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**WHO ARE YOU
WHY ARE YOU HERE**



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Are you here because...

- it is your personal vision and passion to get a M.Sc. or Ph.D. since you were undergraduate student?
- after few years of working, you realised that there is a need for postgraduate education?
- of the feeling that you learned too little during undergraduate and you are not ready to work?
- of no idea what to do, so give it a try?
- it has been quite some time and you still cannot find a job?



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**"YOUR PAST
DOESN'T
EQUAL
YOUR FUTURE"**



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Writing and presentation of academic proposal

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Part 1: Writing and presentation



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What is writing or presentation?

- It is a form of communication
- Transmitted but not understood = Failed communication
- In order to succeed in communication, you need to understand your audience
 - Who is your audience?
 - If you cannot understand yourself and have no idea what you need, can you expect to understand your audience?



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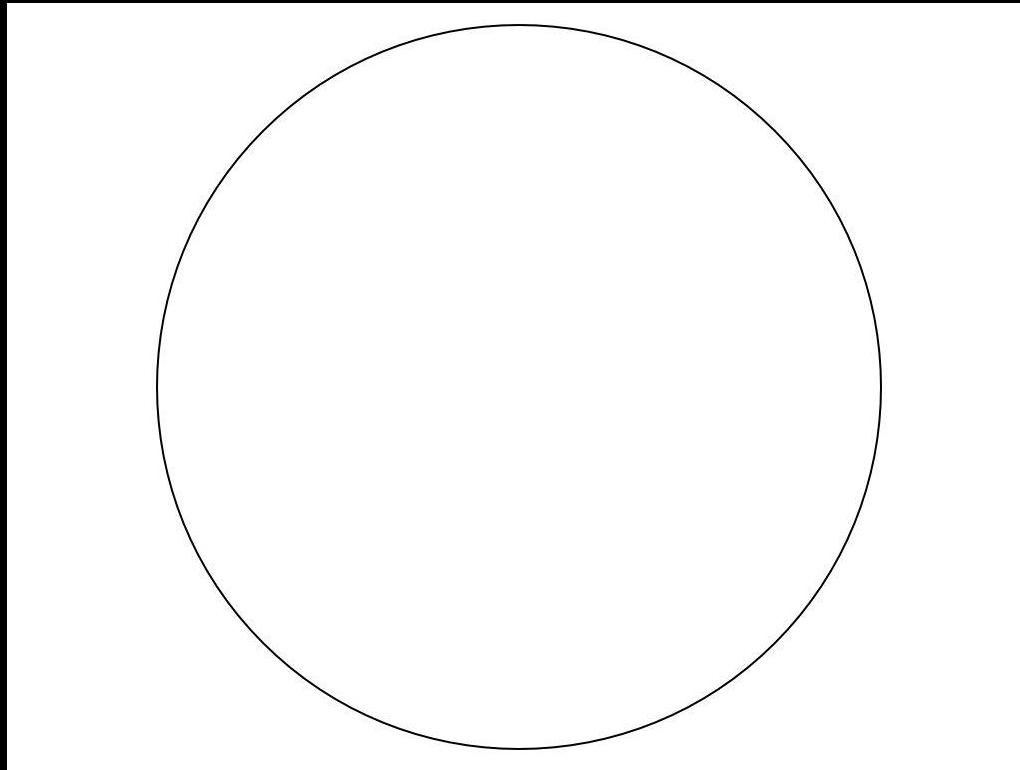


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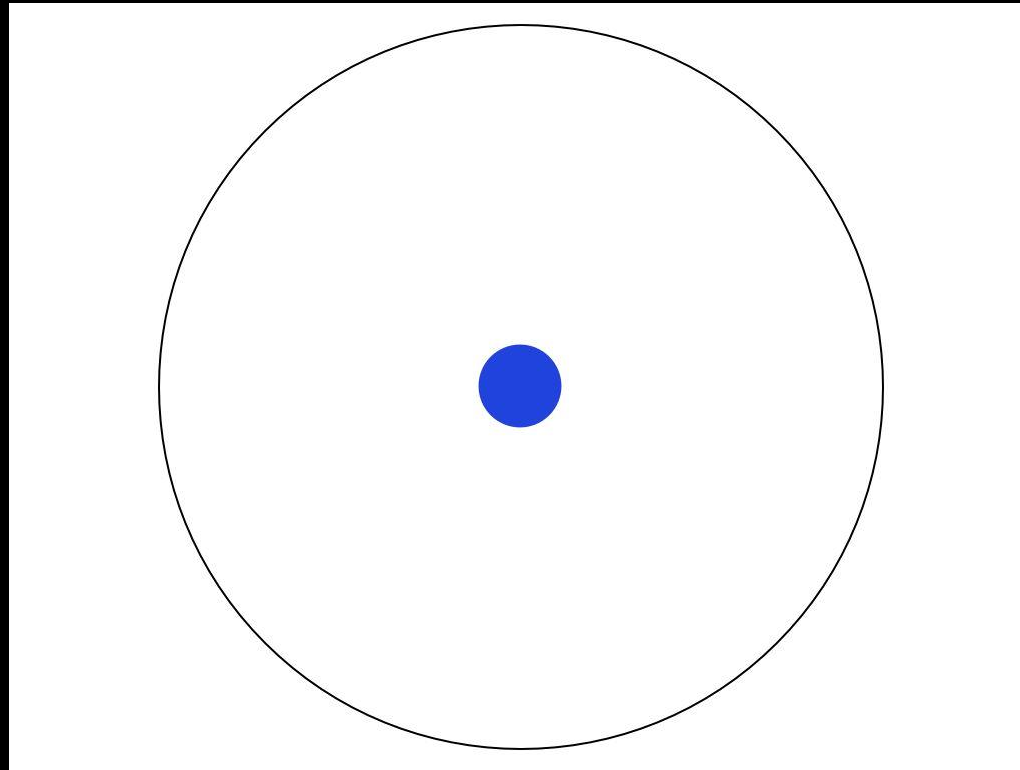
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How deep is a Master or Ph.D.?

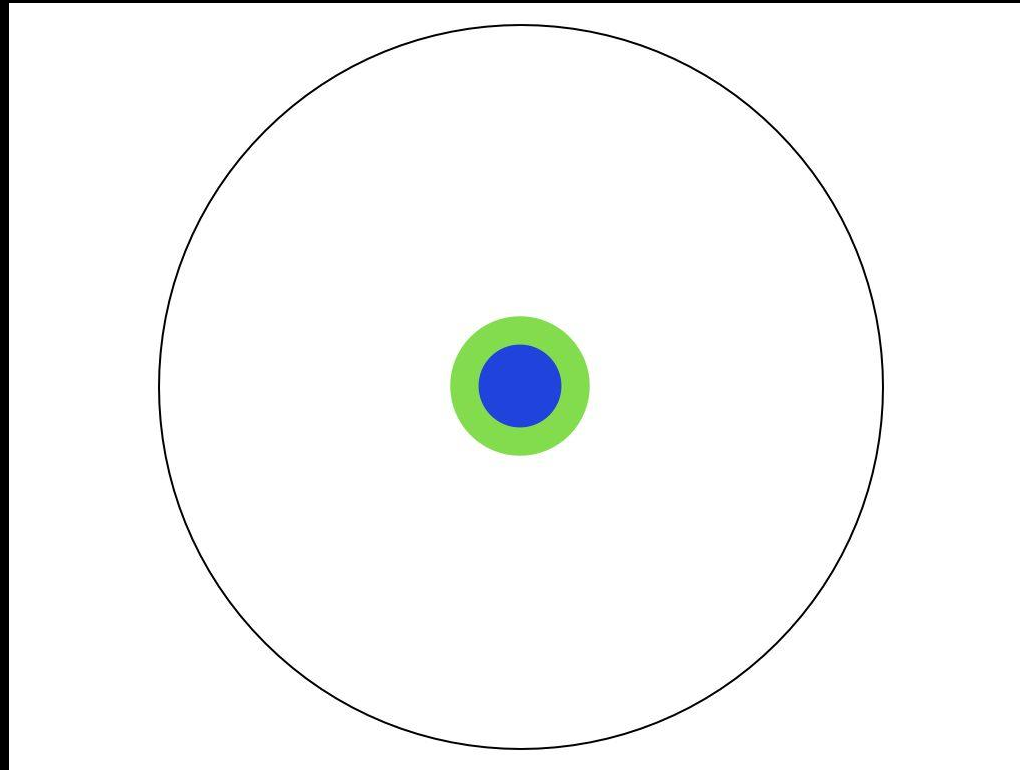
- Imagine a circle that contains all of human knowledge:



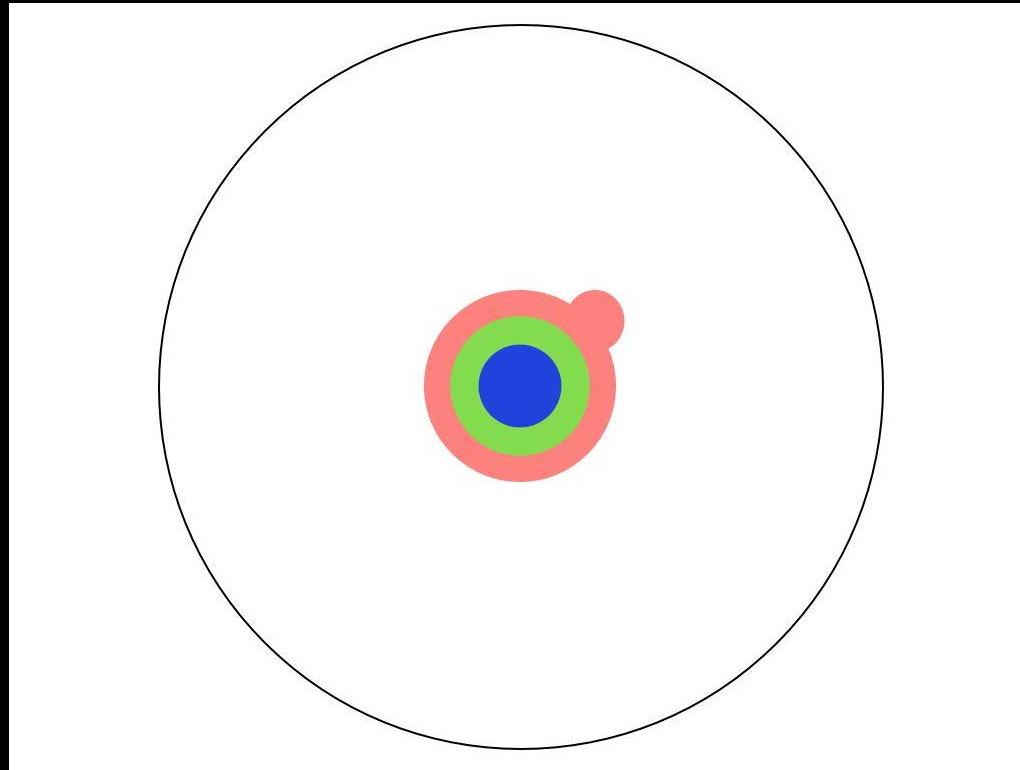
- By the time you finish elementary school, you know a little:



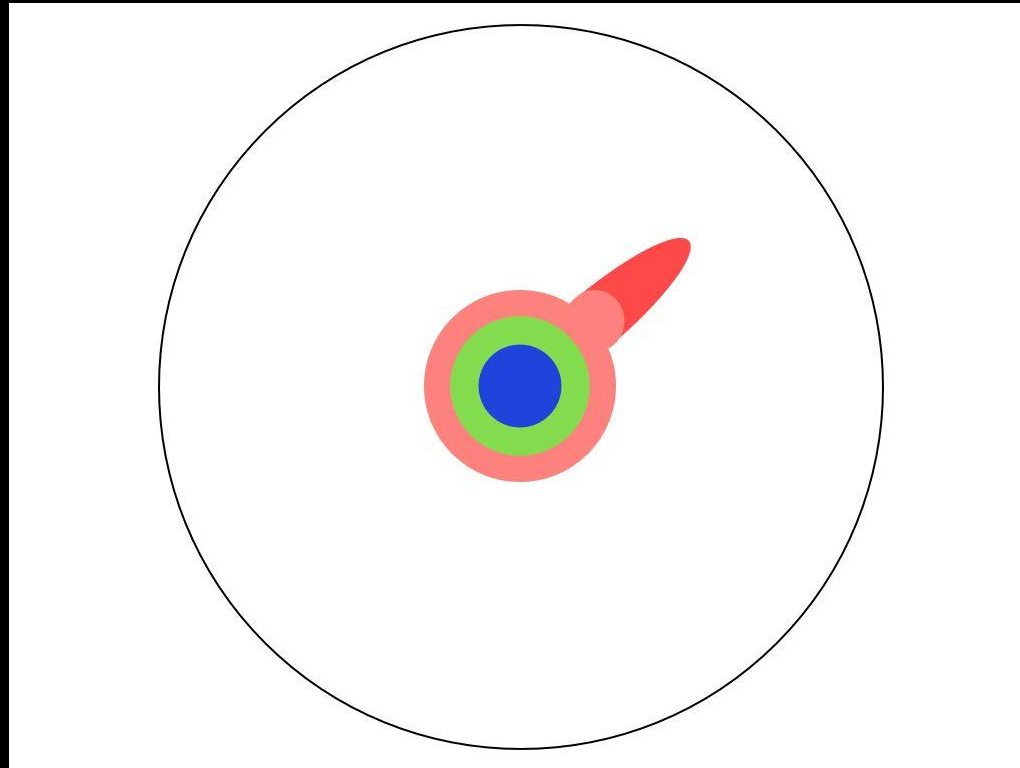
- By the time you finish high school, you know a bit more:



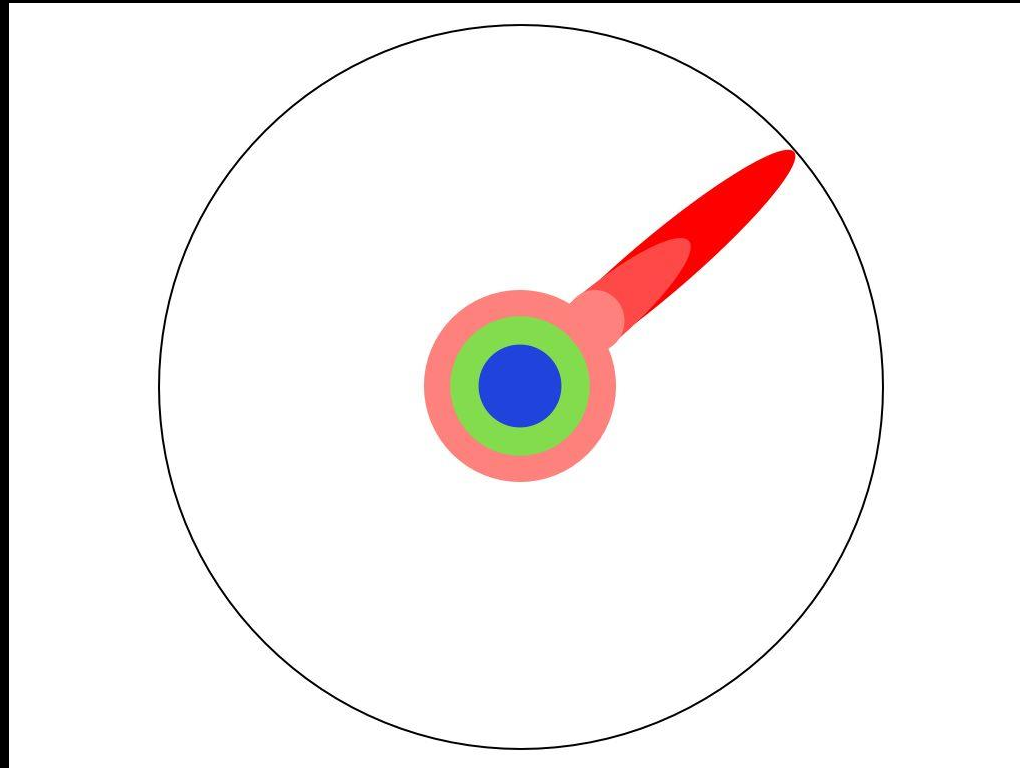
- With a bachelor's degree, you gain a specialty:



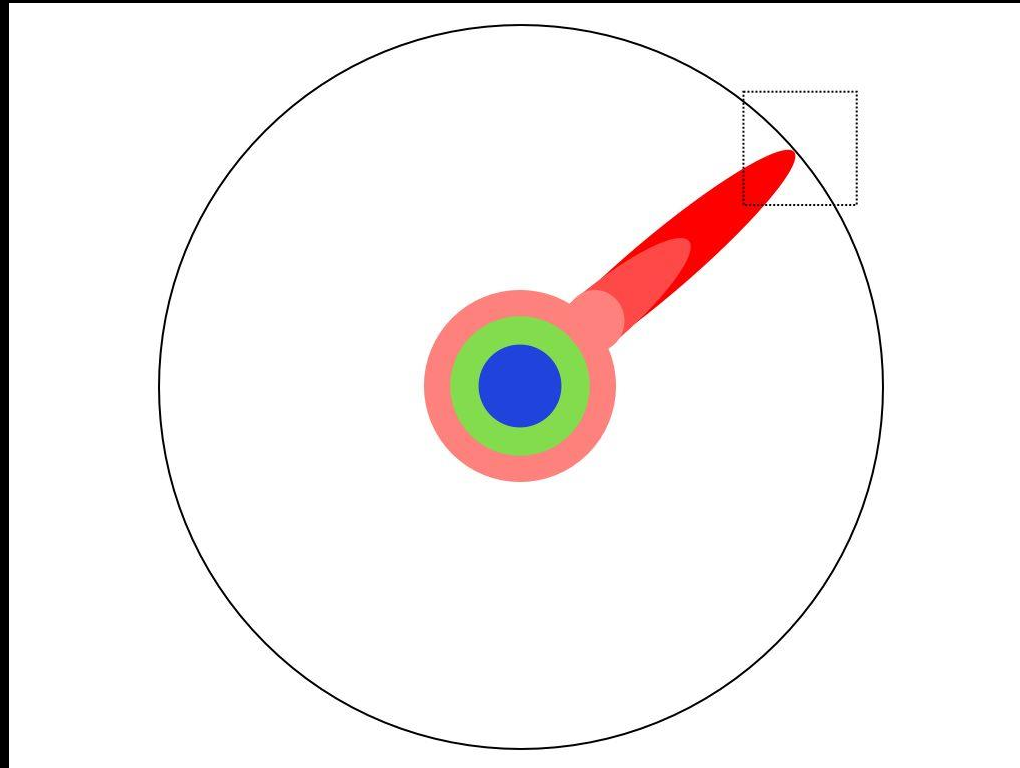
- A master's degree deepens that specialty:



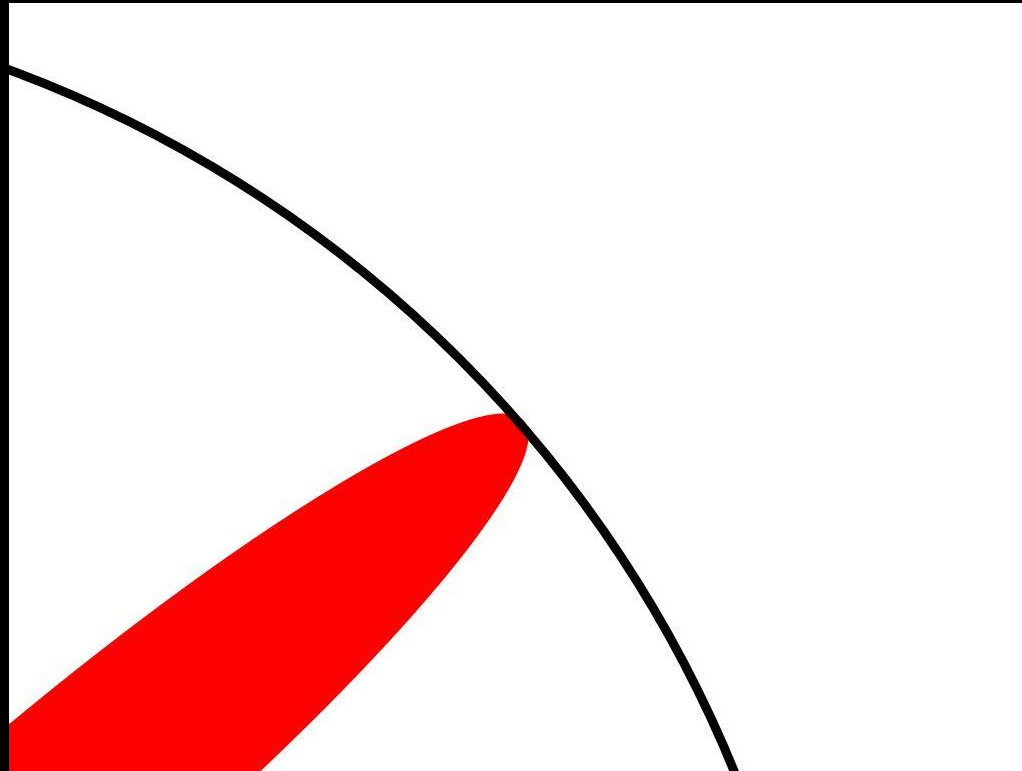
- Reading research papers takes you to the edge of human knowledge:



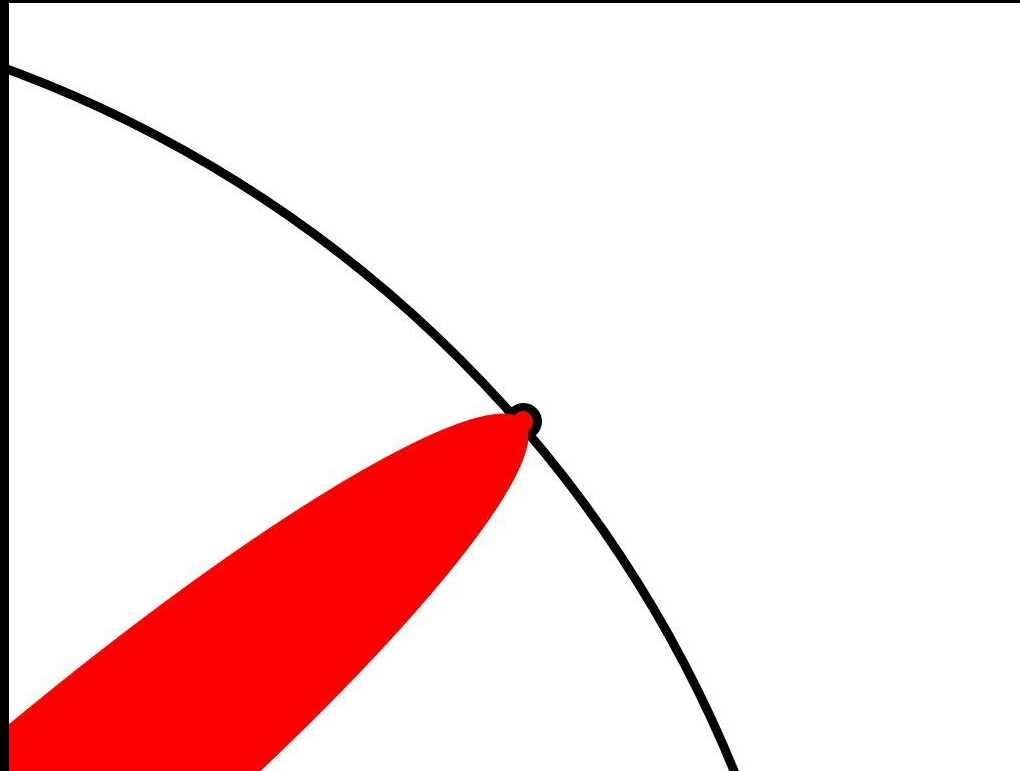
- Once you are at the boundary, you focus:



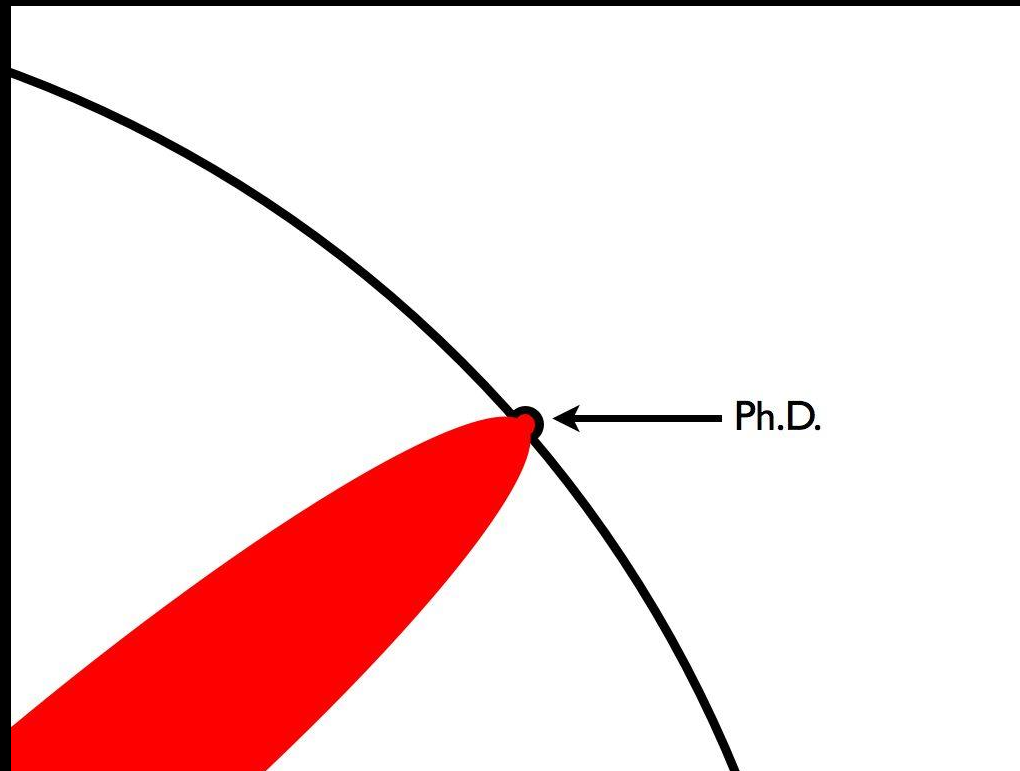
- You push at the boundary for a few years:



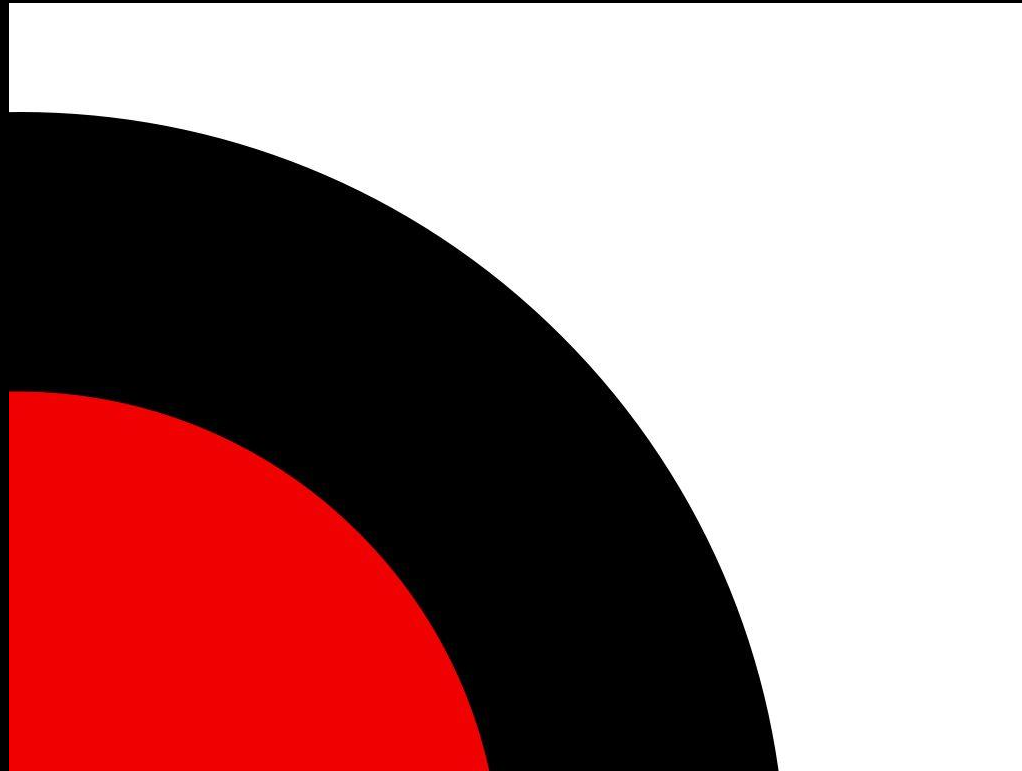
- Until one day, the boundary gives way:



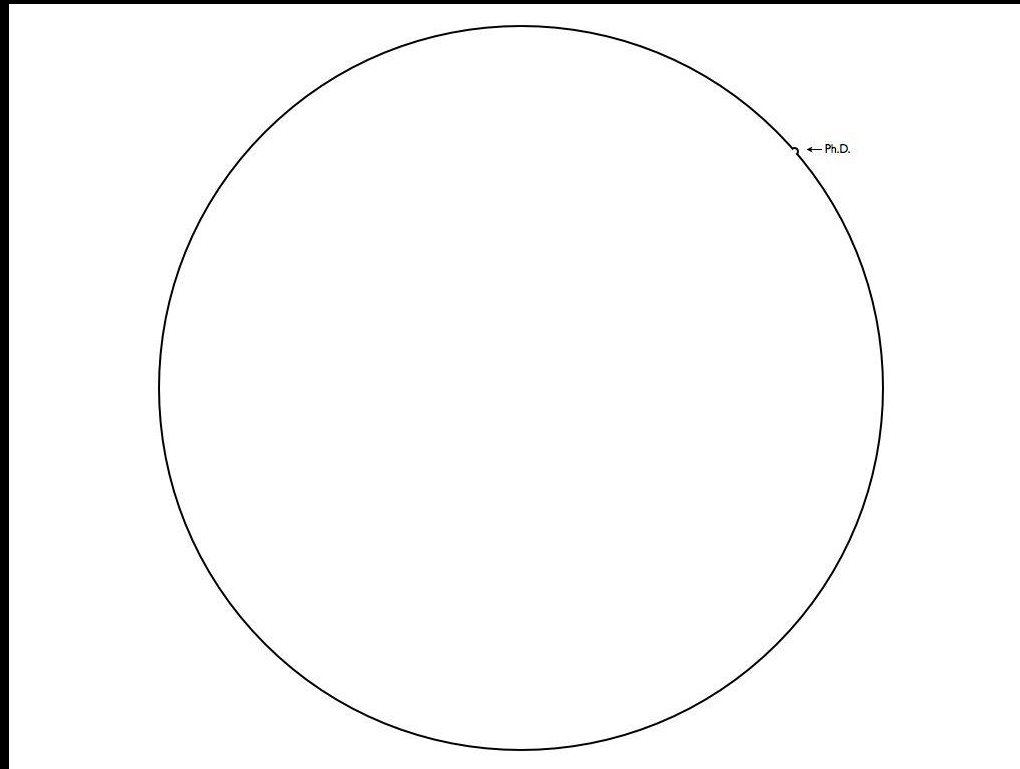
- And, that dent you have made is called a Ph.D.:



- Of course, the world looks different to you now:



- But, do not forget the bigger picture:



Why is depth important?

- So that you do not over- or under-work
- If you “over-work” your master research in within a year, you may be “promoted” to Ph.D. candidate (terms and conditions)
- If you over-work your master research but surpassed a year, you will get Master degree
- If you under-work your master research, you get nothing
- If you under-work your Ph.D. research, you may get nothing or master or M.Phil. depending on viva results



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Problems associated with depth?

- Too shallow may results in:
 - over relaxed student's research life
 - student's surrender due to lost of confidence
 - conflict with supervisor / supervisory panel who demand more
 - failure to obtain the desired degree
- Too deep results in:
 - unfairness to student
 - unnecessary artificial stress
 - over-work under-gain scenario



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Prepare your research proposal at appropriate depth

- Warning!
 - Different university have different depth definition
- What should a research postgraduate student do?
 - Prepare a research proposal that is according to UMS standard (or definition of depth)
 - However, do not forget your have external examiner/s who is/are not from UMS
 - The best person to consult is your supervisor



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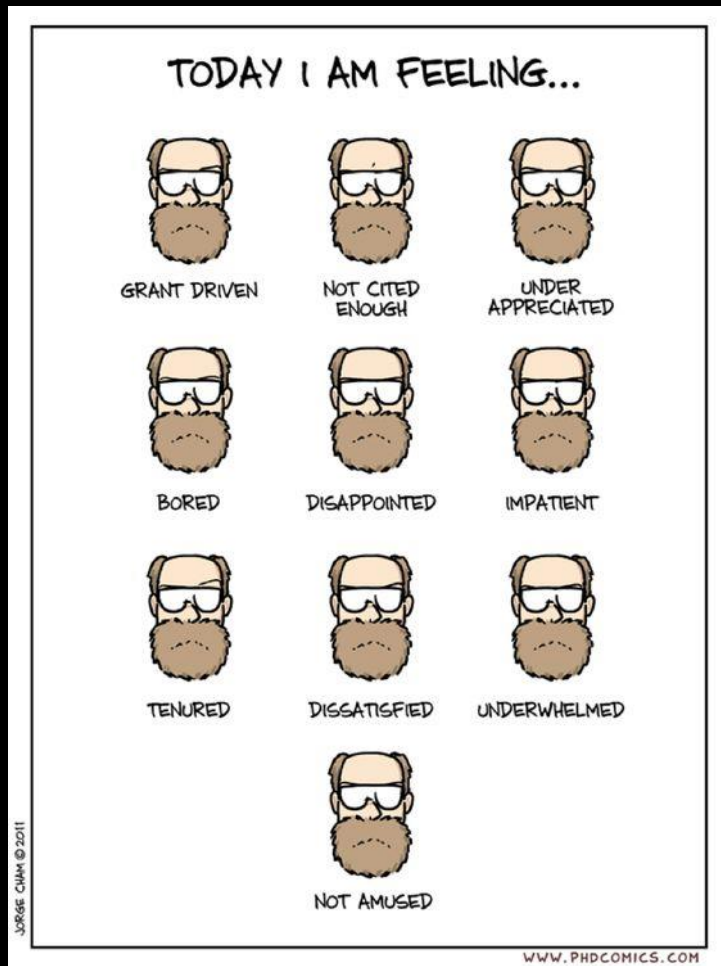
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Proposal audience

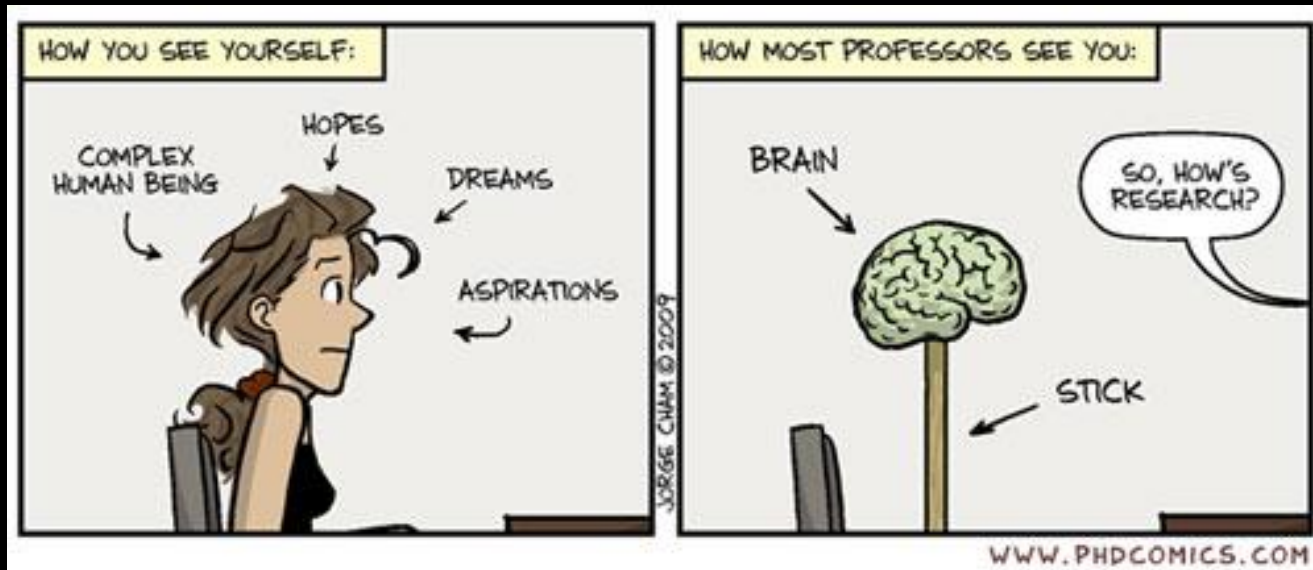
- Written proposal
 - Yourself, yourself (umpteenth times) and supervisor
 - Selected faculty members of relevant expertise (subject to faculty practice)
 - Research funder evaluation panel (if you apply for grant)
- Proposal presentation and defence
 - Chair person
 - At least one professor
 - Selected faculty members of relevant expertise
 - Supervisor
 - Other students (if it is an open presentation and defence)

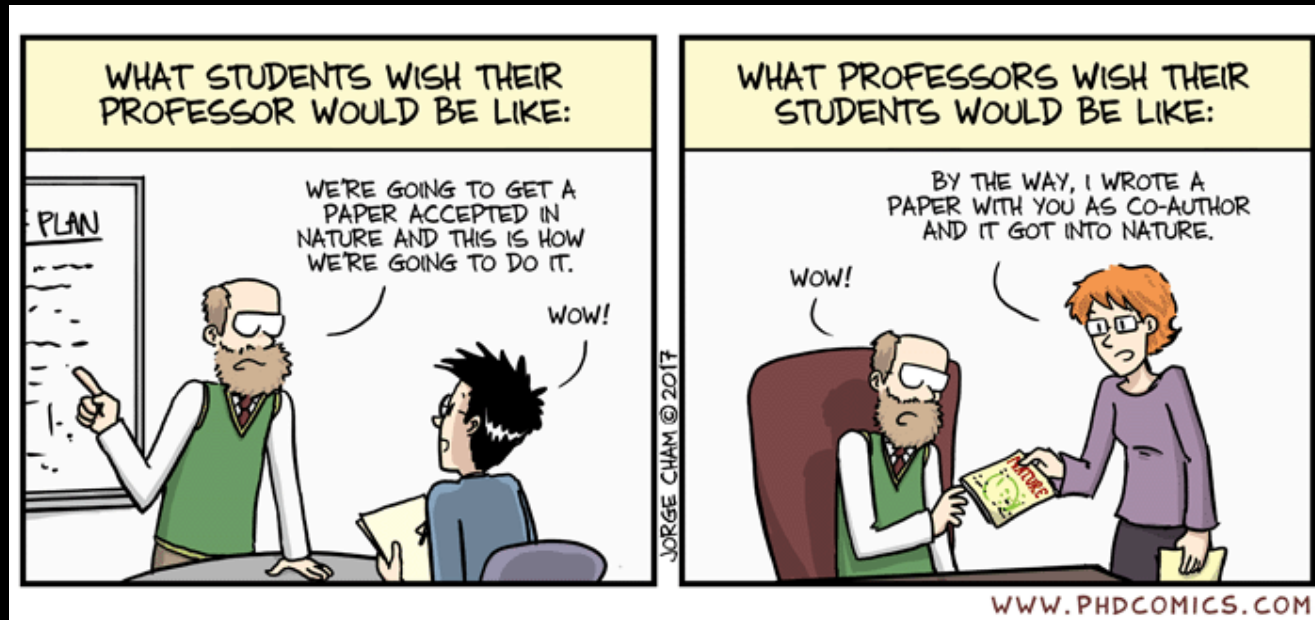


How you see your supervisor



- Someone with broad knowledge on the subject matter?
- A father or mother?
- He or she has no face expression?
- In academia, you focus on subject matter
 - Not being emotional is seen as professional





Not so little things often forgotten

- You need to produce journal in order to graduate
 - One for master and two for Ph.D.
 - Make sure your research proposal is broad or deep enough
- Time lapse or lost for almost for everything
 - Waiting for chemical, apparatus, instrument, analytical service, journal acceptance, thesis submission notice, viva etc.
 - Although minor per event but the total time added up can be months
 - Make sure your research proposal include all these in the time planning



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- Research fund do not drop from the sky
 - Supervisor with ready grant: What are the side effects?
 - Supervisor without grant: What are the side effects?
 - Either way, this will affect you candidature time indirectly
- Neither do research “ingredients” grow on tree nor sold in 711
 - Purchasing of chemical, apparatus, instrument, etc. require processing and delivery time
 - Include these in your research proposal time planning



- Supervisor, faculty members, examiner, viva panel etc. are often not young of age
 - Those above 40 years old is usually “visually challenged”
 - That is one of the reason of having format for almost everything needed on hardcopy
 - Your presentation slide should not contain character too small
- The research may be your “life and death” importance to you
 - But not everyone in the presentation room want to be there, so do not waste their time with unnecessary lengthy but hollow presentation
 - Make sure you give solid compact impactful presentation



- Not everyone in the presentation room is the expert of the topic (especially if it is a Ph.D. proposal)
 - Those present are expert of their respective field which your research area, niche and scope may have direct or indirect relevance
 - The comments they give are from the view of their respective fields and this may look like a “conflict of views” at glance
 - This should not occur if you did your literature reviews well
 - Make sure you do a holistic literature review that truly review (not copy-paste of undigested information) the topic holistically



Recap

- The reason you are in grad school
- Writing and presentation: Definition and purpose
- Relative depth comparison of bachelor, master and Ph.D.
- Importance of appropriate depth
- Proposal audience
- How you see your supervisor?
- How you see yourself?
- How most professors see you?
- Important but often forgotten little details



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End of Part 1



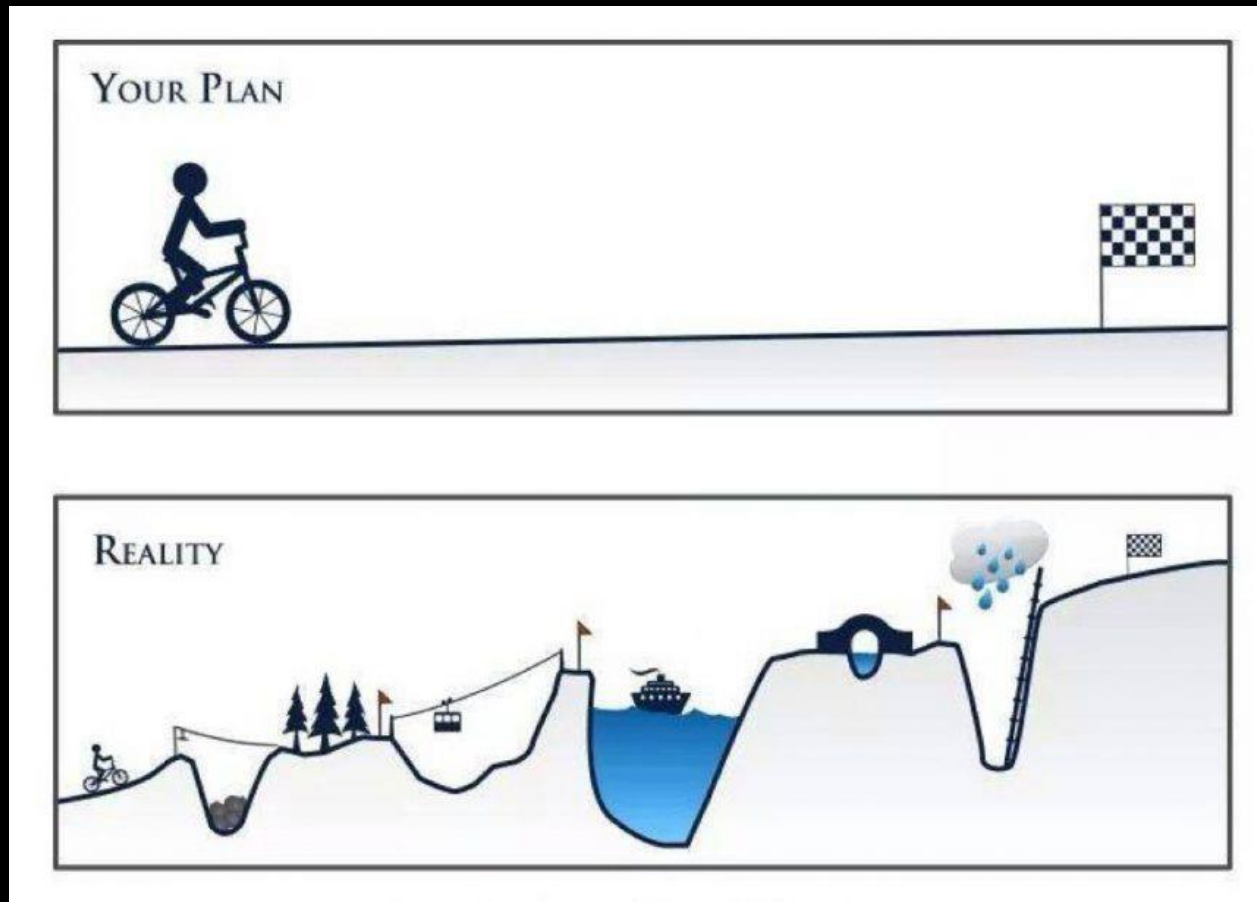
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Your imaginary plan versus reality



**STOP BEING
AFRAID OF
WHAT COULD
GO WRONG,
AND START
BEING EXCITED OF
WHAT COULD GO RIGHT.**

— TONY ROBBINS



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Part 2: Research proposal



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MY WRITING STYLE



HOW I WRITE



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WRITING: THE THING THAT HAPPENS IN BETWEEN EXHAUSTING
YOUR DEADLINE AND EXHAUSTING YOURSELF.

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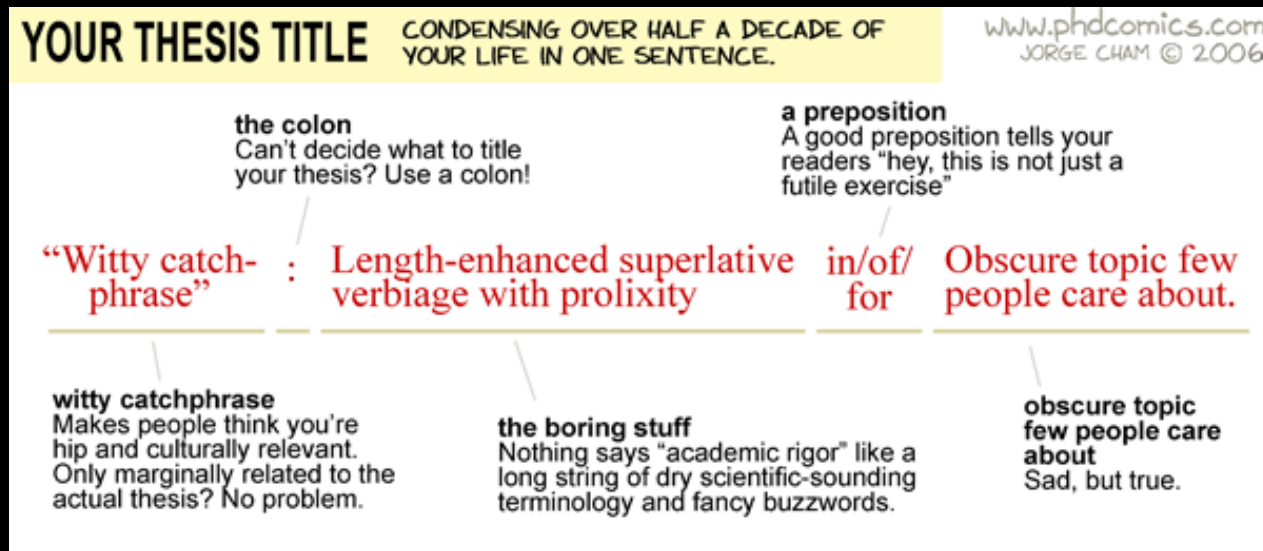
Anatomy of a research proposal

	Academic	Grant
Title	/	/
Executive summary (250 - 300 words)	/	/
Research background		
- Problem statement (200 – 300 words)	/	/
- Hypothesis	/	/
- Research questions	/	/
- Literature reviews (1000 – 1500 words)	/	/
- Relevance to funding body	X	/
References	/	/
Objectives	/	/

	Academic	Grant
Methodology		
- Description of methodology (250 - 500 words)	/	/
- Flow chart of research activities (1 page)	/	/
- Research activities, milestone and dates (1 page)	/	/
Expected results/benefits		
- Novel theories/new findings/knowledge	*	/
- Research publication	*	/
- Specific or potential applications	*	/
- Number of PhD and Masters (by research) students	X	/
- Impact on society, economy and nation	*	/
- Intellectual Property(IP)	*	/
Access to equipment and material	*	/
Budget	*	/
Declaration	/	/
Appendix	*	*

Title

- Highlight main research area which address research problem
- Focus on the overall objective instead of smaller specific objectives



Executive summary

- The most read section of the proposal (not more than 300 words)
 - This first impression giver can kill your proposal if you do it badly
 - Last and most difficult section of the proposal to write
- It consists of summary highlights on the:
 - background of research
 - literature review
 - objectives
 - research methods
 - expected outcome



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Problem statement

- In every research, we are trying to solve something (question)
- State clearly and concisely what led to the question?
- You must develop audience's understanding of the research needs at this stage



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Hypothesis

- It is a supposition or proposed explanation made on the basis of limited evidence as a starting point for further investigation

2. Hypothesis

The hypotheses are:

- (a) The utilization of oil palm shell as alternative constructed wetland media resulted in better *Typha angustifolia*'s growth and removal of heavy metal.
- (b) Heavy metal concentration in *Typha angustifolia* is highest at its entry point.
- (c) Flow pattern will affect the removal of heavy metal, growth and heavy metal distribution in *Typha angustifolia*.
- (d) Presence of *Typha angustifolia* and the application of different media and flow pattern will results in different heavy metal removal mechanism.



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Research question

- This is a difficult part unless you have done sufficient literature reviews
- W and H questions created in order to help solve the stated problem
 - What are the parameters involved?
 - How and why they affect the subject?
 - Where and when it will or will not happen?
- A true research is about understanding a phenomena where evaluative or feasibility study should be avoided



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Literature reviews

- The most common mistake is presenting a collage instead of a review followed by referring to grey literatures
- The objectives of literature reviews are:
 - to describe the development of the subject matter
 - to evaluate and interpret existing research
 - to voice your intellectual opinion (agree and disagree)
 - to identify your proposed work in relation to other works
- Information must be digested and presented topic by topic



Relevance to funding body

- This is only necessary if your proposal is intended for research grant application
- It basically means how is your proposed research content related to the funder's benefit

5. Relevance to Government Policy, if any

Currently and from time to time, our Malaysian palm oil industry gets unnecessary attention and hardship from vegetable oil producing countries, mainly the western block. We are accused for being not inline with the sustainable practice. One of the parameter that this research can contribute into is the utilization of spent oil palm shell towards zero waste generation.



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References

- Follow the required format
 - Harvard style is often adopted if there is no format requirement
- Grey literatures must be avoided at reading phase and it must not be brought up to this stage of the proposal
- The number of references depend on the subject area



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Research objectives

- The research specific objectives of the research work must be stated
 - It is often presented with research scope and limitation either in the same or neighbouring sections
- Research objectives must be SMART:
 - specific
 - measurable
 - achievable
 - realistic
 - and within time-frame



Methodology

- Field assessment based research often uses the terminology methodology while experiment based research uses materials and methods
- Materials refer to all the materials needed to perform the research and a list of materials must be presented
 - Specification of the materials must be stated clearly
 - If you need a specific brand, state it preferably with its code name or number
 - State specific quantity instead of using meaningless adjective some or few

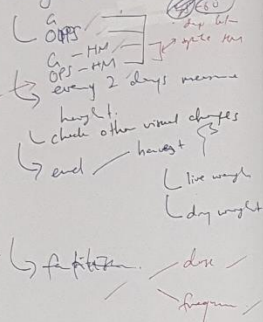


Description of methodology

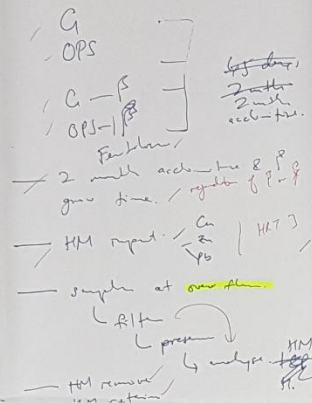
- Describe in detail how will you carry out your research
 - Describe the data needed to test hypothesis or answer question
 - Draft the procedure to achieve the detailed objective respectively
 - Explain not only what you do but the reason of doing it
 - Information must be complete to ensure repeatability
 - Explain how will the data be analysed
 - Experimental control must be included
- If a procedure is well known, just name it instead of describing unnecessarily



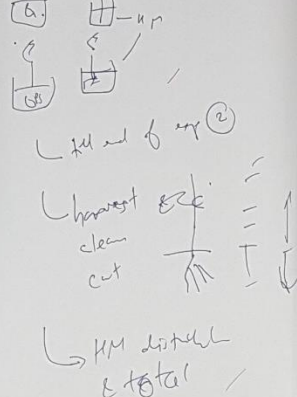
① Plant growth



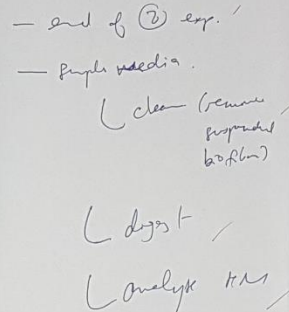
② HM removal overall



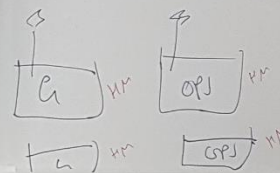
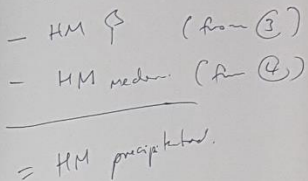
③ from ①



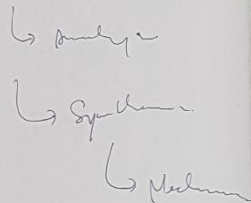
④ from ②



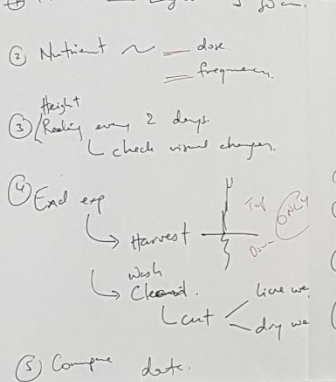
⑤ HM retention (from ②)



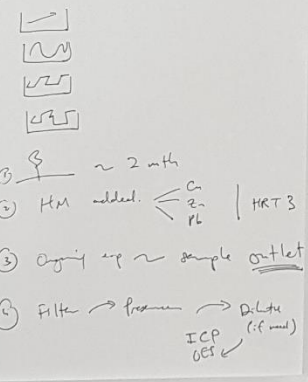
⑥ Date for ⑤



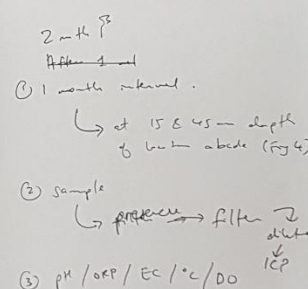
⑦ Plant



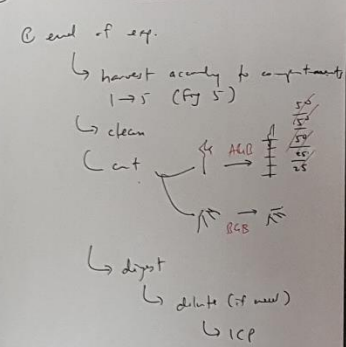
⑧



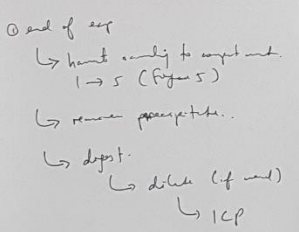
⑨ Figure 4



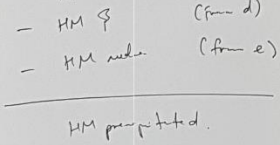
⑩ Figure 5



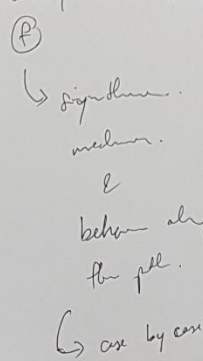
⑪ Fig 5

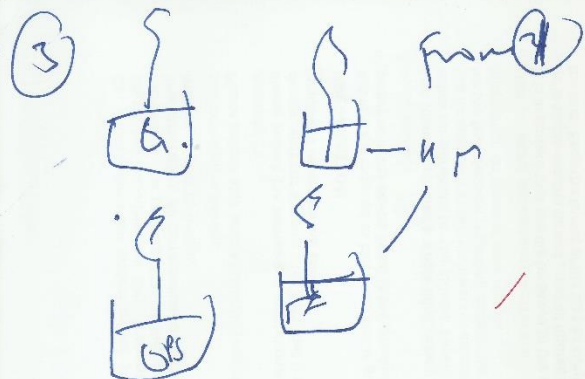


⑫ HM retention

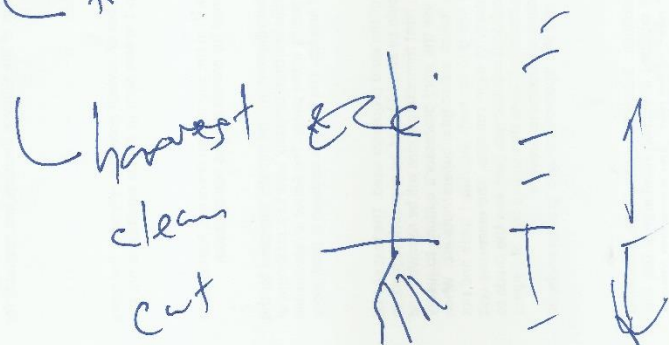


⑬ analyse date for





full end of exp (2)



HM distal & total

(c) Figure 4

a	b	c	d	e

 port location.

2 mth \uparrow

~~After 1 mth~~

(1) 1 month interval.

→ at 15 & 45 m depth of bottom abode (Fig 4).

(2) sample

→ ~~preserve~~ → filter → d. h. t. → ICP

(3) pH / ORP / EC / °C / DO

Small-scale Constructed Wetland Experiments:

(1) Effect of media and heavy metal on the plant growth:

Four types of small-scale constructed wetland units will be created; namely, G- and OPS-based heavy metal non-spike and spiked constructed wetland units. The *Typha angustifolia* plantlets will be allowed to grow and acclimatize for two months from the day of planting. Every constructed wetland unit will be loaded with research grade fertilizer (N:P:K 15:15:15) at the rate of 5 g per week. Upon acclimatization, half of the G- and OPS-based constructed wetland units will be exposed to synthetic wastewater while another half will be exposed to deionized water. Plant height measurement and physiological visual inspection will be carried out every two or three days and computed. Visual evidence will be recorded utilizing professional full frame digital camera and its accessories (Canon 5D mk IV, Canon 24 - 70 mm f/2.8L lens, Canon Speedlite, etc.). At the end of the experiment, the plants will be harvested, cleaned, cut and divided into above- and below-ground biomass. The live weight will be measured accordingly. In order to obtain the dry weight, the biomass will be placed in oven at 103±2°C until constant dry weight is achieved prior to weighing.

Pilot-scale Constructed Wetland Experiments:

Four types of pilot-scale horizontal subsurface flow constructed wetland units will be created; namely, conventional, vertical baffled, horizontal baffled and horizontal-vertical baffled flow types. Every pilot-scale constructed wetland unit will be loaded with research grade fertilizer (N:P:K 15:15:15) at the rate of 20 g per week. Regardless of types, two months acclimatization time will be adopted in order to ensure the maturity of the constructed wetland units. Upon acclimatization, every constructed wetland unit will be exposed to synthetic wastewater at the flow rate equivalent to HRT 3 days. The effect of flow pattern on various parameters will be access as describe hereafter.

(a) Effect on plant growth:

The height of plant will be measured every two or three days and computed continuously. Visual changes on the plant and constructed wetland unit will be recorded utilizing macro imaging technique. At the end of the experiment, the plants will be harvested, cleaned, cut and divided into above- and below-ground biomass. The live weight will be measured prior to drying the biomass in oven at 103±2°C until constant dry weight is obtained. Once dried, the dry weight will be recorded.



Flow chart of research activities

- Illustrate the flow of research activities
- The objective of flow chart is to check the integrity of the entire research project
 - Any doubt on the research direction should be detected at this stage
 - Eliminate unnecessary research procedure or activity that have no relevance to the research goal
 - Must add in research procedure or activity that is needed in order to answer the research question and objective



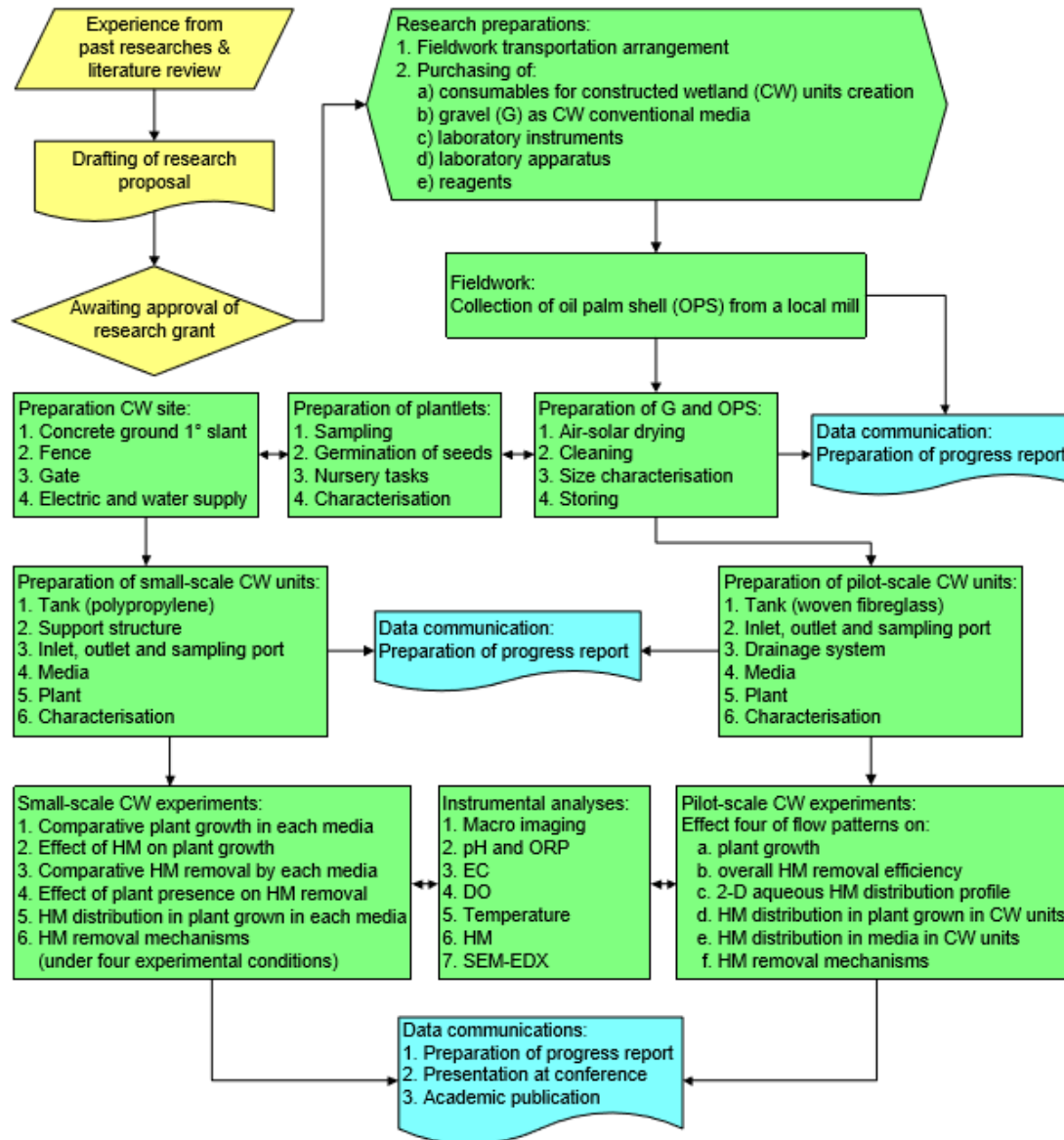
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Flow Chart of Research Activities



Research activity, milestone and date

- There should be a timely target achievement of every research task planned
- Due to the semester system, you should think of what to be completed in each semester
- Research students often forget that:
 - purchasing of chemical etc is not a walk-in shopping but will require researching, ordering, approval and delivery time
 - journal publication require writing, review, correction and publication time
 - thesis submission has standard procedure that will take a few months



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Research budget

- Prepare research budget so that supervisor and faculty / institute will know what are needed and their costs
- Research will required funding in the following:
 - salary and wages – hiring of fieldwork helper
 - travelling and transportation – fieldwork
 - rental – equipment or site rental
 - materials and supplies – materials needed
 - maintenance and minor repair services – for research equipment
 - professional services – SEM *etc* service
 - accessories and equipment – purchase equipment not found in UMS
 - GST – research fund receive is subjected to tax



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Recap

- Anatomy of a research proposal
 - Title
 - Executive summary
 - Introduction
 - Problem statement
 - Hypothesis
 - Research question
 - Literature reviews
 - References
 - Research objectives
 - Methodology
 - Description of methodology
 - Flow chart of research activities
 - Research activity, milestone and date
 - Budget



Ph *inally*
D *one!*



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