Internationalisation - a pillar of development of the University of Maribor
Doctoral studies: From study to research and further

Developing a professional academic identity and a research mindset: The role of science studies in doctoral education
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Doctoral phase in Germany

- Doctorate is strongly research focussed, up to 100% research
- The individual supervisor usually chooses the doctoral candidates
- Doctoral candidates often get employed for research and teaching by the supervisor, or they get scholarships, or they work part-time elsewhere to support themselves
- Time of doctoral phase differs from 2 to 10 or more years, average >4 years
- 10-20% in doctoral programmes, the rest are individual researchers with a supervisor
- Classes and transferable skills courses usually on a voluntary basis
Own background

• Jena: medium size town (100.000), east of Germany
• Friedrich Schiller University Jena: >20.000 bachelor and master students and >2.100 doctoral candidates
• Graduate academy:
  - supporting doctoral candidates and postdocs from all disciplines with information and counselling, qualification programmes, networking opportunities
  - developing the framework of working conditions for young researchers
    ➢ „doctoral school“
Outline

• Specific aims in doctoral education
• „research mindset“ and „academic identity“
• How to reach these goals?
• Example of Jena university
• The role of science studies
Aims in doctoral education

• Outcome of doctoral phase is a person, not a research result or an amount of ECTS
• Doctorate holder is supposed to be a leader, in research or in other areas of society
• Doctorate holder is able to create new research projects and carry out research independently
The perfect doctorate holder

- Real expert in the field of own research
- Profound knowledge of research methods
- Sharp in analysing and asking good questions
- Brilliant in communicating
- Spotting relevant aspects and critical incidents
- Able to work with people from different subjects and cultural backgrounds
- Responsible, passionate, open-minded...
- Highly employable
The perfect doctorate holder: summary

• Specialist AND Generalist
  – Broad mind
  – General understanding of things
  – „Wisdom“
  – Able and willing to see things from different perspectives

• More then research skills plus soft skills:
  – Personality, identity
  – Inner obligation, motivation, will, responsibility
Science studies in doctoral education

• Research mindset
  – Being open-minded, creative and critical
  – The habit of asking questions
  – Finding ways to tackle complex problems
  – Critical and self-critical approach towards assumptions, research methods, outcomes
  – Appreciating different scientific cultures and being able to communicate trans-disciplinary
Science studies in doctoral education

• Academic Identity
  – Knowing the limits of scientific statements and of one’s own expertise - and owing up to it
  – Seeing and Facing responsibilities, i.e. for own research practises and outcomes
  – Being aware of the influence of science on society and vice versa
Discussion time

• Can we expect that from every doctorate holder?
• How and where do students and young researchers develop a research mindset and an academic identity?
• Is it something that can be taught?
Proposition

• If we try to improve and secure quality in doctoral education, we have to see the whole aim of doctoral education, for the individual, for the research institutions and for society.

• Improving and securing quality means that we don’t leave it to chance or individual circumstances what a doctoral candidate has learned in the end. That should also be the case for the research mindset and academic identity.

• If in the restructuring of doctoral education we concentrate only on specialist research skills, disciplinary knowledge and soft skills, we leave out an important part. Will the future researcher become heartless and bloodless?
Therefor we have to try to teach the research mindset and academic identity – or at least to support the doctoral candidates in developing it!
Ivory tower? In touch with outside word?
Problems in interdisciplinary projects?
Little understanding for other disciplines?
Specialised language that others don’t understand?
Doubt in the worth of own research?
Independently creating projects?
Leadership skills i.e. vision, responsibility, bigger picture?

-> close-up works well, broad view is difficult
Down to earth: Where we started to tackle the problem

- Project funded by Stiftung Mercator
- Workshops for doctoral candidates
  - Non-obligatory
  - Open to doctoral candidates from all faculties
  - Small groups of max 12 people to enable discussion
  - Goal: research mindset and academic identity – one (little) step further towards it
Problem I: Interdisciplinarity

• Big questions of mankind don’t stop at disciplinary borders -> need for interdisciplinary research

• Collaboration in interdisciplinary research projects is often extremely difficult
  – Researchers don’t understand each other, different languages and different cultures
  – Little respect for each other: „How can this be research?“
  – Outcome: Working in split parts of the project instead of real cooperation
Problem I: Interdisciplinarity

What is lacking?

- Understanding of different types and ways of research
- Seeing that own research is not the only possible way and that you need complementary ways of research
- Respect and curiosity for others
- Ability to explain own research – seeing the main characteristics and the relevance of it
Workshop I: Competences for interdisciplinary collaboration

• Small Group of doctoral candidates from all disciplines
• 1 or 2 days
  – What does your typical research day look like to someone from planet Mars?
  – Explain own research project to the group
    Feedback: what did the others understand? What not?
  – What are common characteristics of the research process (between similar disciplines)? -> sketch/drawing
  – Where do typical challenges lie? What can make a doctoral research project fail in your discipline?
  – Where in the research process is the task of interpretation? Could two interpretations of the same „data“ be different, and why?
Workshop I: Competences for interdisciplinary collaboration

Learning outcome?
Young researchers often don’t see the relevance of their work

- „no one is interested in it“
- „I am such a small cogwheel in a gear box, I don’t see how my research adds to something bigger“
- „I want to do something good for society, not just develop things that make money“
What could your research results be used for? Could they in any way stirr/influence something in society? In which way?

Example: Theories of how humanities’ research results effect society

Do I need to know what happens with my results?

How can you communicate your research to a broader audience? Relevance, media strategies etc.
Problem III: Ethical questions and doubts

• May I change the genom of my mice?
• Is it okay to work with stem cells?
• Can I pass the responsibility on to the project leader and the law – or do I have to make up my mind for myself?
• How do I write the ethical discussion for a grant proposal?
Workshop III: Ethics of science

- Who is responsible for what I do during my research and for my research results?
- What do the ethical guidelines of big research institutions say?
- How can I come to a rational decision for an ethical problem?
Common ground of the workshops

• They start with actual needs/questions of doctoral candidates
• The interdisciplinary group helps to see things from different perspectives and broadens your mind
• Lots of discussion, personal involvement, little theoretical input
• Theoretical background to tackle the problems: science studies
Science studies

- Philosophy of science
- History of science
- Production of scientific knowledge
- Sociology of science
- Ethics of science
Science studies

• What makes research being research?
• Is there any common ground between experimental sciences and humanities?
• What is the difference between research and describing a single stone?
• In former times it was counted as research to discuss how many angels can stand on a needlepoint. What would our research look like to people 100 years onward?
• What are criteria for quality research?
• Why do some results get published easily and others don’t? Is it just a question of quality?
• How can you pimp your publication index? What does the publication index really say?
• How do group dynamics determine research outcomes in a lab?
Science studies
Interdisciplinary workshops on fundamental questions of science and humanities
Discussion time

- Would your doctoral candidates be interested in these workshops?
- Could they help in creating a research mindset and an academic identity?
- Who could teach these kind of workshops?
- Other topics – suggestions?