



A script for a workshop on thesis supervision

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1. Introduction

1.1. *Rationale*

In the framework of LINQED¹, the idea of improving master thesis supervision was conceived around 2012. An occasion emerged when UGM (Universitas Gadjja Mada, Yogyakarta, Indonesia) proposed a meta-workshop, to design together with ITM a workshop for thesis supervision, which could be repeated in other (all?) Linqed members. The output of the first meta-workshop of one week, would be tested and “validated” with a more ample number of participants, the subsequent week.

From the beginning two main axes became apparent: supervision could be improved by more research competence and by better pedagogy. It became also quickly clear that both fields could not be covered in a one-week workshop, nor in a two-weeks one. Research competence should be tackled in other seminars or workshops, or training programmes.

In this meta-workshop further thoughts were given birth during discussions.

First, the question was raised if sufficient true and impact-appropriate research subjects can be found and correctly addressed yearly for the thousands of undergraduate, postgraduate and PhD students in Indonesia.

Second, the assembly agreed that in most cases supervisors pay too little attention to the learning process, and too much to the final product of the student.

Third, the pedagogy of a supervision workshop was tested, and the preference went to the Socratic method, making participants discover long time known truths and rules, instead of writing them on a blackboard or in a PowerPoint presentation.

1.2. *Less research, better research*

Thesis supervision makes no sense if students have no formal training in research. This does not mean lengthy courses in statistics, but rather in logic of research: hypothesis and objectives formulation, evidence, impact, biases... Training in supervision means also training in research training, the best way to do this is a shortened replication of the students reality with the supervisors themselves working on a generic protocol.

¹ LINQED is a networking initiative of ITM Antwerp and its academic partners in the global South, sponsored by the ITM-DGD framework agreement (FA3), to strengthen capacity in higher education in International Health

We prefer a reverse logical sequence in protocol formulation: after research question and objectives formulation, expected results are designed. Thorough discussion of these results defines inclusion criteria, research methodology, database structure and questionnaire, not the other way round, which is so often the case. This anticipated review of the expected results also offers key elements for the “weaknesses paragraph” in the discussion section of the research report.(see p. 22)

Next to the pedagogical aspects, supervision implies the use of specific technical tools: database construction and validation, statistics to apply, to deal with patients lost to follow up etc. For many of these topics answers are readily available, and should be at hand. Much can be learned from examples from the past.

Finally, abstract and thesis writing is an art ... which can be learned. Simple technical suggestions by the supervisor, enforced with some software help can provide miracles. Presentation of results on the other hand, is a talent ... which also can be learned. A few sessions and your student will receive an ear-splitting applause ...

Thesis writing too often means collecting some data, and trying to do some –most often- inadequate research, because of small sample size, rare pathology, lack of diagnostic or other technical means. Other valuable topics can be –adequately- addressed: comprehensive literature review, formal meta-analyses, cost-benefit and cost-effectiveness research based partially on existing data, translation of evidence from international literature into national or regional guidelines. We are convinced, if thesis writing remains an obligation for master or ”subsequent master” students, that the latter types of thesis projects are worthwhile, feasible, and rewarding.

1.3. Pedagogical method

Most of us think we are good supervisors. Ex cathedra teaching² in thesis supervision would be counterproductive. Only self-reflection, stimulated by open well-chosen questions can improve skills and motivation.

For training clinical decision making we use since decades a variant of problem-based learning, initiated in the ITM by Dr. Perrin from

Key messages:

- Design expected results, with dummy numbers
- Organise tough review, this is key to critical thinking
- Focus on learning process instead of on product, finally your product will be better
- What was taught, you forgot. What you discovered, you remember.
- Less research is better research

² Classic instruction, based on an information transfer paradigm

the Red Cross, Geneva. Open questions are given to tables of 4-5 participants, to be answered in a plenary session after 15-30 minutes. This method has been proven highly effective in training refugee camp management, but also in training in clinical decision making at ITM.³

1.4. Time allocation

We propose a time partitioning in three more or less equal slots:

- research competence driven exercise pre-coffee in the morning, offering a context for the discussion post-coffee
- a pedagogical discussion on consecutive steps in thesis development post-coffee
- a skills lab in the afternoon: useful computer tools for thesis supervision, useful presentation hints.

In the following chapters a tentative time schedule is proposed, examples of course modules are written, and results of discussions are reported, mostly restructured, from the meta-workshop and the “validation workshop” at UGM (November 2012). Some syntheses of literature are presented also.

³ For description, see Appendix 1: Models and rules of interactive teaching p 35

2. Learning objectives

At the end of this workshop participants should be able to,

- Define the aim and academic requirements (evaluation criteria) of a “Master thesis project”
- Master and assess the quality of the different steps in research protocol development for master thesis projects
- Evaluate the soundness, provability and usefulness of a hypothesis (pre-test probability of the hypothesis, general statistical provability, impact of proving or falsifying the hypothesis)
- Propose and justify a sequence for the different steps in research protocol development
- Apply a specific supervision pedagogy for each phase in a master thesis project; getting started, following-up and finalizing the project, taking into account different approaches to research supervision
- Ask the right questions to coach each step in a thesis project development & implementation process
- Support students in acquiring key technical skills for thesis projects (presentation skills, writing skills, software-use e.g. Word & Excel)

3. Draft of a time schedule

Monday

08.30 - 08.45	Welcome speeches
08.45 - 09.00	Introduction of Participants and Programme
09.00 - 10.30	The 'sham' protocol
10.30 - 10.45	Coffee break
10.45 - 12.30	Exploring the problems of thesis supervision encountered by workshop participants
12.30 - 13.30	Lunch
13.30 - 15.00	Why should we/universities require writing a thesis?

Tuesday

08.30 - 08.45	Wrap-up: what each of us will never forget from yesterday's session?
08.45 - 10.30	From 'problem' to 'hypothesis: workshop participants work out a protocol in small groups: title, rationale (problem), research question, hypothesis and objectives
10.30 - 10.45	Coffee break
10.45 - 12.30	Coaching Problems : managing the first encounter
12.30 - 13.30	Lunch
13.30 - 15.00	Research skills 1: MS Word: writing skills and supervision tools

Wednesday

08.30 - 08.45	Wrap-up: what each of us will never forget from yesterday's session?
08.45 - 10.30	Continue to develop the protocol
10.30 - 10.45	Coffee Break
10.45 - 12.30	Coaching problems during follow-up meetings; workshop participants share personal anecdotes
12.30 - 13.30	Lunch
13.30 - 15.00	Research skills 2: MS Excel: browsing data and some common basic problems with statistics

Thursday

08.30 - 08.45	Wrap-up: what each of us will never forget from yesterday's session?
08.45 - 10.30	Protocol: Expected results: tables and figures with dummy numbers
10.30 - 10.45	Coffee Break
10.45 - 12.30	Thesis assessment aspects
12.30 - 13.30	Lunch
13.30 - 15.00	Research Skills 3: Two alternating groups: mini workshops presentation skills / abstract writing.

Friday

08.00 - 08.30	Wrap-up: what each of us will never forget from yesterday's session?
08.30 - 10.00	Example of "merciless reviewing" of a protocol, preparing the discussion section of the final article or monograph.
10.00 - 10.15	Coffee break
10.15 - 11	Thorough reviewing of an abstract, also preparing the writing of the discussion section.
11.00 - 11.15	Workshop evaluation questionnaire
11.15 - 11.45	Unanswered questions
11.45	Lunch
13.00 - 15.00	How to improve thesis supervision in the hosting institution (e.g. Medical Faculty UGM)
15.00	Closing ceremony

4. Sham protocol

The teacher presents a protocol, at least of dubious quality. Participants are asked to comment and to criticise, as if they were the supervisors, in a positive way. “Guiding” is the keyword, not “destroy” nor blaming the student. So, the unique question is: “**How would you guide this student?**”

Antimalarials and herpes genitalis A big leap forward for humanity

J. Van den Ende
ITM Student
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supervisor

What it is about

- **Definition**
- [By Mayo Clinic staff](#) Genital herpes is a common sexually transmitted infection that affects both men and women. Features of genital herpes include pain, itching and sores in your genital area. But many infected people have no signs or symptoms of genital herpes. **An infected person can be contagious**, even if he or she has no visible sores.
- Genital herpes is caused by the herpes simplex virus (HSV). Sexual contact is the primary way that the virus spreads. After the initial infection, **the virus lies dormant** in your body and can reactivate several times a year.
- **There's no cure** for genital herpes, but medications can ease symptoms and reduce the risk of infecting others. Condoms also can help prevent transmission of the virus.

Rationale

- Three expats reported halt of their herpes eruptions during mefloquin prophylaxis.
- Antimalarials might be a good treatment for herpes genitalis

Objectives

- To prove that mefloquin, hence antimalarials, can cure herpes genitalis
- To free the world of this long standing disease

Hypothesis

- Antimalarials can cure herpes genitalis, a pandemic.



Methodology

- A randomised controlled trial.
- 20 travellers travelling >2 months, suffering from herpes genitalis
- Randomised to mefloquin or placebo

Inclusion criteria

- Inclusion criteria
 - Persons intending to travel > 2 months to malaria endemic country
 - Persons consulting the travel clinic
 - Having signed an informed consent form
- Exclusion criteria
 - Persons not traveling
 - Persons not presenting at our clinic
 - Persons allergic to mefloquin
 - Pregnant women

Expected results

	Placebo	Mefloquin
Eruption	7	0
No eruption	3	10
	10	10

OR= infinity
P value= 0,00000

Conclusions

- Antimalarials can cure herpes genitalis.
- This study is a **major breakthrough** in medicine.

Acknowledgments

- I'm deeply grateful to my supervisor and mentor Prof. G. Van Heusden, who relentlessly encouraged me in this groundbreaking research.



Workshop participants will have the tendency to immediately focus on content and not on the reasons why the student chose the topic or his/her personal learning objectives. This issue will be discussed the second day (Managing the first encounter).

Main topics might be:

- Rationale. This question leads us to two more: what is a good hypothesis, and what is the importance of pre-research probability.
- A good hypothesis should be falsifiable: the pre-research probability should not be too high.

- A good hypothesis should have a sound basis: the pre-research probability should not be negligible.
- Error alpha (false positive rate) and error beta (power and sensitivity) can be touched, if the audience points to it. A two by two table exercise might be indicated for the Bayesian explanation of research.
- Ethics: giving placebo?
- Exclusion criteria?
- Power, sample size?

Final suggestion and pedagogical hint: do not throw away the idea, suggest the student to organise a small pilot observational study.

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5. What are problems/facts/points of interest we face in the supervision/coaching process?

Two interactive rounds are proposed:

- What are the problems/facts students face (yourself as student also)?
- What are problems/facts from the point of view of supervisors?

5.1. *Participants' discussion*

5.1.1. From the point of view of students

Supervisor related

Imposed topic, imposed involvement in the research of the supervisor.

Supervisor's competence

Availability of supervisors

Communication skills

Criticising without discouraging

Differences in quality and devotion of supervisors

Concordance between co-supervisors

Lack of flexibility, thus rigidity

Ownership, lack of formal agreement about ownership of the process.

Student related

Finding a topic:

- rationale,
- feasible,
- having impact,
- visibility,
- intellectual and emotional capacity of student.

Literature review:

- access
- skill to do review

Formulating ideas
Convert ideas to writing
Appropriate methodology, analysis
Time constraints; “**master or mister**” (science or family: divorces!)
The process of thesis is unstructured and individualized
Grammatical problems
Reading and interpreting articles
Difficulty to find funding
Different supervisors have different idea
Inappropriate feedback
Discouraging feedback
Fear to meet supervisor

5.1.2. From the point of view of supervisors

Student related

Different expectations
Wasting time to answer similar questions from various students
Lack of knowledge regarding methodology or topic
Lack of student research training
Overdependence of students
Weakness of students
Cultural problems
Different types of students
Numbers of students per supervisor

Supervisor related

Unclear roles of supervisor: e.g.

- should supervisor correct the grammatical errors?
- Writing yourself?
- Where does coaching stop?

How to provide constructive feedback
To give empathy to students
Defensive style
No standardization of supervision

Monitoring student's progress: no culture for this, no standardization

Lack of experience in publication

Supervisor doesn't know the differences between the standards for projects of undergraduate, postgraduate and PhD students.

Lack of introspection, knowing oneself. 'Superhero'.

Egocentrism/egoism of supervisors

Lack of supervision training

Over responsibility

Authoritarian

Bad communicator

Lack of time/weak commitment

No reward for supervision

5.2. From the literature⁴ (collected by Govert van Heusden)

5.2.1. Thesis start

how best selecting / recruiting a student

what is important during the first meeting (starting on a solid base)

what if student doesn't conceptualize or theorize at the right level

how to manage a group of students (joint thesis work)

5.2.2. Follow up

Positive evolution

the role of the supervisor is more or less "midwifing" the thesis, via good mentorship.

how to follow the evolution of student's motivation, objectives and needs

how to deal with cultural differences

Negative evolution

what if you suspect the student of plagiarism

what if student is always late and presents the bare minimum of work

how to handle students facing a burn-out

student doesn't do the work as repeatedly asked and agreed upon

⁴ Source: Anne Lee, 2012, *Successful Research Supervision*, advising students doing research. Routledge, New York.

student manipulates data well, but cannot construct an argument
what if the student doesn't conceptualize or theorize at the right level
what if the student is too dependent on the supervisor
what if the student doesn't write
what if the student doesn't write well (structure/language/typing)
what with an overconfident student

5.2.3. Assessment

how to prepare students for their assessment (criteria)
how to prepare students for presentation
how to prepare students for answering questions after their presentation

5.2.4. Conflict between learning focus and product focus?

Is a master thesis an end or a means? Product or/and process?
If highly focused on publication: high conflict.
Depends on the aims of the supervisor and the student.
If there is no final mark of the learning process: need for it?
Depends if the supervisor can mark himself, because he is the only one who knows the learning process.
The product might be the same, but the learning gain might be different.

5.3. *Anne Lee's framework of research and approaches to supervision*

Anne Lee distinguishes four approaches to supervision: functional, enculturation, critical thinking, emancipation. Each has different goals, and relates to different conceptions of research.⁵



Links to conceptions of research

(Brew 2001, Lee 2008)

	Functional	Enculturation	Critical Thinking	Emancipation	Relationship Development
	DOMINO	TRADING	LAYER	JOURNEY	
IN THE FORE-GROUND IS:	Solving problems in a linear fashion	Publications, grants, social networks	Data is linked together with hidden meanings	Personal existential issues, linked to career	
RESEARCH IS:	Process of problematising or solving problems	A market place for exchanging ideas	Discovering hidden meanings	A personal transformative journey	



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- ⁵ A. M. Lee, University of Surrey Guildford, United Kingdom. e-mail: a.lee@surrey.ac.uk. Developing effective supervisors: Concepts of research supervision. South African Journal of Higher Education 2007 pp 680-693. Unisa Press ISSN 101-3487 SAJHE 21
 - M. Lee, How Can a Mentor Support Experiential Learning? Clinical Child Psychology and Psychiatry Vol 12 (3): 333-340

She described presents the following framework with the different approaches to supervision. (functional, enculturation, critical thinking, emancipation). She adds an analysis of relationship aspects of thesis supervision.

A framework for concepts of research supervision

	Functional	Enculturation	Critical Thinking	Emancipation	Relationship Development
Supervisors Activity	Rational progression through tasks	Gatekeeping Master to apprentice	Evaluation Challenge	Mentoring, supporting constructivism	Supervising by experience, developing a relationship
Supervisor's knowledge & skills	Directing, project management	Diagnosis of deficiencies, coaching	Argument, analysis	Facilitation, Reflection	Managing conflict Emotional intelligence
Possible student reaction	Organised Obedience	Role modelling, Apprentice-ship	Constant inquiry, fight or flight	Personal growth, reframing	A good team member. Emotional intelligence

A. Lee (2012)

6. Why do universities impose the writing of a thesis?

“Raison d’être” of a master thesis.

Three rounds:

- Was your own thesis writing useful? What did it bring you?
- What is the added value of theses for a supervisor?
- What is the interest of universities or governments in imposing thesis? At three levels?

6.1. *General: reach a higher level of learning*

- Synthesise (is different from summarizing!)
- Going in depth
- Critical thinking: (structured thinking?)⁶

6.2. *Two types of master thesis: practical professional vs. scientific academic*

6.2.1. Academic type

- Preparing for research
- Joining and shape academic life: enculturation (see Anne Lee p 16)
- Generation of new knowledge
- Impact on public health
- Thesis as a germ for further research
- Step up to PhD: “emancipation” (see Anne Lee ibidem)
- Learn how to get funding

6.2.2. Professional type

- To train critical professionals

⁶Daniel Kahneman distinguishes two types of thinking: intuitive and fast, versus analytical or structured and slow. See his book “Thinking fast, and slow” (2011).

- Problem solving in a scientific way
- E.g. to understand EBM

6.3. Cui bono? (For whom is it an advantage?)

6.3.1. University point of view

Publishing gives standing: measure the university's performance nationally and internationally

Important step up for funding: from government, from industry, from donors.

Results useful for department of public health and ministry of health.

6.3.2. Supervisor point of view

- Students help publish:
 - career of supervisor
 - scientific authority
- Supervisors get financial incentive per thesis
- Step-up to brilliant PhD students: intellectual fun
- Cheap labour force, scientific slavery
- Satisfaction with success
- Find projects
- "Parental" proud
- Loyalty
- Recognition as a good teacher
- Opportunity to learn/keep updating/improve knowledge and skills
- To broaden the networking with alumni

6.3.3. Student's point of view

Helps their career

Something to be proud of, personal achievement

Step-up for publication. To learn how to write and publish.

To learn how to work independently

To see the link between research and reality; discovering the notion of "impact"

To answer a problem using structured, systematic way of thinking

To gain experience in organizing or managing research

To learn how to get funding

Finally: “many students hate it”

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7. What are issues/problems of the first encounter?

- Which issues mainly play at the start?
- What is the best way to start/initiate a supervision relationship?
- Secondary questions:
 - What should/could be agreed on in the first meeting?
 - How would you define an excellent master student or thesis?

First encounter is of utmost importance. It is an opportunity to create a relation

Exploring the student's context

- background
- level
- horizon
- interest
- expectations:
 - product,
 - learning objectives,
 - career objectives (future)

Exploring topic

- type of work
- later impact of results
- financial issues
- time constraints
- intellectual feasibility

Exploring the supervision

- Management: who does what, timing, need for written supervision agreement?
- Guidance: assessment of product and process? Special learning needs (lack of certain prerequisites for doing the research)?

8. What are issues/problems/pitfalls of follow up?

- How should follow-up be organized? (form)
- How to solve problems of follow up?
- Are there alternatives to the classical one-to-one supervision?

8.1. *From participants*

8.1.1. Supervision

Not easy to generalise:

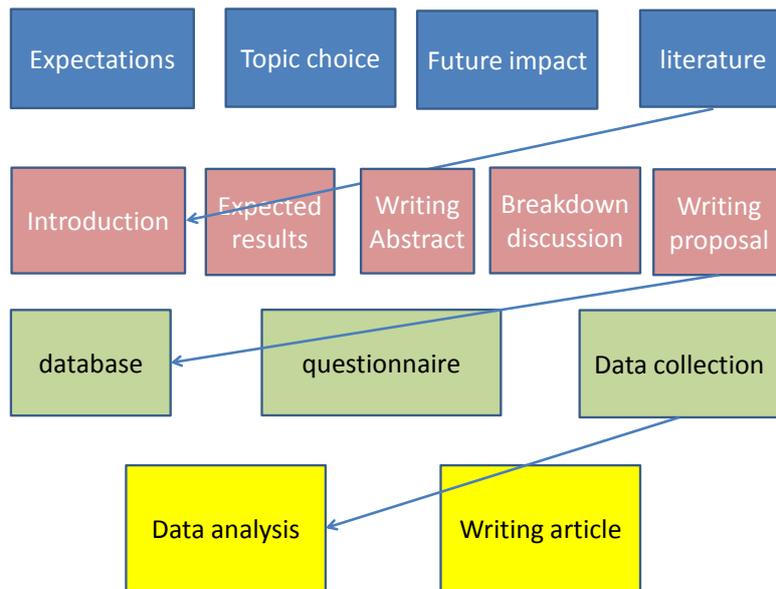
- Students are different.
- Scope of thesis is different
- Topics are different
- Tight schedule is not ideal
- In case of slow progress, or burnout: chop up the work in different steps
- Self-reflection/assessment
- What if supervisors do not agree between them: organize seminars, where students present from time to time, with different supervisors. Disagreement can be discussed in a larger group: group supervision, peer-learning.⁷

8.1.2. research conduct:

- Invest as much time in protocol development as in collecting data
- Reverse conduct:
 - expected results should be mercilessly reviewed,
 - objectives, methodology and even title adapted to this review.
 - this review is the basis for the discussion, especially the “weaknesses chapter”.
 - doing this, introduction and discussion are almost written before the research is carried out.

See proposed flow below.

⁷ (Dysthe, 2006)



8.2. From literature (see also paragraph 5.2.2, p14)

8.2.1. Catholic University of Leuven (KUL) suggestions for supervisors

Agenda of the meeting is discussed

Student **explains progress and compares to planning**: First question “What do you want to learn (today)?”

Handed-in **documents are revised and discussed** (use of interim reports – see literature).

Be a coach / mentor: ask questions, don’t correct

How is **feedback given** (content? oral, written? timely?).

How often will the full document be read, when does supervision formally stop – 14d before deadline?

Supervisor **suggests next steps**?

Next meeting **date is agreed**

8.2.2. From ITM coaching workshop with Kaat Delrue, from UGhent:

- Agree on who owns the process?
- When do we speak of real interaction (here and now situation, e.g. is the supervisor listening carefully)?
- Are the assessment criteria guiding the process?
- How do we know we are talking about the real issues (avoid “coaching on the iceberg”)?
- Is context taken into account (professional context, social and cultural issues...)?

9. How do we organise thesis assessment?

Two rounds may facilitate the interaction:

- How should we assess the student: what is organized now, and how should it be ideally?
- How could we assess the learning process?

9.1. General

Both formative and summative?

Process criteria:

Collaboration with supervisor/colleagues

Independency / autonomy

Did the student take initiative?

Was the student a source of ideas?

Global or analytic use of criteria for evaluation, or mix?

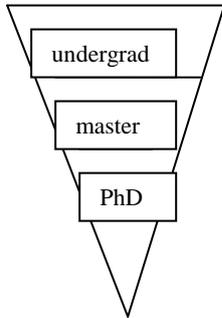
- Criteria and Rubrics? Different weights (oral defence vs manuscript vs learning process)? standards?
- Assessment in line with course and thesis aims and objectives?
- Quality of assessment (validity, reproducibility, transparency / acceptability)
- Written motivation/feedback of summative evaluation?
- Evaluation per individual student?
- Who assesses? Supervisor informs other assessors about students' autonomy (process)?
Negotiated mark?
- Some peer or self-assessment? Based on rubric?

9.2. Content

- Literature: complete; balance or just?
- Novelty
- Making a reasonable hypothesis
- Logical structure
- Critical thinking, reflected especially in the discussion

- Inference possible? Result applicable in other situations?
- Impact

The “Miisa Nanyingi figure”: the depth of the research depends inversely on the level of the thesis.



- Did the student take initiative?
- Was the student a source of ideas?

9.3. Defence

- Oral defence or equivalent? (plagiarism prevention)
- Presentation balanced etc. appropriate use of media?
- Avoiding questions: accepting criticism yes or no?
- Answering the questions, not aside
- Short and clear.

9.4. Learning process

Level dependent

Critical thinking

Collaboration with the supervisor

9.5. Writing skill

Structure of the text:

- Headings
- Subheadings
- Sequence of paragraphs logical (thanks to removed subheadings)
- Nicely structured discussion:
 - General result
 - Comparison with literature

- Weaknesses
- Impact
- Future research

Logical structure/Coherence:

- Repetitions avoided
- Results not presented the first time in discussion.
- No methods in results
- No introduction in discussion.

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10. Lessons learned from participants' anecdotes

Participants are invited to share a personal anecdote (in the group first, then in plenary) about the experienced supervisor-supervisee relationship. It must be told in the "I"-form, max. 5 min, ending with the reason why the story is told. Personal experience is unique and most valued.

Anecdotes can highlight unexpected aspects of supervision and often illustrate the danger of "coaching on the iceberg".

Time constraint

Importance of student's wider (social) context

Break the ice first encounter

Create but master the chaos

Academic supervisor necessary?

How to match supervisor – student?

Both learning process and quality of outcome are important

Special exploratory meeting for deciding on topic and supervisor?

Many students, few supervisors

Influence institutional context

11. Abstract writing

This part of the workshop can be organised partly by e-learning. Participants write an abstract together, in their respective groups, and send it to the facilitator. The facilitator comments in the classical way, with track changes and comments in the text. The participants have to work out a final version then.

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12. “Merciless reviewing”: example of the method of preparing the discussion by breakdown of a protocol or abstract.

- First round: presentation of a protocol with expected results. The groups analyze, discuss biases and redirect the research, if necessary and possible. Deeper analysis of research question, inclusion, methods, analysis and conclusion
- Second session: An abstract is presented. “Please, imagine you are reviewer for the New England Journal of Medicine, and they ask you to examine and judge this research, in a highly critical, but positive way.”

12.1. *Example of discussion of a protocol (UGM meta-workshop): Can peer-teaching improve the learning process in writing a Master thesis?*

Title:

Can peer-teaching improve the learning process in writing a Master thesis?

or

Comparison between the use of peer-teaching and conventional thesis supervision to improve the learning process in writing Master thesis

Objectives:

To compare the confidence level, motivation, higher order thinking and the quality of thesis protocol between students who join peer-teaching and those who join conventional thesis supervision

To study the experiences after peer-teaching and conventional thesis supervision

Hypothesis

Students who join peer teaching will have higher scores on the confidence level, motivation, higher order thinking and the quality of thesis protocol than those who join conventional thesis supervision.

Methodology:

Subject:

Full time master students:
who already joined research methodology course
who are doing master thesis

Design: Quasi Experiment pre –post with control group

Step 1 Design:

Quasi Experiment pre –post with control group

Experiment group

Pre test Peer teaching + group supervision Post Test

Control group

Pre test Conventional Supervision Post Test

Peer teaching + group supervision:

Students will be divided into smaller group based on their interested area (3-5)

They meet with the peer group one in every two weeks for 90 minutes.

During the meeting each teaches the others what they have learnt regarding the topic and the methodology

In the first week there will be a meeting to make a planning for the whole semester, one facilitator will facilitate the proses. They have to decide what topic they will teach to others in every meeting

The groups were also scheduled to meet the assigned supervisor once a month

Pre-Post Test

Pre Test

- The confidence level questionnaire
- Motivation questionnaire
- Higher order thinking questionnaire

Post test

- The confidence level questionnaire
- Motivation questionnaire
- Higher order thinking questionnaire
- The quality of thesis protocol

Step 2 Design

Focused-group discussion for both groups to explore the experience during thesis supervision

Statistic

Paired T-Test to see the difference between pre and post-test in a group

Unpaired T-Test to see the difference between the two groups

12.1.1. Discussion

Student inclusion bias

- Topic centred: equity between learning opportunity between topics: randomness quasi impossible
- Some topics enhance to self-confidence, others the opposite.
- Some topics attract self-confident students
- Cross over??

Supervisor bias

- Same capacity
- Enthusiastic supervisors go to peer?
- Researchers also in peer?

Supervision bias

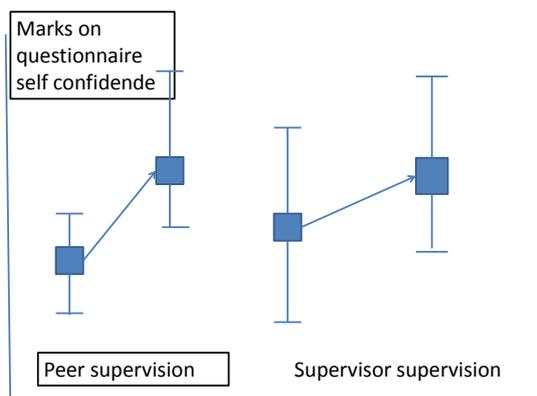
- Investment time different!

Analysis

- Comparison in IQ in pre-test?
- Comparison pre-test level?

Presentation

- Comparison baseline for students and supervisors
- Evolution should be shown
- Scale of evolution? If no equal starting point, judgment impossible, due to scale of self confidence. Such a scale might be logarithmic, instead of linear.



12.2. Example (UGM Meta-workshop) of merciless reviewing of an abstract.

Title: Risk factors of Smear Positive Pulmonary TB among prison inmates in Jakarta, Indonesia

12.2.1. Background:

Indonesia is a high Tuberculosis (TB) burden country with a prevalence of 115/100,000. Studies in other countries have shown that the prevalence of pulmonary TB (PTB) cases among prison population is higher than the general population with varying risk factors. This implies the evidence is still inconclusive and possibly context specific. This study aims to measure the prevalence of PTB cases among prison inmates in Jakarta and explore risk factors.

12.2.2. Method:

A cross-sectional survey has been carried out among the prison population in Jakarta province, which contributes the majority of prison inmates in Indonesia. All prisons and inmates aged 15 and above were screened after informed consent for persistent cough. Data on sputum microscopy, gender, age, body mass index, duration of incarceration, smoking status, previous history of PTB and history of contact with TB patients were collected. Inmates were also offered HIV testing. Univariable and multivariable logistic regression analysis were used.

12.2.3. Result:

Out of 7,700 inmates, 7,000 inmates signed the informed consent, of which 700 had persistent cough and 70 were diagnosed with PTB (0.010; 95%CI 0.003-0.015). In multi ... The risk factors that were significant were smoking status (OR 1.75; 95%CI 1.23-2.53) and HIV status (OR 6.12; 95%CI 3.67-8.52).

12.2.4. Conclusion:

The prevalence of PTB among prison inmates is higher than in the general population. HIV and smoking status are risk factors for PTB among prisoners. There is a need for enhanced TB infection control in prisons, with a special focus on HIV positive and smokers.

12.2.5. Discussion: weaknesses

- causality: is the association indicating absolute causality? Or prediction? Or hazard?
- why only smear positives?

- Answer:

Contagiousness

Argument: if we consider also smear negatives, and extra-pulmonary, the prevalence would be even higher.

-Environmental risks not evaluated??

Environment similar: all overcrowded, unless we would consider prisons with classes of prisoners, paid by corruption.

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13. What would you suggest for improving thesis quality and supervision in the future?

(Example: at UGM)

13.1. Regulation

- Criteria for acceptance as supervisor
- Willingness to supervise: scholars should not be forced to supervise.
- Contract between supervisor and university
- Limitation of number of students per supervisor. But master plan necessary, otherwise some students are left out!
- Selection of master students! Criteria before entering the program.
- Give time for supervision

13.2. Training of supervisors

- Research methodology
- Supervision techniques
- Training of trainers to facilitate supervision workshops
- Linked network involvement

13.3. Miscellaneous

- Coordinating “Power” team for supervision: a group of scholars who guide the supervision in a faculty.
- Training in writing
- Seminars: students and supervisors once a month
- Master in nursing: associate domain specialist?
- Make new culture: stress thinking and learning, not product

14. Appendix 1: Models and rules of interactive teaching

With a little help from Socrates

14.1. Principles

14.1.1. Principles : learning

- We retain
- 10% of classical courses
- 20% of audio-visual courses
- 0% of audio-visual courses if we have to darken the room (everybody sleeps or is sleepy)
- 70% of interactive courses
- 90% of what we teach ourselves

14.1.2. Principles : learning by doing (talking)

- We learn most when
- We have to think
- Solutions are in relation to what we already know
- We can explain to friends how we see the problem
- We have to report to a whole group

14.1.3. Principles: Socratic method

- Train by asking questions
- “Any slave can discover any great philosophical concept” (Socrates)
- Think of a message or a concept
- Look for an example in real life
- Start with a very open question
- Do not suggest the answer you expect

14.1.4. Principles: Socrates II

- If the answer is completely different from what you expect,
- do not be upset,
- but show you are interested and happy,
- use it in next discussion or future training
- Show that you, yourself,

- take part of the reflexion
- want to learn

14.1.5. Principles: contextualising

- Concepts should be repeatedly contextualised - de-contextualised.
- Start from an example from the real world
- Let participants discover the concept
- Explain in more detail the concept
- Give a new example, in a different context, and ask a different question
- Let participants rediscover the concept
- Re-discuss the content

14.2. Contextualising: example

- Think of the message: how to quantify a predictive or causal relation
- Example: meteorology
 - Discuss and explain odds ratio
- Example: criminology
 - Discuss and explain odds ratio
- Example: medicine
 - Discuss and explain odds ratio

14.3. *The seven rules of speaking in public*

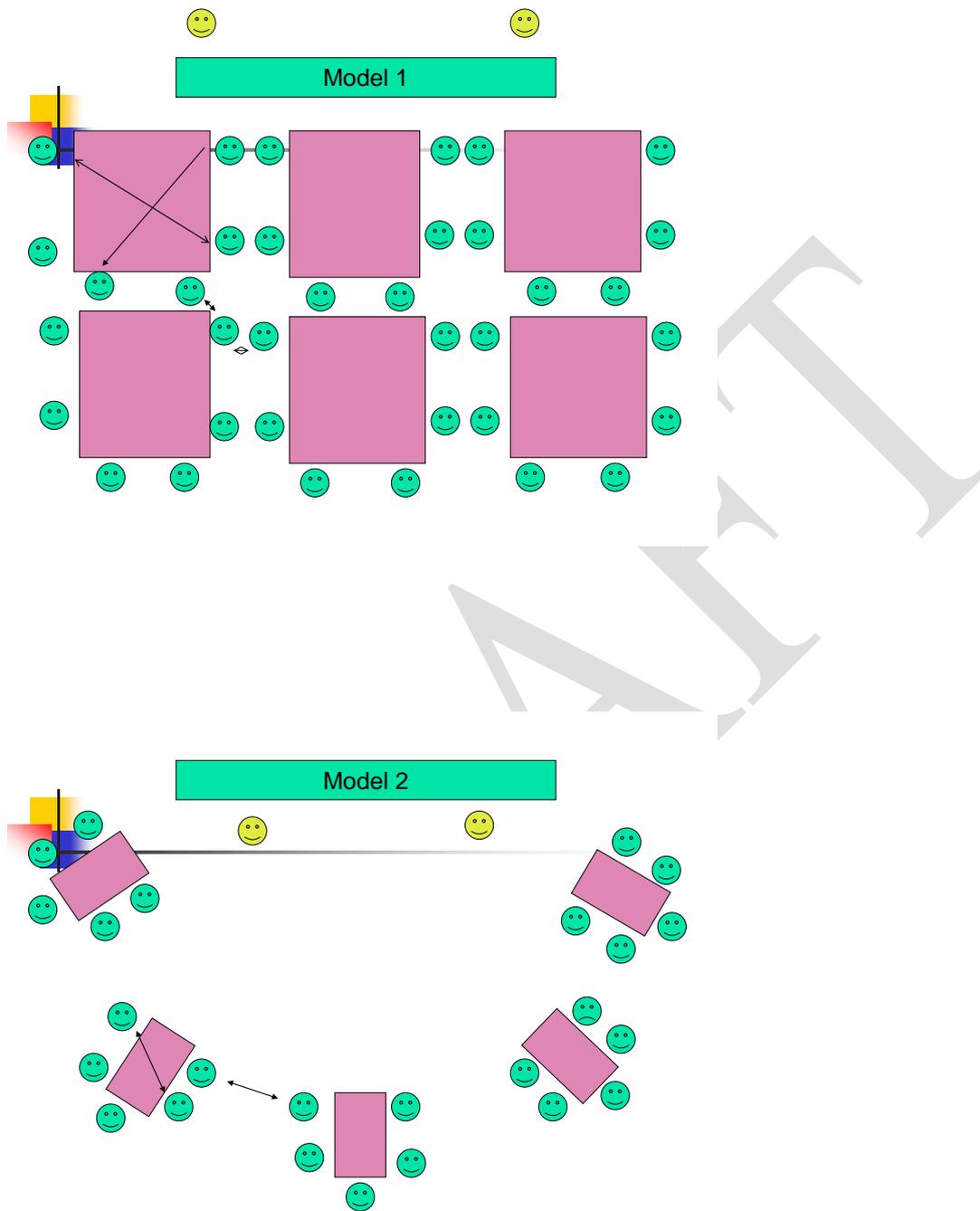
- Always look at the farthest person in the hall
- The bigger the hall, the slower you speak
- No accents, every syllable gets an accent
- “Sing” the flat “e”
- Beware of the thrash
- The end of the sentence is almost no audible any more
- Make short sentences
- Insert rhetoric questions
- (and a joke from time to time)

14.4. *Organising space*

14.4.1. Rules

- Setting the scene is of utmost importance
- Take five to ten minutes to arrange correctly the room
- Ask students to lift tables and chairs, not to shove, push or pull them
- Take into account acoustics
- Halls are rarely to blame
- Learn, teach and apply the seven rules of speaking in public

14.4.2. Two models of space utilisation



14.4.3. Advantages model 1

- Students of one group close to each other
- No need to shout
- Students of one group closer to each other than to students of other groups
- Focusing of discussion within group.
- No distraction by “foreign” neighbours.
- Advantage of former both: no exponential build-up of noise volume.

14.4.4. Additional advantages model 2

- Agora in the centre
- Students can always address the complete group, without having “to go to the wall”
- Tutors are closer to the students
- Tutors can move in the agora, can always address the whole group.
- Role play is possible in the centre

14.5. *Plenary sessions*

- By your asking for discussion in small groups, you favour and create chaos
- So, starting plenary, do not expect chaos subsiding immediately.
- Announce “plenary within two minutes”
- Always make a round to check if every group is more or less ready for plenary

14.6. *Reporting*

- Ask every day for another reporter at each table
- Ask reporters to stand, while reporting.
- Voice intensity increases by 10 to 20 decibels, when standing
- Ask reporters to move to a place where they can address all participants

14.7. *Problems*

- A reporter is not speaking loudly enough
- do not approach him/her.
- instead, go to the completely opposite side of the room,
- ask him/her to repeat until everybody understands what he is saying.
- Do not ask to repeat. Ask to put it in other words. This is less hurting

14.8. Conclusion

- Interactive teaching is
- Effective
- Efficient
- Fun for teachers and students

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15. Appendix 2 Computer aids for supervision

15.1. Ms Word

Ms Word was developed with journalists and scholars, with other text treatment users. For scholars, it might give a real extension of the brain, in the sense that the human brain is limited in overseeing a large construction. Document map or navigating pane is useful, but the “outline” view is a real discovery of Microsoft. It allows quick “reconstruction” of a thesis, even a PhD thesis of several hundreds of pages.

Also for the communication with the student, Ms Word offers great tools: the track changes option, the insertion of comments with different colours per supervisor, the merge option: all badly needed instruments for modern supervision.

15.1.1. Writing tools

Headings: insertion allows the following functions:

- outline
- document map,
- table of content
- automatic numbering of chapters
- changing the format of all headings with one simple action (e.g., a page break before all heading 1 titles)

Spelling and grammar

Find and replace

Auto correct

Tables (principles)

15.1.2. Supervision

Word count

Track changes

Comments (with change language)

Merge: for working with more supervisors in parallel

15.2. Ms Excel

Often we want to have a look at the database, and have first impressions. When the database is huge, it might be difficult to have an overview. Several tools of Excel can help a researcher or a supervisor to get a look in the black box of statistics. Many of us apply statistics without any knowledge or acknowledgment of what is happening inside. Rapid browsing and outline can give an intuitive apprehension of later formal outcomes.

Basics of statistics, especially the outcomes, are another mystery for many amongst us. Elementary spread sheets can help in understanding odds ratio, relative risk (rate ratio), likelihood ratio, error alpha and beta.

Basics

- Header row
- Arrange, Freeze panes
- Extend, series
- Select, copy, paste, paste special
- Replace

Filters

Insert:

- Sheet
- Row
- Column
- Comments

Format:

- Cell
- Row
- Column
- Conditional formatting (colours, for visibility)

Formulas:

- sum
- countif
- if (to make groups)
- average
- rand
- log10

Overview

- Group and outline
- Sort, three levels
- Formula auditing

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