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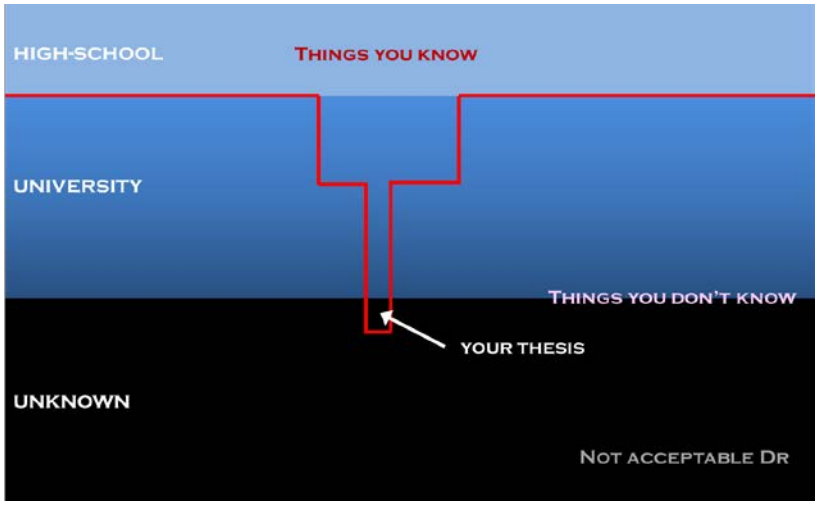
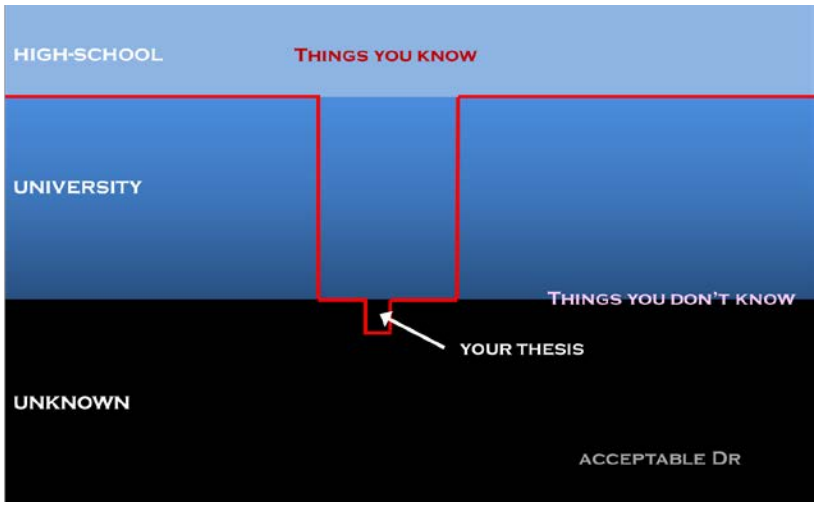
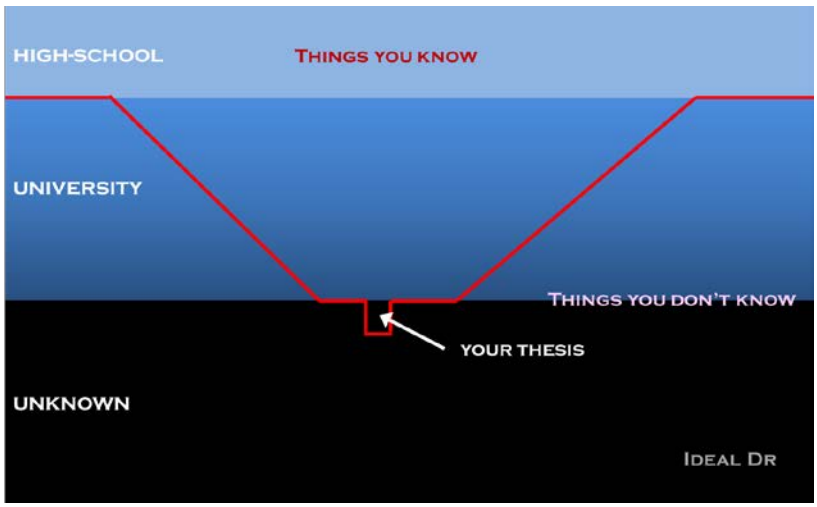
April 2016

Being a PhD student

First: Remember that you are adults with university degrees that get a salary for doing important research. You are not pupils any longer and should not be treated as such. Nor should you yourself act as a dependent pupil.







University

You are at a *univers*ity, which means you have the whole ocean of knowledge around you. Swim in it!

Do take the time to visit seminars at other divisions, departments and even faculties now and again and put your nose outside your own little hole. This not a waste of time, it is part of your PhD studies and whoever says or thinks otherwise is simply wrong. You will find that most people going to "outside" seminars are professors so: Are they going because they are professors or are they professors because they have always strived for universal knowledge?

Also, ask people you meet in the corridors and coffee rooms what they do.

Supervisors

Your supervisors should be your support, especially in the beginning, but not your dictators.

You should have at least two supervisors at the department, and ideally one outside.

Supervisors should be available on reasonably short notice to discuss anything (related to work).

Having regular meetings both in the group of PhD students and individually is a good idea.

From this year you will also have a senior group of "mentors" to interact with, at least once a year.

If your project has co-operation or financing from the outside then *you* should be part of those contacts, they should not only be through your supervisor.

You supervisor can be your friend, but it can also be a strictly professional contact.

If you have problems with one of your supervisors, whether it is a lack of time for you or inappropriate behaviour, do not hesitate toreact (see last section). You will *not* be thrown out for doing this.

Remember that a supervisor is not a thought-reader. *You* must speak up and take your responsibility for having good and frequent contacts.

Planning

Doctoral work consists of four parts:

Courses
Research
Teaching
Other tasks at or for the division, department, or university

You must have a study plan that must be updated at least once a year. Note *plan* – it can always be changed!

It is natural to do more courses in the beginning, but insist on starting your research from the first month.

Do the obligatory courses early – there may be a waiting list.

Teaching is very developing so try to get a reasonable amount of. It is also a good merit for the future.

Try to get to be supervisor for at least one Master thesis student.

Give at least one seminar at your division a year, so you get input from the available experts and everybody knows what you are doing. And you get training in doing presentations. Insist in getting your presentations evaluated by good speakers.

Always rehearse a conference presentation by presenting it to a group of people at the department.

Those that have industrial or other paying partners (not VR or similar) will probably feel a pressure from them to *only* do their research. Do not give in to this – you are in a multifaceted education. Ask your supervisors for help if this is a problem – or higher up if necessary.

Plan to spend two to six months at another university as a guest scientist. The third year is the ideal time.

Many division tasks are developing for you – but remember to get documentation (if possible).

You should always know rather well what you should do the next 6 months.

You should *not* know in detail what you will do in 18 months (then you are not doing research).

CV

Start you CV from your study plan if you have not yet done so. The "master CV" should be very detailed. Things to include:

Education including *all* courses
Employment
Teaching – collect certificates and course evaluations
Supervision – bachelor and master theses
All seminars and presentations (including posters) held
Conferences and meetings (also local and "just" participating)
Reviewing – (give conference and journal, not authors)
Visiting scientist (you should go for at least a few months, ideally in the third year)
Research and travel grants you applied for yourself
Professional organisations
Awards
Publications
Tasks done at or for the division, department, or university

Conferences

Try to go to as many conferences as you can. In my view, the department should pay for the first one without you having a paper.

There are many funds that will pay for conference trips if you do have a paper, both at the university and outside. Start collecting information about sources and apply. (Good training writing larger applications!)

Prepare your presentation – if any – very carefully. Note that you often get more interesting interactions with a good poster than with an oral presentation.

Attend most oral and poster sessions – it is not a tourist trip. Do not be afraid of putting questions (politely). It is good for practice and memory to write a conference report on what you found most interesting, and give it to your supervisor - who could/should give some course points for such a report – especially if you also do an oral presentation on the conference for your colleagues.

Bring business cards (UU will print them for you, ask your administrator).

Take as many contacts as you can. Contact people who gave valuable presentations afterwards and start by saying how interesting they were. Do not be afraid of approaching "big names." Even the well-known ones will appreciate your interest!

Dress so your clothes are not noticed – neither black suit nor frayed jeans and T-shirt; neither miniskirt nor party dress.

Men, be aware of how you come across to female scientists at meetings. They are there as scientists, not as sexually available women. Women - do not accept inappropriate behaviour. Say "that's not why I am here" and leave. And in bad cases, report inappropriate behaviour to the conference organizers.

Attend the conference dinner – it is part of building your network. Sit with new people.

Dress appropriately. Many places demand "jacket and tie," so bring that.

Do *not* get drunk. Not at *any* time.

Do not place any of your belongings on the table

If you are unsure, take a brief course in cutlery

Give dietary requirements beforehand if possible. Be discreet about problems – but do not sit suffering – everybody wants you to enjoy the meal. Special dishes are always served after the standard one – so you may have to wait (this is to not give other guest ideas about wanting to change).

Do not *only* talk about work.

Reviewing

Reviewing is part of being a scientist. It is rather thankless, but developing for you and an ethical must.

Ask your supervisors to help them with their reviews when you have published your first paper. See to it that you get acknowledged.

Conferences usually list reviewers in proceedings.

Journals differ, but you can always ask the publisher for a certificate.

Professional organizations

All subjects have there own professional organisations, national and international.

IEEE is suitable for all at IT – join as student member now!

Find more special organisations (ask your supervisors) and join.

The department will often pay your membership fee (but you have to pay tax on it). Ask for it.

You should join *and* take an interest – go to meetings, offer to do tasks, communicate.

Professional organisations are a very good way of getting useful contacts and accelerating your carrier!

Thesis

First decision is monograph or not. My view is that it is better to publish one more paper during the time it takes to write a monograph.

Do not start too late – it takes a lot of time! Make a timeline for the last year.

Make it clear in the thesis what *you* did – especially if you are not the only author of papers.

Get as many as possible to read it – not only your supervisors. Get people to read as you write.

You need a Swedish summary – this should *not* be popular. You supervisor should be your translator.

Add a summary in your mother tongue too – if not Swedish or English!

A good place for help is: http://www.cb.uu.se/~cris/ThesisWriting.html

UU library sometimes gives courses on thesis production

You should have a say on who will be your opponent and in your committee.

...and it is always a good idea to cite the opponent ;-)

Independence

You start your PhD studies as rather dependent on your supervisors, but the goal of your studies are to become an independent researcher with leadership skills. Therefore, you must gradually become independent during your years as PhD students, and not expect independence to come automatically when you have your diploma. Good supervisors are aware of this and help you along the way. But you must also dare do your part.

Problems

It is not frequent, but sometimes a PhD student may run into problems either with their supervisor(s) or into other problems the supervisors cannot solve and you cannot or should not handle yourself. There is outside help in these cases, and you *should* use it. Locally you can contact either your Division Head or your FUAP (Professor of Research Education). If they are part of the problem or for other reasons you want to go outside your Division you should contact the Director of Research Education at the IT dept., Wang Yi, yi@it.uu.se. Or any senior that you feel comfortable with. Uppsala student union also have person to contact, if you would like to talk to somebody outside the university. The generic address is: studentombud@us.uu.se.

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Where to publish?

IT is unusual as we publish both in international scientific journals *and* in fully reviewed conference proceedings. General university bibliometrics does not count proceedings at all. We should be aware of this, but not change our publication habits. Just point out as often as we can that our publication habits *are* different.

There are many quality measures of a journal or conference. Here, all conferences and journals the students have sent in are listed, together with one or two corresponding quality measures.

The most common quality measure for journals is the 2-year impact factor, **if-2**, as computed by ISI Web of knowledge,
http://admin-apps.webofknowledge.com/JCR/JCR?wsid=W2zVjXG5InKnOj1vS6a&ssid=&SID=W2zVjXG5InKnOj1vS6a
The impact factor is computed in a complicated way, but essentially it is the average number of citations a paper published in the journal gets during its two first years. They also give the 5-year impact factor, **if-5**, which is the one given here, as it is slightly better. Essentially **if** measures how many *bad* papers a journal accepts.

Another measure in the 5-year h-index, **h-5**, as computed by Google Scholar,
http://scholar.google.se/citations?view_op=top_venues&hl=en
The h-index first orders all papers published during last five years according to number of citations (not only counting journal citations as ISI does). The number where the order number and the citation number is the same is the h-index. Thus, if there are 50 papers with at least 50 citations each, then the h-index is 50. This measure is also available for most quality conferences. Essentially **h-5** measures how many *good* papers are accepted. The six top journals in the world are (which if-5 in parenthesis):

Nature	377	(41.3)
NEJM	328	(54.4)
Science	316	(35.3)
The Lancet	258	(42.7)
Cell	216	(35.6)
PNAS	216	(10.6)

The h-index is also popular for ranking scientists, listing their whole oeuvre. I consider this the revenge of the mediocre against excellence. Five ground-breaking, fantastic papers with 10000 citations each will give you h=5, but 30 forgettable articles with 30 citations each will give you h=30. With today's one-digit quality measure mania the latter will probably get the academic position...

Another scientist measure you sometimes see is **i10**, which is the number of published papers with at least ten citations.

There is also the "Erdös number" for people in the mathematical sphere. If you published with Erdös the number is 1. If you published with someone who published with Erdös it is 2. And so on. Physicists use the "Einstein number". Movie enthusiasts talk about the "Bacon number" (as in Kevin Bacon). You can check the Erdös/Einstein numbers for anybody at http://www.ams.org/mathscinet/collaborationDistance.html

Journals ITFM 2016

Name	if-5	h-5	presenter
ACM T. on Interactive Intelligent Systems	-	-	
Artificial Intelligence	*3.73*	*70*	
Behaviour & Information Technology	1.41	28	
Bioinformatics	*8.14*	*106*	
BMC Bioinformatics	3.45	74	Matuszewski
Cognition Technology & Work	1.31†	15	Andreasson
Computer Methods & Programs in Biomedicine	1.96	38	
Computers & Security	*1.39*	*31*	
Cytometry part A	*3.09*	*36*	
Ergonomics	1.80	28	
Ethics & Information Technology	-	22	Persson
Human Factors	2.04	27	
Human Technology	-	-	
IEEE Communications Magazine	*4.76*	*90*	
IEEE Trans. on Biomedical Engineering	*2.57*	*58*	
IEEE Trans. on Computers	*1.77*	*42*	
IEEE T. on Human-Machine Systems	1.92	11	
IEEE T. on Image Processing	4.48	83	Asplund
IEEE T. on Medical Imaging	4.29	63	Astruc
IEEE T. on Pattern Analysis & Machine Intelligence	7.76	108	
IEEE T. on Robotics	*3.36*	*52*	
IEEE T. on Visualization & Computer Graphics	2.48	53	
Interacting with Computers	1.77	31	
Int. J. of Computer Assisted Radiology & Surgery	1.73	23	
Int. J. on Social Robotics	1.75	25	
J. of Behavioural Decision Making	-	29	
J. of Human-Robot Interaction	-	-	
J. of Information, Communication & Ethics in Society	-	9	
J of Microscopy	*2.14*	*28*	
Mathematical Morphology - Theory & Applications	-	-	
Medical Image Analysis	4.45	49	
Pattern Recognition	3.61	67	
Pattern Recognition Letters	*1.90*	*46*	
Science and Engineering Ethics	1.10	22	
Security Informatics	-	-	
Social Network Analysis & Mining	-	21	
Terrorism & Political Violence	-	18	
Topics in Cognitive Science	-	37	Axelsson

italic other important journal
† if-2
- not found, journal probably too new

Conferences ITFM 2016

Name	h-5	
***AAAI**-C on Artificial Intelligence*	*48*	
AHFE-Applied Human Factors & Ergonomics	-	
ASONAM-IEEE/AAAI IC on Advances in Social Networks Analysis & Mining	23	
BII-Bioimage informatics C	-	
CARS-Computer Assisted Radiology & Surgery	-	
***CCS**-ACM S on Computer and Communications Security*	*58*	
CEPE-IACAP-Computer Ethics: Philosophical Enquiry	-	
CHI-ACM C on Human-Computer Interaction	84	Neuwerk
CogSci-Ann. C of the Cognitive Science Society	-	
***CSCW**-ACM C on Computer Supported Cooperative Work & Social Computing*	*46*	
CVPR-IEEE C on Pattern Recognition	128	
DGCI-IC on Discrete Geometry for Computer Imagery	9	
ECIS-Eu C on Information Systems	23	
EISIC-Eu Intelligence & Security Informatics C	9	
EHICOMP-IC on Social & Ethical Impacts of Information & Communication Technology	-	
HRI-ACM/IEEE Human-Robot Interaction	32	Paetzel
ICMI-ACM IC on Multimodal Interaction	22	
ICPR-I C on Pattern Recognition	34	Suveer
ICSR-IC on Social Robotics	13	
ICWSM-I AAAI C on Web & Social Media	55	Shrestha
ISBI-IEEE I S on Biomedical Imaging	24	
ISMM-IS on Mathematical Morphology	-	
MICCAI-I C on Medical Image Computing and Computer Assisted Intervention	32	Nysjö
NordiCHI-Nordic C on Human-Computer Interaction	20	
***SCIA**-Scandinavian C on Image Analysis*	*12*	
SPUDM-EADM C on Subjective Prob., Utility & Decision Making	-	
***SSP**-IEEE S on Security & Privacy*	*58*	
***UIST**-ACM S on User Interface Software & Technology*	*41*	
WSCG-IC in Central Eu on Computer Graphics, Visualization & Computer Vision	-	

C=conference, Eu=European, I=international, S=symposium, W=workshop

italic other important conference

\- not found, could be not fully reviewed or new

Choosing a journal

There are a number of criteria when choosing a journal:

1. Your references. If you have several to the same journal, that is probably a good choice.
2. List of subjects the journal covers according to its home page compared to your keywords.
3. Journal reputation, as perceived by your supervisor and colleagues.
4. Editorial board, that is Editor-in-Chief and handling Editors – are they "known" names? Are they from all over the world or just a single geographical area?
5. Journal quality as given by *h-index* and *if*. Choose the right level for your paper.
6. Do you have to have "open access" (see below)?
7. Beware of the many new open access journals with no qualifications!

Choosing a conference

Choosing a conference is more difficult, as there are more factors to take into account. The ones for journals are of course also relevant, but there are more bad conferences than journals.

Conference quality levels

1. Review of full paper by at least two persons. At least 30% reject.
   => as good as journal (at least).
2. Review of abstract (1-2 pages) with small reject fraction (e.g. SPIE). Can be OK, but
   => will not be counted very high.
3. No review - "all welcome" (this is common for non-IT conferences!)
   => same as internal report

Proceedings levels

1. Published by big publisher and available on the net (Springer Lecture Notes, IEEExplore)
2. Published with ISBN number
3. Local publication – e.g., university report
4. No "open" proceedings – only participants get paper or USB proceedings
5. Only abstracts or nothing published

(Don't waste good papers on levels 3-5!)

Oral or Poster presentation

- At many conferences these are counted as of equal quality
  => no difference in proceedings
- At some conferences posters are "marginal papers"
  => posters get less or no space in proceedings. WARNING!
- At some conferences anybody can put up a poster.
  => can be good for getting contacts, but has no publication value.

(If poster sessions are well organized, you get more interesting contacts that way!)

Other factors to consider

Can you get important contacts?
Is it an important meeting for your co-operation partners?
Are the invited speakers interesting?
Are there well-known scientists in the committees?
Is anyone from our department involved?
Is your paper good or marginal?
Cost of attending?
What do your supervisors think?

In all cases – *beware of putting your submitted papers online anywhere* – many journals and conferences then consider them published and will reject them without review! An exception is arXiv – but you have to note the submission in arXiv *and* tell the journal about it.

Open Access

"Open access" means that a paper is immediately available on the web without payment. More and more grant-giving bodies now insist that papers produced in their projects are open access, including Swedish Research Council (VR). There are several ways to solve this, with their pros and cons.

Journals come in several classes (or a mix):

1. Journals that always keep papers within payment walls
2. Journals that keep papers within payment walls for a time (1-2 years) and then release them
3. Journals that keep papers within payment walls but allows publication in open archives
4. Journals that keep papers within payment walls unless you pay for open access
5. Open access journals

If your grant-giver insists in immediate open access you cannot use type 1 – but those are getting rarer. You can try negotiating with the grant giver for Type 2. Type 3 is ideal – then you should put the full text of your paper in DiVA as soon as it is published. Type 4 will probably be the most common type, so remind your supervisor to include money for publication in the project budget. Of type 5 I am still suspicious – these new journals that crop up everywhere are seldom of an interesting quality. There are exceptions, but beware!

Open access rules for proceedings publications are less clear, as most grant givers consider proceedings papers "Abstracts" that are of no importance. VR does not require open access for proceedings publications! This is good point for quality proceedings instead of journals.

Note that UU pays about 50 million SEK a year to give you access to almost all scientific journals in the world electronically. Publishing is never for free.