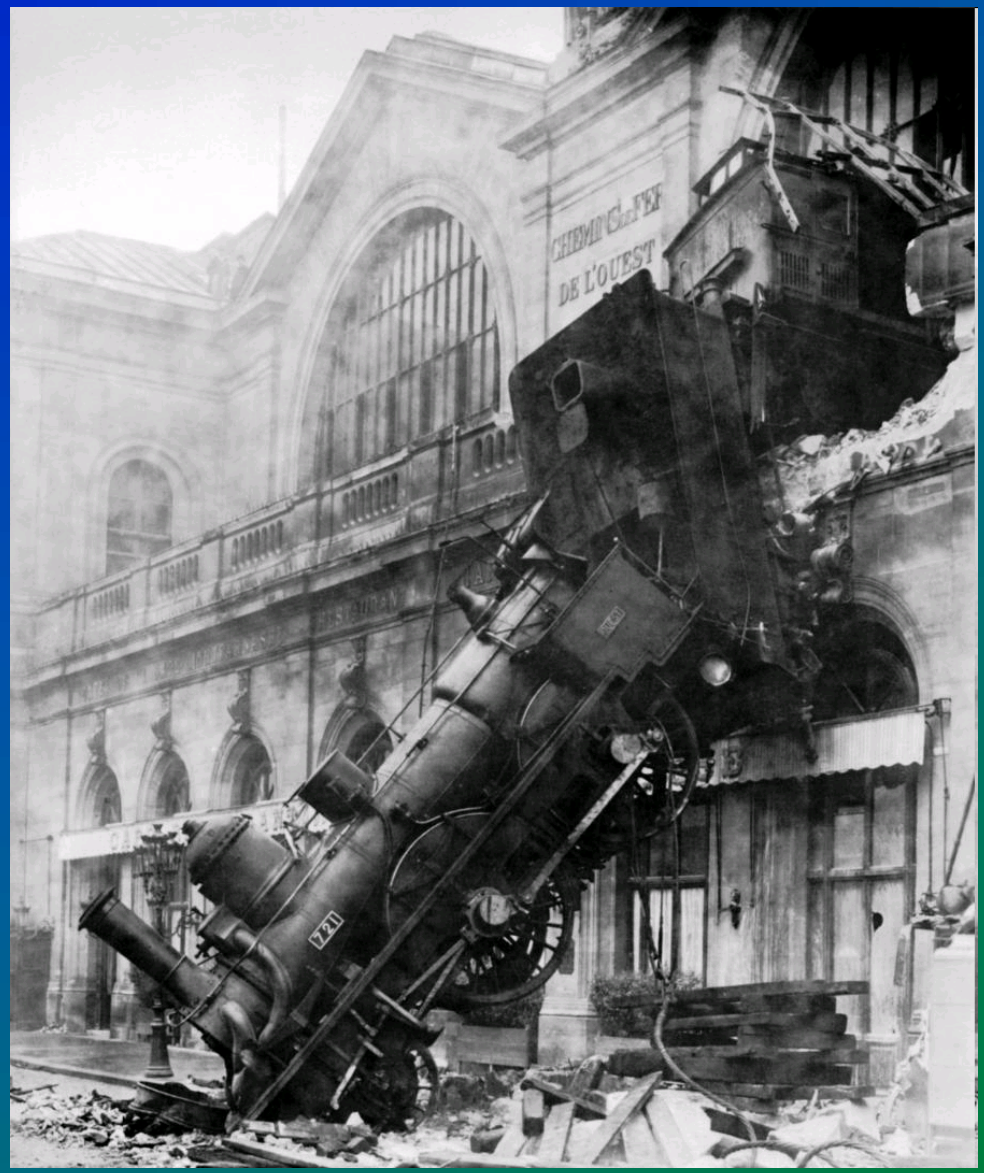
Defending your dissertation II

- Some people will give you easy questions they know you can answer. But for that, you should have basic textbook knowledge about your general field of research.

- Some other people will ask more general questions relating to neighboring topics.

- Don‘t dress up too much; the committee will probably appear in their everyday clothes and you will feel silly.

Part IV: When things go wrong



Things that can go wrong

- Technical difficulties: Equipment, dealing with participants
- Organizational problems: Lab is moving, closing down soon, advisors are changing
- Research: No good data, nothing to publish
- Problems with colleagues or advisors: neglect, authorship conflicts, exploitation, harrassment, mobbing
- Personal problems: Stress, time management problems, burn-out

What can you do?

• Be aware that dissertation projects can sometimes fail!

• In case of ethical conflicts with your instructor, it is sometimes possible to find professional mediators (e.g., the „ombudsmen“ of the German Research Foundation).

• If things go really bad, you have to consider leaving the lab.

When things go wrong:
Group work and discussion

Links

- Doctoral Student‘s Organization „Thesis“: www.thesis.de

- Information and links: www.hochschulkarriere.de

- Ombudsman der DFG: http://www1.uni-hamburg.de/dfg_ombud//

Book Tip:
Stock, Schneider, Peper & Molitor (2006). *Erfolgreich promovieren.* Berlin: Springer.

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My website:
http://www.allpsych.uni-giessen.de/thomas/

Website for this workshop:
http://www.allpsych.uni-giessen.de/thomas/teaching