Preparing master students for PhD candidacy

UNICA

Dubrovnik, September 2014

Hans Sonneveld

The program

- 11.30 -12.30
  - Brief introduction
  - Start of brainstorming; 3 subgroups (directors, staff members, students)
- 14.00 – 15.30
  - Circulation of results of subgroups
  - Presentations of subgroup
  - Plenary discussion
- 16.00: Concluding introduction *The Dutch model, its shortcomings, its results*

A MEETING AT THE MINISTRY
10 SEPTEMBER 2007

Graduate School (Biomedical)Intro by prof. Roel Nusse

- Stanford. 3000 applications.

- Pre-selection, based on college grades, national exam.

- Pre-selected group: interviews.

- Best students receive offers from several universities ((Berkeley, UCSF, Harvard, MIT).

- The interviews (two days): two sided process. Do we like you, do you like us?

- Stanford: per year 100 new graduate students

- Per departmenr: 5-20 new PhD candidates

- New students are a class, a cohort starting at the same moment.

Summary: in total 3000 applications

400   Invited for interview

300   get an offer

120   Are coming to Stanford

Graduate School (Biomedical)

The PhD candidates: year one

- Lectures (with examens) 6-10 hours per week

- 3 rotations (stages) in labs. 2.5 month per stage.

- Student is choosing the labs in view of the rotations

Graduate School (Biomedical)

Year two

- Student chooses lab in view of PhD project. PI should agree.

- Topic: decided by PhD candidate and PI, in dialogue.

- Topic mostly within sphere of interest of lab.

- Sometimes the topic is completely new.

- Start of PhD research

- Qualifying Exam , write a proposal in view of the research (questions, goal, approach, interpretation of results

- Colleges (2-4 hours per week)

AN EXPERIMENT AT YOUR UNIVERSITY. A PHD-PREP PROGRAM STARTS JANUARY 2015

Context & criteria

- Your rector asks for advice
  1. Time limit – start per 1 February 2015
  2. Part of Master stage
  3. Selectivity
  4. Rotations
  5. Quality criteria for participating labs & research groups
  6. Seed money
  7. Ultimate goal: PhD proposal
  8. Topic initiative on side of student
  9. Support for writing proposal

"Directors, staff members, MA students"

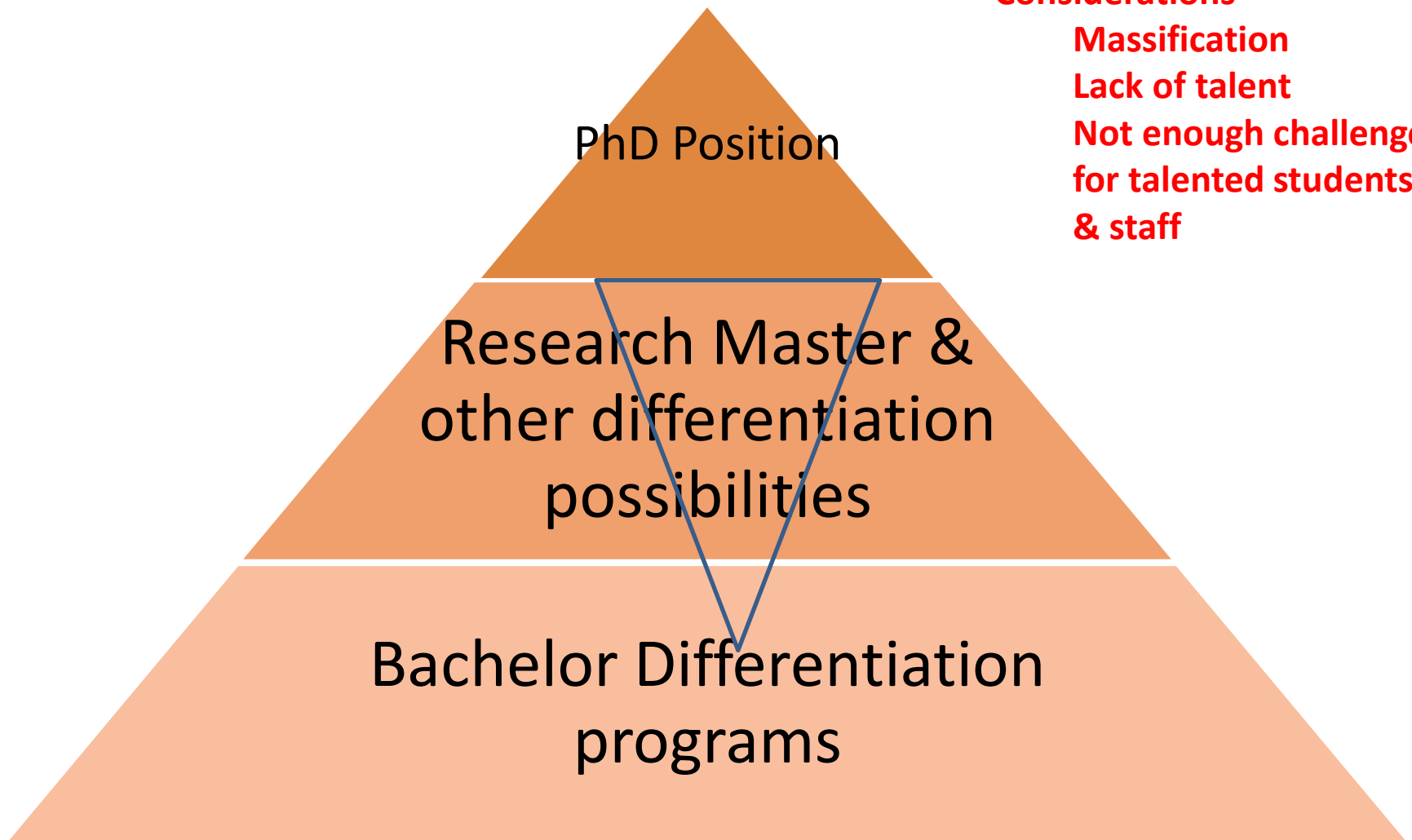| The Directors	The staff members	The Master students
1. Bahi, Lahcen	3. Bitusikova, Alexandra	5. Blaschke, Erika
2. Banda, Madeline	4. Blaschke, Thomas	**6. Bosson, Mélanie**
12. Biaudet, Paule	11. François, Karen	7. Ciordia, Itxaso
13. Frijdal, Andreas	18. Johnston, Lucy	8. Crisan, Gabriela
16. Jabri, Sami	**20. Lehnert, Thorsten**	9. de Rosa, Annamaria
19. Kovačević, Melita	23. Mečko, Dušan	14. Glanz, Michaela
22. Lepaite, Daiva	25. Moraru, Camelia	15. Grizelj, Juraj
24. Moes, Johannes	27. Petlenkov, Eduard	17. Jansz, Nathalie
29. Robinson, Vaughan	28. Rezić, Tonči	21. Lehnguth, Henrike
30. Saso, Luciano	33. Lucas, Zinner	26. Pesak, Petra
		31. Schmidt, Lisette

THE DUTCH WAY IN PRACTICE

What the Dutch adopted

- Principles:
  - Selectivity
  - Competition, also with outsiders, at the moment of the transition from Master to PhD
  - Rotations
  - Student's initiative regarding topic
  - Writing of a proposal
- However: principles apply to Master stage
- Goal: flying start + supervision relationship is tested before PhD

The scientific foundation

- Latona
- Bowen & Rudenstine
- Zuber-Skerritt

Where Master & Bachelor differentiation and doctoral studies meet

PhD Position

Research Master & other differentiation possibilities

Bachelor Differentiation programs

Considerations
Massification
Lack of talent
Not enough challenges for talented students & staff

Programs in action

Mathematics and Natural Sciences	Information and Computing Sciences
Homologation task (6 ECTS) for students from different disciplines	Colloquium (3 ECTS)
Small research project (13 ECTS)	Individual or small group project in game Research (15 ECTS)
Scientific paper (6 ECTS) on which they report on a joint symposium that they organize themselves	Thesis project (42 ECTS)
Elective courses (min. 14 ECTS). Compulsory courses, defining the field of nanoscience (29 ECTS),	Rest of the 120 ECTS (52,5) are obtained by courses from the participating master programmes
Large research project (45 ECTS)	
Writing a PhD proposal (6 ECTS)	Research proposal writing (7,5 ECTS)

What we know about the students' qualities at the end of the Research Master program

- **The Certain Winners 5x**
- **The Conditional Candidates 6x**
  - *Passive Talents*
  - *The Talented Topic Hopper*
  - *Talented Rule Breaker*
  - *The Fragile Talent*
- **The (provisional?) non-candidates** 7x
  - *Feeble Minimalists*
  - *Talented Disappointers* 5x!
  - *The silent leavers*
  - *The disturbed candidate*

Testing a potential PhD candidate – supervisor relationship

- The story of W and A

Pre-PhD trajectory: no guarantee for success

- M.
- C.
- D.

- Talented candidate can be hindered by – for example - clumsy supervision, being over-ambitious, neglect of planning, not working on intermediate products

Freedom in view of topic choice, as experienced by PhD candidates

Response category	Alfa/ Gamma (N=27)	Bèta (N=40)	Inside candidates (N=43)	Outside candidates (N=24)	Totaal (N=67)
Complete freedom	*78%*	*70%*	*81%*	*58%*	*73%*
Partial freedom	*15%*	*25%*	*12%*	*38%*	*21%*
No freedom	*7%*	*5%*	*7%*	*4%*	*6%*
Totaal	**100%**	**100%**	**100%**	**100%**	**100%**

Strengths

- Freedom of choice for PhD candidates
- Autonomy of scientists when setting research priorities (not led by National Science Foundation)
- Enthusiasm concerning this initiative (also in disciplines where candidate's own 'voice' is not a 'natural' practice)
- Supra-local rotations (in case of national co-operation) & rotation in general
- Research groups and researchers have to do their best for attracting candidates.
- Continuity of the policy **principles** is not in danger
- Policy regarding admission policy and thinking in terms of cohorts
- Potential of supervision relationship is tested before start PhD

Weaknesses

➢ In some cases: **no serious analysis of lower completion rates** and long time to degree.

➢ **Rotations in some fields**. Emphasis on courses in stead of research practice. More observing than practicing.

➢ Here and there: **proposal support** only on level of individual supervisors / advisors.

➢ **Competition** between internal and external candidates sometimes at risk.

➢ **Still unknown** if new policy leads to avoiding long time to degree, better performances.

➢ By early focus on PhD research tendency **to narrow down the general educational training**?

➢ Sometimes: **differences between application demands** in view of internal candidates (proposal) and outside candidates (no proposal)

➢ Here and there: writing of **proposal substitutes writing of Master Thesis**.

Opportunities

➢ Involvement of external experts in evaluating proposals and monitoring progress

➢ Getting Master students involved in writing grant proposals (2nd and 3rd flow) in response to absence of PhD budgets on the side of research groups themselves.

➢ In this way, working on continuity of new policy

➢ Studying actual contribution of candidates in writing the proposals

➢ Curricular or collective support for proposal writing

➢ Improving international openness of new model (at moment of start of Master program)

➢ Support in moments of choice (topic, supervisor, planning). Potential role for mentors.

➢ Research on effect of new model on time to degree (more three years PhD projects?)Different options for positioning of writing proposal (1st year, 2nd year)

➢ Financial means for bridging period candidates are waiting for decisions on grant proposals.

➢ Condensed program for proposal support on behalf of external candidates.

Threats

➢ Closure of program in view of external applicants (at moment of open application procedures for PhD positions).

➢ Too early pre-selection of potential PhD candidates (too soon after start of Master program).

➢ Selection of candidates before they have written a proposal.

➢ Spreading new candidates over research groups and staff members dominates selecting candidates on the beasis of their talents, regardless of their preferences for research groups and supervisors.

➢ Full support for new policy opposed to limited financial means to attract 'new style' candidates. 'You train them, but dreams are not fulfilled'.

Essential tensions

- Protecting internal candidates – Open selection procedures
- Curricular proposal support – Individual supervisor support
- Specific disciplinary limits to independence of candidates?
- Delegating selection responsibilities to directly involved staff ⟷ Participation of outsiders
- Stimulating a PhD project – But no financial follow up
- Focus on developing PhD projects, but students might divert from PhD ambition
- Steering students in direction of innovation

⇕

- Absolute freedom

A Dutch Silent Revolution and it's consequences for selection practices

- Hallmark: the sliding of the first phase of the Ph.D. trajectory into the final stage of the Master program

- Cornerstones of the new policy
  1. Expansion and segmentation of the selection process
     1. BA ➡ MA
     2. MA ➡ PhD
  2. Heart of the program: developing a PhD proposal

Graduate Programme Criteria

- Matching masters and doctoral programmes
- Entry date
- Freedom of choice
- Rotations
- Selection
- Lateral entry
- Two main criteria will be used for the selection of the schools: educational quality and scientific quality:

- Educational quality
  - ⬚ fulfilling the conditions (See Section 3.5),
  - ⬚ quality training and educational program,
  - ⬚ quality of supervision provided,
  - ⬚ quality management.
-
- Scientific quality
  - ⬚ scientific quality of the research program,
  - ⬚ scientific quality of the researchers involved.

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An example: PhD Proposal Course – report from a practitioner

- Information about the technicalities
- The real issue: the topic exploration
- Two stages: topic exploration & proposal composition
- Exploration:
  - Literature search
  - Critical appraisal
  - Literature review
  - Interviewing experts
- Product I: A Well Reasoned Topic Choice
- Second stage: writing proposal and discussing that in group and with potential supervisor

Students' experiences

- Experience a different style of studying
- Don't start always with a well focused topical interest
- Pondering leads to feelings of uneasiness and uncertainty, sometimes to experiencing a crisis

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Analysis of PhD candidates

Warning signs, as perceived by supervisors from Zagreb, Zürich, Utrecht

- not having a thesis
- handing in written work that is just in a stage of a first draft
- not following advices
- losing contact with the supervisor
- lack of independence
- complicated working context

Trends in topic development

- Diversity
  - With respect to field and topic: no major changes: 11
  - Major change with respect to topic: 9

Testing a potential PhD candidate – supervisor relationship

- The story of W and A

Where do they go (2008 – 2012), Law Tilburg University

- PhDs 28
- Practitioners 7
- Ministry + National legal body 4
- Consultancy 1
- International legal organization 1
- Legal analyst 2
- Nano Science: 55 of 56 went to PhD program

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EVALUATION OF THE FIRST FIVE YEARS

The subsidy program in action

Round	Applications	Accepted	Start of PhD projects	Monitoring	Budget (used)
2009	36	9	2010-2011	2013	M€ 6,0 (7,2)
2010	29	10	2011-2012	2013	M€ 8,0 (8,0)
2011	49	19	2012-2013	2015	M€ 15,0 (15,2)
2012	28	13	2013-2014	2015	M€ 14,8 (10,4)
2013	32	18	2014-2015	2017	M€ 12,2
2014			2015-2016	2017	M€ 12,0
2015			n.n.b.	n.n.b.	M€ 7,9

THREE OF THE EVALUATION QUESTIONS

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Degree of freedom when writing the research plan

Response category	Totaal (N=67)
Yes, completely	81%
Partly, there was already a start, I did the elaboration	4%
Partly, I made the start, another person did the elaboration	1%
No, the plan had already been written	3%
Other possibility	9%
Don't know	1%
Total	**100%**

Space for choosing the supervisor

Antwoord-categorie	Lokaal (N=44)	Interuni-versitair (N=23)	Alfa/ Gamma (N=27)	Bèta (N=40)	Vanuit eigen univers. (N=43)	Vanuit elders* (N=24)	Totaal (N=67)
Ja	80%	78%	81%	78%	88%	63%	79%
Nee	20%	22%	19%	23%	12%	38%	21%
Totaal	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

SWOT ANALYSIS

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